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The "Uncanny Valley" and the Verisimilitude of Sexual Offenders--Part I: An "Ethorobotic" Perspective

Michael T. Flannery

University of Arkansas at Little Rock, mxflannery@ualr.edu

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ARTICLES

THE “UNCANNY VALLEY” AND THE VERISIMILITUDE OF SEXUAL OFFENDERS— PART I: AN “ETHOROBOTIC” PERSPECTIVE

by: Michael T. Flannery*

*“Those who would give up essential liberty, to purchase a little
temporary safety, deserve neither Liberty nor Safety.”*

– Benjamin Franklin¹

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I. INTRODUCTION

Benjamin Franklin’s familiar slogan presents a bit of an uncanny paradox in that, when reflected upon itself, its opposite meaning may present an equal truth. As Law Professor Eugene Volokh noted, “One can just as well say, ‘Those who would give up essential Safety, to purchase a little temporary Liberty, deserve neither Liberty nor Safety.’”² Professor Volokh determines that

* Associate Dean for Academic Affairs, Judge George Howard, Jr. Distinguished Professor of Law, University of Arkansas at Little Rock, William H. Bowen School of Law.

1. Benjamin Franklin, *Pennsylvania Assembly: Reply to the Governor*, NAT’L ARCHIVES (Nov. 11, 1755), <https://founders.archives.gov/documents/Franklin/01-06-02-0107> [https://perma.cc/MU7A-ACYC].

2. Eugene Volokh, *Liberty, Safety, and Benjamin Franklin*, WASH. POST: THE VOLOKH CONSPIRACY (Nov. 11, 2014), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/11/11/liberty-safety-and-benjamin-franklin/?utm_term=.1f4456e565a4 [https://perma.cc/UR9A-B873].

the analysis has to acknowledge that we must sometimes sacrifice some liberty in order to protect ourselves, and thus has to focus on the specifics of each proposal—the magnitude of the loss to liberty, the magnitude of the gain to safety, the alternative means that might yield a better trade-off, and so on—rather than on broad generalities about liberty and safety in the abstract.³

And so it is in the context of determining public policy with respect to the civil commitment of sexual offenders.⁴ If asked, “May state governments infringe upon the liberty interests of an individual sexual offender who poses a high risk of recidivism, to protect the safety of countless innocent potential victims?,” presumably, most would respond, “*Of course.*” But if asked, “May state governments impose indeterminate restrictive confinement on thousands of inmates who have completed their criminal sentences and who will pose minimal risk to society if released from their completed incarceration?,” presumably, the response would be, “*No.*”⁵ Yet the questions present a paradox of interests. As Professor Volokh concludes, the real work in solving this paradox lies in “the decision about what aspects of liberty are essential, and how much safety is at stake. [Franklin’s] slogan might work as a reminder not to make foolish tradeoffs, but the real difficulty is in deciding which tradeoffs are wise and which are foolish.”⁶ However, until we can accurately assess this tradeoff in the context of the civil commitment of sexual offenders, Franklin’s admonition is “simply a truism that at most calls on us to carefully measure how much we’re giving up and how much we’re getting in return.”⁷

To that end, consider that, as of 2019, in the context of the civil commitment of sexual offenders, twenty states and the District of Columbia have measured this tradeoff and balanced it in favor of enforc-

3. Eugene Volokh, *Liberty vs. Security*, VOLOKH CONSPIRACY, (June 6, 2002, 7:40 AM), http://volokh.com/2002_06_02_volokh_archive.html#85145653 [<https://perma.cc/LP36-JS6S>].

4. “Civil commitment” is the state- or federally-imposed statutory construct for involuntarily confining to a secured facility persons convicted of qualified sexual crimes who have completed their criminal incarceration, but whom a court has determined to suffer from a qualified diagnosed mental or personality disorder that makes the individual likely to commit future acts of sexual violence, and who poses a serious risk of committing another sexually violent predatory crime if not treated in a secure setting. *See generally* MICHAEL T. FLANNERY & RAYMOND C. O’BRIEN, *THE SEXUAL EXPLOITATION OF CHILDREN* 780–806 (2016) (discussing civil commitment). Individual federal and state statutes define the qualifying sexual crimes and mental disorders that satisfy the respective statutes; accordingly, specific qualifications for civil commitment vary among jurisdictions. *See infra* notes 8–10 and accompanying text.

5. “[C]oncerns about public safety cannot justify policies that impose serious burdens on entire categories of individuals when many of them actually present little risk. . . .” Ira Mark Ellman & Tara Ellman, “*Frightening and High*”: *The Supreme Court’s Crucial Mistake about Sex Crime Statistics*, 30 CONST. COMMENT. 495, 506 (2015) (discussing sexual offender registry requirements for juvenile offenders).

6. Volokh, *supra* note 3.

7. *Id.*

ing civil commitment laws against sexually violent offenders.⁸ At the federal level, the Adam Walsh Child Protection and Safety Act of 2006 governs the civil commitment of sexually violent persons.⁹ Although all civil commitment programs ideally have the same dual purpose—to protect society from, and effectively treat, sexual offenders who pose a significant risk of recidivism if not committed to a locked facility—states vary quite significantly in their approaches to assessing and treating sexual offenders so that eventually they may be released from commitment and successfully reintegrated into the community.¹⁰

For example, Minnesota and Missouri are two states that have enforced civil commitment laws since 1994 and 1999, respectively. Combined, these two states have retained custody of over 1,500 sexual offenders who have been civilly committed to these state programs to receive treatment before reentering their communities. However, from the time these programs began until 2015, there had not been a single civilly committed sexual offender who had successfully completed either program and had been released to reintegrate into the community. Consequently, civilly committed sexual offenders have brought litigation in these and other states claiming qualification for release and a variety of other issues.¹¹ Such litigation has highlighted

8. These states include: Arizona, California, District of Columbia, Florida, Illinois, Iowa, Kansas, Massachusetts, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Pennsylvania, South Carolina, Texas, Virginia, Washington, and Wisconsin. See ARIZ. REV. STAT. §§ 36-3701 to 36-3717 (2018); CAL. WEL. & INST. CODE §§ 6600–6609.3 (West 2010 & Supp. 2019); D.C. MUN. REGS. tit 22, §§ 4001–4017 (LexisNexis 2012 & Supp. 2018); FLA. STAT. ANN. §§ 394.910–394.932 (West 2018); 725 ILL. COMP. STAT. ANN. §§ 207/1–207/99 (Supp. 2018); IOWA CODE ANN. §§ 229A.1–229A.16 (West 2014); KAN. STAT. ANN. §§ 59-29a01–59-29a21 (West 2017); MASS. GEN. LAWS ANN. ch. 123A, §§ 1–16 (West 2017); MINN. STAT. ANN. §§ 253B.001–253B.24 (West 2015); MO. ANN. STAT. §§ 632.480–632.560 (West 2014 & Supp. 2019); NEB. REV. STAT. ANN. §§ 71.1201–71.1228 (West 2017); N.H. REV. STAT. ANN. §§ 135-E:1–135-E:24 (LexisNexis 2015); N.J. STAT. ANN. §§ 30:4-27.24–30:4-27.38 (West 2008); N.Y. MENTAL HYG. LAW §§ 10.01–10.017 (McKinney 2013 & Supp. 2018); N.D. CENT. ANN. §§ 25-03.3-01–25-03.3-24 (West Supp. 2017); 42 PA. STAT. AND CONS. STAT. ANN. §§ 6401–6409 (West 2013); S.C. CODE ANN. §§ 44-48-10–44-48-170 (2017); TEX. HEALTH & SAFETY CODE ANN. §§ 841.001–841.007 (West 2017); VA. CODE ANN. §§ 37.2-900–37.2-921 (2014 & Supp. 2018); WASH. REV. CODE ANN. §§ 71.09.010–71.09.9903 (West 2014 & Supp. 2019); WIS. STAT. ANN. §§ 980.01–980.14 (West 2007 & Supp. 2018).

9. Adam Walsh Child Protection and Safety Act of 2006, Pub L. No. 109-248, 120 Stat. 587 (2006).

10. In *Kansas v. Hendricks*, the United States Supreme Court characterized the confinement of sexual offenders as civil, not criminal, in nature. *Kansas v. Hendricks*, 521 U.S. 346, 369 (1997). *But see* Arielle W. Tolman, *Sex Offender Civil Commitment to Prison Post-Kingsley*, 113 N.W. U. L. REV. 155 (2018) (arguing that the United States Supreme Court’s holding in *Kingsley v. Hendrickson*, 135 S. Ct. 2466 (2015), supports a determination that confinement in civil commitment may be deemed punitive in nature based upon the conditions of confinement).

11. See, e.g., *United States v. Welsh*, 879 F.3d 530, 538 (4th Cir. 2018) (holding federal civil commitment order still valid despite vacation of underlying federal conviction); *United States v. Comstock*, 627 F.3d 513, 515 (4th Cir. 2010) (holding, after

the ineffectiveness of the programs and the questionable constitutionality of the procedures used to assess, treat, and reintegrate sexual offenders.

Based on this litigation, for civil commitment strategies to be applied constitutionally, state programs must be effective in treating civilly committed sexual offenders so that the offenders eventually may be released from their commitment and reintegrated safely into the community. To do this, every state must address the flaws in the procedures used for committing, treating, assessing, and releasing civilly committed sexual offenders. This may include: (1) reevaluating the process and criteria by which the state recommends civil commitment for prisoners who have completed their criminal sentences for committing sexual crimes; (2) providing civilly committed sexual offenders with timely and effective treatment designed to actually treat the individual offender and prepare the offender for release and reintegration into the community and not just to remove the offender from the community indefinitely; (3) providing services to sexual offenders who are released from civil commitment so they may have an opportunity to locate housing, become employed, and participate in continued treatment; and (4) adequately addressing not only the safety of the communities into which sexual offenders are released but also addressing the public's perception of sexual offenders and their risk of recidivating upon reintegration into the community.

Currently, this is not happening. Nor is this *likely* to happen—even for sexual offenders who are evaluated with the most modern assessment techniques, who successfully complete treatment, and who are released from civil commitment with a low risk of recidivism and the maximum constitutionally allowable restrictions on their freedom. Even then, the public will be resistant to, and will categorically oppose, the reintegration of sexual offenders into the community. It would *appear* that society is truly invested in civilly committing sexual offenders so that they can receive the treatment they need to be re-

remand from Supreme Court, civil commitment evidentiary standard constitutional in light of prior decisions distinguishing civil and criminal proceedings); *Brown v. Waters*, 599 F.3d 602, 603 (7th Cir. 2010) (affirming denial of writ of habeas corpus by civilly committed sexually violent predator (“SVP”) based on diagnosis); *McGee v. Bartow*, 593 F.3d 556, 581 (7th Cir. 2010) (dismissing habeas corpus petition by civil committee claiming diagnosis violated constitutional rights); *Willis v. Palmer*, No. C12-4086-MWB, 2018 WL 3966959, at *24 (N.D. Iowa 2018) (dismissing civil rights lawsuit challenging constitutionality of continued civil commitment in light of *Karsjens* decision); *Ireland v. Anderson*, No. 3:13-CV-03, 2017 WL 1089333, at *2 (D.N.D. 2017) (finding state civil commitment scheme “unconstitutional on its face because it does not require that the defendants initiate court proceedings for release of individuals who no longer meet SDI criteria.”); *California v. Superior Court of L.A. Cty.*, 238 Cal. Rptr. 3d 14, 40 (Cal. Ct. App. 2018) (finding seventeen-year delay for civil commitment trial violated right to speedy trial); *see also Pennsylvania v. Butler*, 173 A.3d 1212, 1213 (Pa. Super. 2017) (finding unconstitutional state statutory scheme providing for clear and convincing evidence to justify enhanced sentence as SVP because of criminal nature of punishment).

leased safely into the community without committing future sexual crimes. Nearly half of the states invest millions of dollars every year to construct facilities to house such offenders and to provide treatment and services for this to occur.¹² However, *in reality*, instead of being treated and released, sexual offenders are being detained indefinitely in locked facilities, often with no hope or possibility of release. This Article explores the possibility that the system may be designed this way because of society’s universalized perception of sexual offenders—even those who successfully complete treatment—as incurable, recidivistic monsters.¹³

This Article is the first in a series of three articles in which I explain the cycle of misperception of sexual offenders that has encouraged the unconstitutional application of sexual offender laws, including civil commitment laws, in a false effort to quell public fear, protect children, and reduce sexual victimization. In this first Article of the series, I propose that this cycle of misperception and the resistance to the release of civilly committed sexual offenders may be, in part, the product of a novel phenomenon known as the “uncanny valley” effect.

In 1970, the Japanese roboticist, Masahito Mori, hypothesized that the “uncanny valley” identifies a paradoxical phenomenon that occurs to one’s affinity for nonhuman stimuli representing progressively human-like qualities.¹⁴ This hypothesis predicts that people generally will have favorable reactions to the progressive development of human-like characteristics in artificial stimuli, such as dolls and robots, but will be left unsettled by the fully developed but not fully human likeness that ultimately results. Thus, a subject’s affinity for a robot increases as the robot becomes more human-like. However, there

12. *Sex Offender Confinement Costing States Too Much*, CBS NEWS (June 22, 2010), <https://www.cbsnews.com/news/sex-offender-confinement-costing-states-too-much/> [<https://perma.cc/8VFP-P68B>] (describing quandary for lawmakers who must cut costs but do not want to appear soft on sexual offenders).

13. See generally John Douard, *Sex Offender as Scapegoat: The Monstrous Other Within*, 53 N.Y.L. SCH. L. REV. 31, 32 (2008–09) (arguing that psychologists and psychiatrists create frameworks that categorize sexual offenders as undeserving of certain legal and moral rights).

14. Mori’s original essay was first published in Japanese. See Masahito Mori, *Bukimi No Tani (The Uncanny Valley)*, 7 ENERGY 33 (1970). The first authorized English translation of Mori’s essay was published in 2012. See Masahiro Mori, *The Uncanny Valley*, 19 IEEE ROBOTICS & AUTOMATION MAG. 98, 98–99 (trans., Karl F. MacDorman & Norri Kageki June 2012) (1970), https://pdfs.semanticscholar.org/30b2/56f24fee21029c5e63d396b9e737f21f7764.pdf?_ga=2.152970042.242619994.1549312809-1619334946.1549312809 [<https://perma.cc/J2AH-BRMA>] [hereinafter Mori Translation]. Mori’s theory focused on industrial robots and other mechanical devices as subject stimuli, although other technological innovations, such as prosthetic limbs and anthropomorphic robots, were already developing. As a theoretical hypothesis, the concept became more contemporarily topical with the advancement of computer-animation technology. Jari Kätsyri et al., *A Review of Empirical Evidence on Different Uncanny Valley Hypotheses: Support for Perceptual Mismatch as One Road to the Valley of Eeriness*, FRONTIERS PSYCHOL. 1–2 (Apr. 10, 2015), <https://www.frontiersin.org/articles/10.3389/fpsyg.2015.00390/pdf> [<https://perma.cc/V8NF-65XK>].

comes a point at which the nonhuman robot appears *so* human-like that the subject is unable to distinguish it from a real human, and it is at this point that the subject's affinity for the robot reverts sharply to the negative. In this nonlinear relationship between the human likeness of the stimuli and one's affinity for it, the uncanny valley represents the area of transition from positive to negative, which occurs at the point of essential indistinguishability between the fully developed nonhuman stimuli and the fully healthy human.

Despite the novel contextual application of Mori's theory that I propose here, this first Article of this series analogizes the uncanny valley hypothesis within the context of sexual offenders, specifically with respect to the public's perception of sexual offenders as "inhuman" monsters. It is my hope that this hypothesis can be tested empirically. At the conclusion of this three-article series, I propose that if, in fact, the uncanny valley exists in this context,¹⁵ it may be possible for sexual offenders to bridge the uncanny valley and reintegrate successfully into the community, provided there exists a constitutional framework of civil commitment treatment programs that are designed toward this end and are effective. In this first Article, however, I merely conclude that, based on the analogous application of the uncanny valley hypothesis within the context of sexual offenders, it appears that the uncanny valley *does* exist in this context. I conclude, however, that in this context, Mori's original uncanny valley hypothesis, as applied to robotics, must be extended—by applying an ethological perspective¹⁶—to accurately reflect the public's perception of

15. Current studies of the uncanny valley hypothesis are equivocal as to the existence of the uncanny valley in various contexts. See Shensheng Wang et al., *The Uncanny Valley: Existence and Explanations*, 19 REV. GEN. PSYCHOL. 393, 393, 403 (2015) (concluding that "existing evidence neither completely refutes nor corroborates the uncanny valley hypothesis. Whether the uncanny valley exists is still an open question. . . . [I]t is unclear whether the uncanny valley is a real phenomenon or merely a plausible conjecture."). I recommend in the third article of this series that social scientists should undertake to study the studies of the uncanny valley effect and design appropriate studies to test the existence of the uncanny valley within the context of the public perception of sexual offenders. See Michael T. Flannery, *The Uncanny Valley and the Verisimilitude of Sexual Offenders—Part III: Bridging the Uncanny Valley* (forthcoming 2020).

16. Broadly speaking, ethology concerns the evolutionary and genetic significance of a species' adaptive behavior within its natural habitat as a function of survival. Although original ethological theory focused on biological evolution relevant to adaptive behavior, narrower concepts of ethological theory have branched into other disciplines, like behavioral psychology, sociobiology, and human behaviorism. See generally IRENAUS EIBL-EIBESFELDT, *HUMAN ETHOLOGY* (2007) (presenting what is viewed as the first unified overview of ethological theory). Within the context of robotics and human-robot interaction, Mori's hypothesis of the uncanny valley focuses on physicality and human likeness as a function of successful integration of the robot within the "natural habitat" of the human being. Mori concludes that this approach results in the uncanny valley, which can only be avoided by limiting the physicality or human likeness of the robot, thereby minimizing its potential to fully integrate. Instead, an ethological approach focuses on the organism's functionality, rather than its physicality and human likeness, as a measure of successful integration.

sexual offenders and to provide for any realistic hope of sexual offenders bridging the uncanny valley.

Before applying the uncanny valley hypothesis to the context of sexual offenders, we must first recognize and accept the limitations of the theory’s application. Mori’s premise is based in science, and its primary application has been limited to scientific inquiry—specifically in the areas of computer graphics, robotics (especially human–robot interactions), and virtual reality. Mori’s theory has been tested using empirical research and calculable data. However, this Article posits no empirical data relevant to the application of Mori’s theory. Nor is it the purpose of this Article to prove the application of Mori’s theory to sexual offenders or in any way, most certainly, to categorize sexual offenders as some comparable form of robot or as existentially inferior to human beings.¹⁷ Rather, the purpose of this Article is merely to present a hypothesis *about* Mori’s hypothesis of the uncanny valley based on observed parallelisms, which I will describe *infra*. In fact, without such empirical data to support the proof of any scientific application of the theory, the only conclusion I draw here is that there are sufficient parallels for social scientists to study, empirically, the possible effect of the uncanny valley on the public’s perception—and the legal treatment—of sexual offenders. I merely assert that Mori’s hypothesis of the uncanny valley, in the context of sexual offenders, presents as relevant and applicable in many poignant ways that are worth studying. I leave it to the social scientists to design relevant formats and reliable methods for testing the application of this hypothesis in this context. Assuming Mori’s theory of the uncanny valley *is* relevant and applicable to the context of sexual offenders, I propose in this series of articles how the law might consider this effect and constitutionally respond to it so that qualified, low-risk sexual offenders can bridge the uncanny valley and successfully reintegrate into the community in a way that the public not only *perceives* as safe and acceptable but, *in reality*, more effectively reduces recidivism, protects children, and minimizes or eliminates sexual victimization.

In this series of three articles, I will present the relevant context within which I propose the uncanny valley effect exists—the civil commitment of sexual offenders. For purposes of these articles, this process includes everything from the perpetration of a sexual offense to

In Part II, I will describe how the ethological approach is applied to the context of robots (an “ethorobotic” approach). Then, in Part III, I will analogize an ethorobotic extension of Mori’s hypothesis to the context of sexual offenders. I propose that in the context of integrating sexual offenders into the natural habitat or society of fully healthy human beings, an ethological approach maximizes the potential for successful integration by avoiding the uncanny valley.

17. *But see* Judith Levine & Erica R. Meiners, *Are Sex Offenders Human?*, BAFFLER (Nov. 15, 2016), <https://thebaffler.com/latest/sex-offenders-human-levine-meiners> [<https://perma.cc/9947-RZH5>] (criticizing media outlets that dehumanize sexual offenders).

incarceration, assessment, post-incarceration civil commitment, treatment, conditional release, and ultimately unconditional reintegration into the community. Successful reintegration is dependent upon the constitutionality of federal and state legislative responses that attempt to reconcile the dilemma of what to do with sexual offenders upon release. Legislative responses vary—from registration and public notification requirements¹⁸ to housing and employment restrictions,¹⁹ satellite-based Global Positioning System (“GPS”) monitoring,²⁰ social media restrictions,²¹ polygraph testing,²² anti-libidinal interventions,

18. Sexual offender registration requirements exist at the federal and state level. For relevant federal laws, see the Jacob Wetterling Crimes Against Children and Sexually Violent Offender Registration Act, Pub. L. No. 103-322, tit. XVII, subtit. A, § 170101, 108 Stat. 1796 (1994) (codified as amended at 42 U.S.C. § 14071 (2006)) (requiring all states to implement registration and community notification laws (also known as “Megan’s Law”)); Adam Walsh Child Protection and Safety Act, Pub. L. No. 109-248, 120 Stat. 590 (codified at 42 U.S.C. §§ 16913 (mandating registration), 16918(a) (mandating community notification) (2006)) (also known as the Sex Offender Registration and Notification Act (“SORNA”). For a chart showing state compliance with SORNA requirements, see OFFICE OF SEX OFFENDER SENTENCING, MONITORING, APPREHENDING, REGISTERING, & TRACKING, SEX OFFENDER REGISTRATION AND NOTIFICATION ACT (SORNA) STATE AND TERRITORY IMPLEMENTATION PROGRESS CHECK (Dec. 17, 2018), available at <https://www.smart.gov/pdfs/SORNA-progress-check.pdf>.

19. Some states employ residency and employment restrictions that prohibit sexual offenders from maintaining a residence or employment within certain distances from locations where children are likely to congregate, such as schools and daycare facilities. *See, e.g.*, ALA. CODE §§ 15-20A-11 (regarding prohibited residence locations), -13 (regarding employment restrictions) (2017). Municipalities also may enforce local residency restrictions. *See Ryals v. City of Englewood*, 364 P.3d 900, 909 (finding that Colorado law did not preempt city ordinance banning sex offenders from residing within its borders).

20. *See, e.g.*, DEL. CODE ANN. tit. 11, § 4121(u) (2019) (“[A]ny Tier III sex offender being monitored at Level IV, III, II or I, shall as a condition of their probation, wear a GPS locator ankle bracelet paid for by the probationer.”).

21. *See, e.g.*, LA. STAT. ANN. § 15:542.1(D)(1) (2018) (“Any person who is required to register pursuant to the provisions of this Chapter, who is otherwise not prohibited from using a networking website, and who creates a profile or who uses the functionality of a networking website to contact or attempt to contact other networking website users shall include in his profile for the networking website an indication that he is a sex offender or child predator and shall include notice of the crime for which he was convicted, the jurisdiction of conviction, a description of his physical characteristics as required by this Section, and his residential address. The person shall ensure that this information is displayed in his profile for the networking website and that such information is visible to, or is able to be viewed by, other users and visitors of the networking website.”). *But see* *Packingham v. North Carolina*, 137 S. Ct. 1730 (2017) (finding North Carolina statute prohibiting sex offenders from accessing social networking websites violated First Amendment).

22. *See, e.g.*, FLA. STAT. ANN. § 948.30(2) (West 2018) (“Effective for a probationer or community controllee whose crime was committed on or after October 1, 1997, and who is placed on community control or sex offender probation . . . , the court must impose the following conditions of probation or community control: (a) As part of a treatment program, participation at least annually in polygraph examinations to obtain information necessary for risk management and treatment and to reduce the sex offender’s denial mechanisms.”).

including various methods of castration,²³ and the imposition of civil commitment of an indeterminate duration.²⁴ Each individual response may warrant constitutional assessment. For example, the United States Supreme Court has ruled more than once on various aspects of sexual offender registration and notification laws²⁵ and is postured to render a decision reconsidering the constitutionality of the federal Sex Offender Registration and Notification Act (“SORNA”), for which it heard oral arguments in its October 2018 term, in *Grundy v. United States*.²⁶ Although these decisions are limited to their specific holdings on specific responses, the reasoning supporting these decisions may have a direct impact on the constitutionality of the reintegration management policies associated with civil commitment laws.

In Part I of this first of three articles, I will describe the twenty-one jurisdictions that have enacted, and currently enforce, civil commitment laws against sexually violent offenders, which has culminated in litigation in multiple jurisdictions. The litigation in Minnesota²⁷ and Missouri,²⁸ specifically, postured the issue of the constitutionality of such laws on the doorstep of the United States Supreme Court in 2017, but the Court declined to resolve the issue.²⁹ In this Article, I will discuss the effect of the Court’s refusal to resolve the constitutional issue for those states that are affected by the outcome. I assert that this outcome is the product of the uncanny valley phenomenon.

In Part II of this first Article, I will briefly describe the concept of “the uncanny” so that we may understand its relevance to the application of Mori’s hypothesis. I will present the diagram Mori used to conceptualize his hypothesis in the contexts of robotics design and human–robot interactions, and I will discuss the few studies that have

23. See, e.g., CAL. PENAL CODE § 645(b) (West 2019) (“Any person guilty of a second conviction of any offense specified in subdivision (c), where the victim has not attained 13 years of age, shall, upon parole, undergo medroxyprogesterone acetate treatment or its chemical equivalent . . .”).

24. For the states that impose civil commitment on sexual offenders, see *supra* note 8.

25. See, e.g., *United States v. Kebodeaux*, 570 U.S. 387, 399, (2013) (holding that the Sex Offender Registration and Notification Act (“SORNA”) may properly apply under the Necessary and Proper Clause to sexual offenders who already completed their sentences prior to SORNA’s enactment); *Smith v. Doe*, 538 U.S. 84, 105–106, (2003) (holding that Alaska’s Sex Offender Registration Act does not violate the *ex post facto* clause of the United States Constitution); see also *Packingham v. North Carolina*, 137 S. Ct. 1730, 1738 (2017) (holding that North Carolina’s statute prohibiting sexual offenders from accessing social networking websites violated the First Amendment).

26. *United States v. Grundy*, 695 F. App’x 639 (2d Cir. 2017), *cert. granted*, 138 S. Ct. 1260 (2018).

27. *Karsjens v. Jesson*, 109 F. Supp. 3d 1139 (D. Minn.), *rev’d sub nom. Karsjens v. Piper*, 845 F.3d 394 (8th Cir. 2015), *cert. denied*, 138 S. Ct. 106–07 (2017).

28. See *Van Orden v. Schafer*, 129 F. Supp. 3d 839 (E.D. Mo. 2015), *vacated in part on reconsideration sub nom.*, *Van Orden v. Stringer*, 262 F. Supp. 3d 887 (E.D. Mo. 2017), *appeal filed*, No. 17-3093 (8th Cir. Sept. 27, 2017).

29. *Karsjens v. Piper*, 138 S. Ct. 106–07 (2017).

identified the uncanny valley in contexts other than robotics. Based on these studies, in Part II, I will discuss the natural limitations of Mori's hypothesis, and I will demonstrate how the extension of Mori's hypothesis, from an "ethorobotic" perspective, addresses any such limitations in the context of sexual offenders and serves to reconcile the constitutional dilemma surrounding sexual offenders that I discuss in Part I.

In Part III of this Article, I will support the viability of the application of Mori's uncanny valley hypothesis to the context of sexual offenders. I propose that Mori's hypothesis precisely parallels the public's perception of sexual offenders and its simultaneous demand for, but intolerance of, successful sexual offender treatment programs that ultimately provide for the release and reintegration of sexually violent offenders into the community. The purpose of this series, however, is not simply to demonstrate the parallelism of the uncanny valley. Rather, its purpose is to identify the point at which the uncanny valley manifests in the public's perception of treated sexual offenders and, if the uncanny valley is to be avoided, how we might constitutionally bridge the uncanny valley for those offenders who pose minimal or no risk of recidivism so as to safely and effectively reintegrate qualified sexual offenders into the community. I conclude in this first Article that if sexual offenders are to be reintegrated safely and successfully into the community after civil commitment, we must begin to account for the uncanny valley effect as a variable in the equation. More specifically, I conclude that an expanded conceptualization of Mori's uncanny valley hypothesis, as applied within the narrower context of "ethorobotics," is an appropriate perspective with which to apply the uncanny valley hypothesis within the context of sexual offenders. This first Article, therefore, lays the foundation for the second and third articles of the trilogy.

Accepting the analogy of an "ethorobotic" application of the uncanny valley hypothesis within the context of sexual offenders, the second article in this series—*The Uncanny Valley and the Verisimilitude of Sexual Offenders—Part II: Perception Versus Reality*³⁰—will address the verisimilitude of sexual offenders by exploring the various public and professional perceptions of sexual offenders that perpetuate the cycle of false reality that results. These include the perceptions adopted by sexual offenders themselves, as well as the perceptions adopted by the families and victims of sexual offenders, and the public, generally. It also includes the perceptions of therapists and counselors, nurses, sexual offender treatment program support staff, law enforcement, parole personnel, judges, and a variety of other professional influences that play a role in the lives of sexual offenders. Based

30. Michael T. Flannery, *The Uncanny Valley and the Verisimilitude of Sexual Offenders—Part II: Perception Versus Reality* (forthcoming 2020).

on the perceptions and attitudes of all of these constituents, in the second article in this series, I will discuss the distinction between perception and reality *vis-à-vis* the nature of sexual offenders, their risk of recidivism, the effectiveness of sexual offender treatment programs, and the propriety and ultimate constitutionality of sexual offender reintegration management policies. I also will discuss the critical role the media plays in creating and facilitating the cycle of public and professional misperceptions that promotes public fear, demands legislative response, and ultimately undermines the very purpose of sexual offender management policies³¹—to protect children and to reduce recidivism and sexual victimization. Specifically, in the second article, I will discuss the systematic failures of the mental health and legal professions to accurately assess the recidivism risk of sexual offenders and these professions’ reliance on this inaccurate assessment to justify the failure of the systems. This historic and colossal blunder has resulted in the very incommensurable dilemma that the Court is now called upon to remedy, which may result in either the unrestricted release of thousands of sexual offenders into the community, or the continued unconstitutional commitment of thousands of persons who served their criminal sentences for their crimes and successfully completed state-mandated treatment programs but whom a misinformed society simply refuses to tolerate within the community.

Accepting the premise of the uncanny valley hypothesis as presented in this first Article, and the verisimilitude of sexual offenders, as presented in the second article, I present in the third article—*The Uncanny Valley and the Verisimilitude of Sexual Offenders—Part III: Bridging the Uncanny Valley*³²—the possibility of sexual offenders bridging the uncanny valley and successfully reintegrating into society. Social science research on the nature of sexual offenders and the alignment of accurate assessment tools, individualized treatment plans, and effective sexual offender management policies, supports the view that sexual offender reintegration can be successful and constitutionally applied. Accomplishing this, however, requires grappling with the distinction between the perceptions and realities of sexual offenders and educating the public on these distinctions. In the third article, I demonstrate that the media and the law are very slowly—and sometimes reluctantly—beginning to more clearly perceive the truth about the nature of sexual offenders and the cyclical effect of the uncanny valley phenomenon. I consider in the third article whether, with this truth, it is possible for sexual offenders to bridge the uncanny val-

31. The sexual offender management policies I address in the second article include: (1) registration; (2) notification; (3) residency restrictions; (4) GPS monitoring; (5) social media restrictions; (6) polygraph testing; and (7) anti-libidinal interventions and various methods of castration. *Id.*

32. Michael T. Flannery, *The Uncanny Valley and the Verisimilitude of Sexual Offenders—Part III: Bridging the Uncanny Valley* (forthcoming 2020).

ley and successfully reintegrate into society. To accomplish this, we must not only continue to study the effect of the uncanny valley through more advanced scientific research in robotics and human–robot interaction, but we must “study” the studies of the uncanny valley hypothesis itself, including its application in various other contexts, to be able to design appropriate empirical research that is relevant, reliable, and predictive as applied to sexual offenders. The realization of this possibility depends on the public’s and various professionals’ willingness not only to see and accept the truth about sexual offenders but to embrace the uncanny “truthlikeness” of our perceptions of them. I assert in the third article that for society to embrace its perception of sexual offenders and successfully receive sexual offenders into the community, it must be an ethologically integrative perspective with which they are received.

This first of the series of three articles supports the conclusion that the uncanny valley exists, that it is applicable to the context of sexual offenders, and that, with more relevant research focused on the application of the hypothesis from an ethorobotic perspective, Mori’s uncanny valley hypothesis may inform our view of sexual offenders and define the constitutional parameters within which society may receive them. To begin, I will describe the context within which I assert that this extended analogy applies—the civil commitment of sexual offenders.

II. THE CIVIL COMMITMENT OF SEXUAL OFFENDERS

The civil commitment laws that govern sexually violent offenders are relatively new in the United States. Before the earliest part of the nineteenth century, persons with mental illness were warehoused in prisons and shelters, not to receive treatment for their illness but merely to protect the public.³³ By 1824, the first privately funded asylums were established in the northeastern United States, and public institutions arose in the south shortly thereafter.³⁴ By the end of the nineteenth century, state-run asylums had developed across the country, mostly housing those deemed “incurable” and unfit to live in society.³⁵ By the mid-twentieth century, asylums in the United States became bloated with over 550,000 mentally ill persons, thereby providing minimal effective treatment.³⁶ Inevitably, several factors led to an era of deinstitutionalization: (1) The 1950s and 1960s saw a shift toward a focus on patient liberties, including the right to trial, stricter commitment standards, and more judicial decision-making; (2) The creation of federal programs like Medicare and Medicaid prompted

33. Megan Testa & Sara G. West, *Civil Commitment in the United States*, 7 PSYCHIATRY 30, 32 (2010) (providing a history of psychiatric hospitalization).

34. *Id.*

35. *Id.*

36. *Id.*

reconsideration of the cost of institutionalizing the mentally ill; (3) Improvements in antipsychotic medications allowed for outpatient treatment; and (4) The Community Mental Health Centers Act of 1963 facilitated the transitioning of patients from the ineffective inpatient care of psychiatric hospitals to outpatient care in the community.³⁷ All of these factors prompted widespread closure of state hospitals, and by the 1990s, the inpatient psychiatric population had decreased to approximately 30,000 persons.³⁸

Along with deinstitutionalization came a shift in the legal standard for involuntary commitment from a recommendation for treatment to consideration of imminent dangerousness caused by mental illness.³⁹ As states began to adopt this new standard, the United States Supreme Court refined the substantive and procedural parameters of its application. For example, in *O'Connor v. Donaldson*, decided in 1975, the Court held that patients with a mental disorder manifesting known risk could not be confined in an institution against their will “without more,” meaning “without treatment.”⁴⁰ Four years later, in *Addington v. Texas*, the Court required a heightened standard of proof—clear and convincing evidence—for initial involuntary commitment.⁴¹

As the courts continued to define the substantive and procedural standards of commitment, sexual offenders were subject to the mental health standards that applied, but sexual offenses were not specifically targeted. However, in 1989, two known sexual offenders who were on release from civil commitment perpetrated two high-profile, violent crimes in Seattle and Tacoma, Washington.⁴² Thereafter, fearful citizens expressed concern about the laws and procedures relevant to sexual offenders who completed their criminal sentences and were postured for release from prison. In response, Washington passed the Community Protection Act of 1990, which was the first of the existing civil commitment laws enacted in the United States specifically targeting sexually violent predators.⁴³ As discussed *infra*, nineteen other states followed Washington’s lead by adopting similar statutes.⁴⁴

37. *Id.* at 32–33.

38. *Id.* at 33.

39. *Id.*

40. *O'Connor v. Donaldson*, 422 U.S. 563, 575 (1975) (“Mere public intolerance or animosity cannot constitutionally justify the deprivation of a person’s physical liberty.”).

41. *Addington v. Texas*, 441 U.S. 418, 424–33 (1979) (hospitalizing mentally ill appellant for protection of self and others).

42. See Barry Siegel, *Locking Up ‘Sexual Predators’: A Public Outcry in Washington State Targeted Repeat Violent Sex Criminals. A New Preventive Law Would Keep Them in Jail Indefinitely*, L.A. TIMES (May 10, 1990), http://articles.latimes.com/1990-05-10/news/mn-1433_1_sexual-predator [<https://perma.cc/V4AD-AEYQ>] (discussing cases of Gene Raymond Kane, who killed Diane Ballasiotes on Sept. 26, 1988, and Earl K. Shriner, who abducted seven-year-old Ryan Alan Hade, sexually assaulted him, severed his penis, and left him to die).

43. See Community Protection Act, ch. 3, 1990 Wash Sess. Law 12.

44. See *infra* note 46 and accompanying text.

It was not long before persons who were involuntarily committed as sexually violent predators challenged the constitutionality of these statutory schemes. In 1997, in *Kansas v. Hendricks*, the United States Supreme Court upheld the constitutionality of state civil commitment laws, finding that, provided appropriate due process elements are satisfied, such laws do not violate the Constitution's double jeopardy or *ex post facto* clauses.⁴⁵ Since then, as of 2019, there are twenty states, plus the District of Columbia, that enforce civil commitment laws against sexually violent predators.⁴⁶ There is also federal legislation governing the civil commitment of sexually dangerous persons.⁴⁷

The constitutionality of civil commitment laws, specifically with respect to permissibility and the punitive nature of sanctions, has been raised in several federal and state courts, which consistently have upheld the constitutionality of the laws.⁴⁸ However, in more specific contexts collaterally related to civil commitment, such as laws related to

45. *Kansas v. Hendricks*, 521 U.S. 346, 369 (1997).

46. These include: Arizona, California, District of Columbia, Florida, Illinois, Iowa, Kansas, Massachusetts, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Pennsylvania, South Carolina, Texas, Virginia, Washington, and Wisconsin. See ARIZ. REV. STAT. §§ 36-3701–36-3717 (2018); CAL. WEL. & INST. CODE §§ 6600–6609.3 (West 2010 & Supp. 2019); D.C. MUN. REGS. tit 22, §§ 4001–4017 (LexisNexis 2012 & Supp. 2018); FLA. STAT. ANN. §§ 394.910–394.932 (West 2018); 725 ILL. COMP. STAT. ANN. §§ 207/1–207/99 (Supp. 2018); IOWA CODE ANN. §§ 229A.1–229A.16 (West 2014); KAN. STAT. ANN. §§ 59-29a01–59-29a21 (West 2017); MASS. GEN. LAWS ANN. ch. 123A, §§ 1–16 (West 2017); MINN. STAT. ANN. §§ 253B.001–253B.24 (West 2015); MO. ANN. STAT. §§ 632.480–632.560 (West 2014 & Supp. 2019); NEB. REV. STAT. ANN. §§ 71.1201–71.1228 (West 2017); N.H. REV. STAT. ANN. §§ 135-E:1–135-E:24 (LexisNexis 2015); N.J. STAT. ANN. §§ 30:4-27.24–30:4-27.38 (West 2008); N.Y. MENTAL HYG. LAW §§ 10.01–10.017 (McKinney 2013 & Supp. 2018); N.D. CENT. ANN. §§ 25-03.3-01–25-03.3-24 (West Supp. 2017); 42 PA. STAT. AND CONS. STAT. ANN. §§ 6401–6409 (West 2013); S.C. CODE ANN. §§ 44-48-10–44-48-170 (2017); TEX. HEALTH & SAFETY CODE ANN. §§ 841.001–841.007 (West 2017); VA. CODE ANN. §§ 37.2-900–37.2-921 (2014 & Supp. 2018); WASH. REV. CODE ANN. §§ 71.09.010–71.09.9903 (West 2014 & Supp. 2019); WIS. STAT. ANN. §§ 980.01–980.14 (West 2007 & Supp. 2018).

47. The Adam Walsh Child Protection and Safety Act of 2006 governs civil commitment of sexually violent persons at the federal level. See Adam Walsh Child Protection and Safety Act of 2006, Pub. L. No. 109-248, 120 Stat. 587 (2006).

48. See, e.g., *United States v. Comstock*, 560 U.S. 126, 149 (2010) (upholding constitutionality of federal civil commitment statute under Necessary and Proper Clause); *Conn. Dep't Pub. Safety v. Doe*, 538 U.S. 1, 7–8 (2003) (upholding public notification provisions of Connecticut's sex offender registration law); *Kansas v. Crane*, 534 U.S. 407 (2002) (holding more burdensome standard for state to prove defendant had no control over behavior to be civilly committed was too great); *Seling v. Young*, 531 U.S. 250, 263 (2001) (holding civil nature of Washington statute precluded inmate's double jeopardy and *ex post facto* challenges based on conditions of confinement); *Kansas v. Hendricks*, 521 U.S. 346, 370–71 (1997) (holding involuntary confinement under Kansas's Sexually Violent Predator Act was not punitive, thereby precluding double jeopardy or *ex post facto* violation); see also Charles L. Scott & Joan B. Gerbasi, *Sex Offender Registration and Community Notification Challenges: The Supreme Court Continues Its Trend*, 31 J. AM. ACAD. PSYCHIATRY L. 494 (2003) (discussing constitutional challenges to Megan's Law statutes in Connecticut and Alaska).

effective treatment for sexual offenders and sexual offender registration and community notification, courts have reached varying conclusions.⁴⁹ Indicative of the ongoing debate regarding the duration of civil commitment, and the effectiveness of treatment and release programs, are the civil commitment laws in Minnesota and Missouri. Arguably, laws in these states have functioned unconstitutionally for many years, particularly in comparison to laws in some states, like Wisconsin and New York, which have a much higher rate of release from civil commitment.

A. *Minnesota and Missouri*

In 2011, patients who were civilly committed to the Minnesota Sex Offender Program (“MSOP”) filed a class action claim—in *Karsjens v. Jesson*—challenging the constitutionality of Minnesota’s sexual offender civil commitment scheme.⁵⁰ The committed offenders argued that the scheme violated their due process rights, both facially and as applied. Specifically, they claimed that the commitment law was not narrowly tailored because it: (1) required no periodic risk assessment;⁵¹ (2) included no judicial review;⁵² (3) employed discharge criteria that were more onerous than the criteria used for admission;⁵³ (4)

49. *Compare* Conn. Dep’t of Pub. Safety v. Doe, 538 U.S. 1, 7–8 (2003) (upholding Connecticut registration and notification law that posted pictures without showing of risk level was not punitive and did not violate Fourteenth Amendment), *Smith v. Doe*, 538 U.S. 84, 105–06 (2003) (retroactive application of registration law did not violate *ex post facto* Clause because law had regulatory public safety purpose), and *McKune v. Lile*, 536 U.S. 24, 29 (2002) (upholding constitutionality of tenets of treatment program requiring sex offender to admit guilt as not violating Fifth Amendment privilege against self-incrimination because it served a “vital penological purpose”) *with* *Carr v. United States*, 560 U.S. 438, 458 (2010) (holding that SORNA’s imposition of criminal liability for failure to register did not apply to sexual offenders who traveled interstate before SORNA became effective), *Kennedy v. Louisiana*, 554 U.S. 407, 446–47 (2008) (holding that death penalty for aggravated sexual crime conviction violated Eighth Amendment), and *Stogner v. California*, 539 U.S. 607, 632–33 (2003) (finding that retroactive prosecution for sexual crime when statute of limitations had run was unconstitutional).

50. *Karsjens v. Jesson*, 109 F. Supp. 3d 1139 (D. Minn. 2015), *rev’d sub nom.* *Karsjens v. Piper*, 845 F.3d 394 (8th Cir.), *cert. denied*, 138 S. Ct. 106 (2017). Under the MSOP, first-time offenders may obtain conditional release for ten years, while multi-offenders are subject to lifetime conditional release. *Id.* at 1148. Conditions of release may include: successful completion of treatment and aftercare programs, random drug testing, house arrest, daily curfews, electronic surveillance, and participation in an appropriate sexual offender program. *Id.*

51. *Id.* at 1150, 1159. Although the majority of state civil commitment programs require periodic risk assessment of committed offenders, the MSOP had no such requirement. *Id.* at 1159. The court described the MSOP program as a “‘chutes-and-ladders’-type mechanism for impeding progression, without periodic review of progress, which has the effect of confinement to the MSOP facilities for life.” *Id.* at 1172–73.

52. *Id.* at 1168.

53. *Id.* at 1162, 1169.

shifted the burden of proof to the committed offender;⁵⁴ (5) provided no less restrictive alternatives, despite their availability;⁵⁵ and (6) failed to require the state to petition for release or reduction in commitment on behalf of qualified offenders.⁵⁶

At the time of the court's decision—June 2015—the detention facilities in Moose Lake and St. Peter, Minnesota, had detained more than 714 sexual offenders since the inception of the program in 1994, with projections of 1,215 detainees by the year 2022.⁵⁷ The state represented the program as “an approximately thirty-two-month program for ‘model patients.’”⁵⁸ However, as of 2015, not one of the 714 persons committed to the program since 1994 had ever been fully discharged.⁵⁹ In fact, Minnesota retains the highest per capita population of civilly committed sexual offenders in the country.⁶⁰ The court observed that, “in light of the structure of the MSOP and the history of its operation, no one has any realistic hope of ever getting out”⁶¹

In assessing the constitutionality of Minnesota's civil commitment scheme, the court stated:

One reason why we must be so careful about civil commitment is that it can be used by the state to segregate undesirables from soci-

54. *Id.* at 1169.

55. *Id.* at 1150–51. Part of the problem in the MSOP was the limited availability of beds at lesser-restrictive facilities for offenders who were qualified to transition. Upon the filing of the lawsuit in 2011, the state began constructing a new, less-restrictive facility to which qualified offenders could transition. *Id.* at 1150. Despite funding, proper facilities, and plans for transitioning qualified offenders, the governor of Minnesota halted the transition until further study and revision of the applicable civil commitment statutes. *Id.* at 1152. This delay not only created a backlog of offenders who were entitled to conditional release, but it produced a pervasive sense of hopelessness for other offenders, and even for service providers at the facilities. *Id.* at 1151.

56. *Id.* at 1163–64. For example, between January 2010 and June 2014, there were 441 committed offenders who were potentially eligible for discharge. However, the state did not file a single petition for discharge. Nor had the state ever filed a petition for a reduction in custody for a qualified offender before 2013. *Id.* at 1164.

57. *Id.* at 1147–48.

58. *Id.* at 1147.

59. Since the filing of the lawsuit in *Karsjens*, the state unconditionally released one person—Eric Terhaar. The state opposed Terhaar's unconditional release but did not appeal the decision. Another offender—sixty-four-year-old Clarence Opheim—was conditionally released with supervision to a half-way house, and seven other offenders are qualified for provisional discharge with conditional release but are not able to be placed in the community because housing restrictions make it so difficult to locate qualified housing. Briana Bierschbach, *The Legal Fight over Minnesota's Sex Offender Program Could Have Ramifications Throughout the Country*, MINN. POST (Sept. 28, 2017), <https://www.minnpost.com/politics-policy/2017/09/legal-fight-over-minnesotas-sex-offender-program-could-have-ramifications-th/> [https://perma.cc/A6DP-8GFZ].

60. Monica Davey, *Minnesota's Holding of Sex Offenders After Prison Is Ruled Unconstitutional*, N.Y. TIMES (June 17, 2015), <https://www.nytimes.com/2015/06/18/us/minnesotas-holding-of-sex-offenders-after-prison-is-ruled-unconstitutional.html> [https://perma.cc/L8RC-L7NC].

61. *Karsjens*, 109 F. Supp. 3d at 1144.

ety by labeling them with a mental abnormality or personality disorder. . . .

It is fundamental to our notions of a free society that we do not imprison citizens because we fear that they might commit a crime in the future. Although the public might be safer if the government, using the latest “scientific” methods of predicting human behavior, locked up potential . . . sex offenders, our system of justice, enshrined in rights guaranteed by our Constitution, prohibits the imposition of preventive detention except in very limited circumstances. This strikes at the very heart of what it means to be a free society [W]hen the criminal justice system and the civil commitment system carry out their responsibilities, the constitutional rights of all citizens, including sex offenders, can be upheld without compromising public safety or disrespecting the rights, concerns, and fears of victims.⁶²

It was upon this backdrop that the court held that Minnesota’s civil commitment statutes and sexual offender program were unconstitutional.⁶³

Anticipating public concern over the immediate release of more than 700 committed sexual offenders, the court issued with its holding a note of caution: “The public should know that the Moose Lake and St. Peter facilities will not be immediately closed.”⁶⁴ Instead, the court held that, for the truly dangerous sexual offenders, Minnesota should implement appropriate procedures to guarantee continued detention with constitutional protections. For those offenders who no longer meet the criteria for commitment, the court held that they should be released with a “significant support system and appropriate conditions of supervision, all of which can be accomplished without compromising public safety or the concerns and fears of the victims.”⁶⁵

Also, in 2011, similar claims had been raised in Missouri, in *Van Orden v. Schafer*.⁶⁶ In *Van Orden*, sexual offenders who were determined to be sexually violent predators (“SVPs”) and who were civilly committed under the Missouri Department of Mental Health Sex Offender Rehabilitation and Treatment Service (“SORTS”) asserted, likewise, that the SVP Act⁶⁷ was unconstitutional as written and as applied to SORTS.⁶⁸ Specifically, these civilly committed persons as-

62. *Id.* at 1143–44.

63. *Id.* at 1173.

64. *Id.* at 1144.

65. *Id.* at 1145. As of January 2018, there were 726 people in the secured treatment program facilities in Moose Lake and St. Peter. Nine of those persons are living in supervised community facilities. Twelve others have been granted provisional discharges but are still waiting for appropriate placements. See *Judges Approve Release of Rapist from Sex Offender Program*, KSTP (Jan. 9, 2018, 3:36 PM), <https://kstp.com/news/supreme-court-appeal-panel-judges-approve-release-rapist-thomas-duvall-from-minnesota-sex-offender-program/4737057/?cat=1> [<https://perma.cc/RZ9G-87KT>].

66. *Van Orden v. Schafer*, 129 F. Supp. 3d 839 (E.D. Mo. 2015).

67. MO. ANN. STAT. §§ 632.480–632.525 (West 2014 & Supp. 2019).

68. *Van Orden*, 129 F. Supp. 3d at 869–70.

served that “particular modalities of treatment at SORTS [were] inadequate due to staff and funding shortages” and that “the entire SORTS treatment program [was] a sham” because in its sixteen years of operation, it had “neither established the risk assessment and release procedures contemplated by the SVP Act, nor successfully treated and released, following such treatment, any residents back into the community.”⁶⁹

In *Van Orden*, the United States District Court for the Eastern District of Missouri held that the Missouri SVP Act permitted the state to civilly commit, potentially indefinitely, persons who are both mentally ill and dangerous so as to be deemed likely to commit acts of violence in the future.⁷⁰ The court held that the SVP Act was constitutional on its face in that it provided for conditional release, and that the particular treatment modalities of SORTS were not so lacking as to violate the Due Process Clause.⁷¹ However, the court held that, as applied, “the SORTS civil commitment program suffers from systemic failures regarding risk assessment and release that have resulted in the continued confinement of individuals who no longer meet the criteria for commitment, in violation of the Due Process Clause.”⁷² Ultimately, in July 2017, in *Van Orden v. Stringer*, the District Court found three constitutional deficiencies.⁷³

First, the District Court found unconstitutional the manner in which the Defendants conducted annual reviews to assess whether a civilly committed person continued to satisfy the statutory requirement for commitment. The court held that “SORTS officials responsible for conducting annual reviews were not consistently applying the correct legal standard for evaluating Plaintiffs’ risk level under the statutory criteria.”⁷⁴

Second, with respect to the release portion of the SORTS treatment program and its complete lack of any community reintegration program,

69. *Id.* at 843. The Missouri program began in 1999 and, in the sixteen years since then, had housed some 200 offenders at the facilities in Farmington and Fulton, Missouri. However, by September 2015, no committed offender had ever left the facilities and returned into the community as a result of successfully completing the treatment program. *Id.* at 844, 845–46. Since the filing of the claims in *Van Orden*, two offenders left the program conditionally. Jesse Bogan, *U.S. Judge Rules Handling of State’s Sexual Predator Program is Unconstitutional*, ST. LOUIS POST-DISPATCH (Sept. 12, 2015), https://www.stltoday.com/news/local/crime-and-courts/u-s-judge-rules-handling-of-state-s-sexual-predator/article_8ea46baa-5e3f-5773-a1d1-9465c9d08fe9.html [https://perma.cc/3WAD-3ARU].

70. *Van Orden*, 129 F. Supp. 3d at 844.

71. *Id.*

72. *Id.*

73. The court in *Van Orden* issued its opinion in a December 22, 2015, amended memorandum opinion, which was vacated in part by the court in *Van Orden v. Stringer*. See *Van Orden v. Stringer*, 262 F. Supp. 3d 887, 894 (E.D. Mo. 2017).

74. *Id.* at 889.

[t]he Court concluded that Defendant’s stated goal of treating and safely reintegrating Plaintiffs back into the community was observed in theory but not in practice, and that the release portion of SORTS was a sham. . . . In particular, the Court found that SORTS undisputedly had residents who, because of their age and physical infirmity or because of their treatment progress, had reduced their risk below the standard required for commitment, but that Defendants consistently opposed the release of such residents and had not designed any procedures for their community reintegration.⁷⁵

Third, the court concluded that the Director of the Department of Mental Health abdicated his statutory duty to authorize qualified offenders to petition the court for release.⁷⁶ “The Court found that the Director had not authorized a single person committed under the SVP Act to petition for conditional release, and that Defendants were instead stalling or blocking Director authorization even when SORTS treatment providers and annual reviewers concluded that a resident qualified for conditional release.”⁷⁷

Subsequent to the United States District Court’s July 2017 decision in *Van Orden*, the court heard the appeal in the *Karsjen* case in Minnesota. In January 2017, in *Karsjen v. Piper*, the United States Court of Appeals for the Eighth Circuit reversed the District Court’s opinion, holding that strict scrutiny was not the proper standard of review of the facial and as-applied due process claims raised by the sexual offenders.⁷⁸ Instead, the court held that the proper standard to be applied to the facial challenge was rational basis. For the as-applied challenge, the court required that the defendants’ conduct be conscience-shocking *and* that the state defendants violated one or more of the plaintiffs’ fundamental rights.⁷⁹ Under the proper rational basis standard of review, the Minnesota Civil Commitment and Treatment Act did not, on its face, violate due process, and the managers’ actions did not violate due process as applied to civilly committed sexual offenders under the Minnesota Sex Offender program.⁸⁰ However, in May 2017, the United States District Court stayed all proceedings pending a possible decision by the United States Supreme Court.⁸¹

75. *Id.*

76. *Id.* at 889–90. Pursuant to Missouri law, “[i]f the director of the [DMH] determines that the person’s mental abnormality has so changed that the person is not likely to commit acts of sexual violence if released, the director shall authorize the person to petition the court for release.” MO. ANN. STAT. § 632.501 (West 2014).

77. *Van Orden*, 262 F. Supp. 3d at 890.

78. *Karsjen v. Piper*, 845 F.3d 394, 408 (8th Cir. 2017). For an excellent discussion of the civil commitment power and the constitutional framework within which it is applied, specifically within the Eighth Circuit’s failed analysis in *Karsjen*, see Eric S. Janus, *Beyond Strict Scrutiny: Forbidden Purposes and the “Civil Commitment” Power*, 21 NEW CRIM. L. REV. 345, 348 (2018).

79. *Karsjen*, 845 F.3d at 408.

80. *Id.* at 410–11.

81. *Id.* Petitioners filed a Writ of Certiorari in May 2017, and the Court denied the petition in October 2017. See *Karsjen v. Johnson*, 138 S. Ct. 106, 107 (2017).

In light of the proceedings in Minnesota, the United States District Court for the Eastern District of Missouri reluctantly held, in July 2017, in *Van Orden v. Stringer*, that *Karsjens* compelled reconsideration of the court's earlier opinion in *Van Orden*.⁸² The court held that the Eighth Circuit's holding in *Karsjens*—that the Plaintiffs' claims do not implicate a fundamental liberty interest—was controlling, and that, without a fundamental liberty interest, Plaintiffs' as-applied claim fails no matter how shocking the state defendants' conduct."⁸³ Furthermore, the court questioned whether "deliberate indifference can rise to a constitutionally shocking level," or whether a "'purpose to cause harm' is needed to shock the conscience." The court stated that it may have held that "continuing to confine the aged and infirm who are undisputedly no longer dangerous shocks the conscience," but instead, it held that *Karsjens* precluded such a holding unless overruled by the Eighth Circuit, the United States Supreme Court, or by Congress.⁸⁴

On September 27, 2017, the Plaintiffs in *Van Orden v. Stringer* filed an appeal to the United States Court of Appeals for the Eighth Circuit.⁸⁵ Five days later, on October 2, 2017, the United States Supreme Court declined to consider the constitutionality of the Minnesota Sex Offender Program in *Karsjens v. Piper*.⁸⁶ Consequently, until the Court elects to entertain another case, the constitutionality of the civil commitment of sexually violent predators and the improvement of the admittedly flawed state treatment programs are now subject to the authority of the state and, as this Article will demonstrate, the effect of the uncanny valley.

B. *Other States Enforcing Civil Commitment Laws*⁸⁷

While Minnesota and Missouri had civilly committed more than 1,500 sexual offenders without having fully released a single person in twenty years, Wisconsin has civilly committed less than half as many offenders since its program began in 1994. Yet as of June 2017, Wisconsin had released 160 offenders, only three of whom recidivated within three years of release; thirty-six more offenders were ready for release but were unable to locate unrestricted housing.⁸⁸ To those who

82. *Van Orden v. Stinger*, 262 F. Supp. 3d 887, 893 (E.D. Mo. 2017).

83. *Id.* at 893–94.

84. *Id.* at 894.

85. *See Van Orden v. Stringer*, No. 17-3093 (8th Cir. 2017). The court heard oral argument on the appeal on September 26, 2018. *Id.*

86. *Karsjens v. Piper*, 138 S. Ct. 106 (2017).

87. *See Siegel, supra* note 42.

88. Cara Lombardo, *Wisconsin Struggles to Find New Homes for Sex Offenders*, MILWAUKEE J. SENTINEL (June 11, 2017), <https://www.jsonline.com/story/news/local/wisconsin/2017/06/11/wisconsin-struggles-find-new-homes-sex-offenders/387596001/> [https://perma.cc/JEN7-8DRD].

support release, these statistics evidence a treatment program that is working.⁸⁹

When the Wisconsin program started in 1994, committed offenders were sent to a mental health facility.⁹⁰ In 2001, the state built the 350-person-capacity Sand Ridge Secured Treatment Center, in Mauston, Wisconsin, for \$39 million.⁹¹ The state anticipated that by 2009, the facility would reach capacity, so it built an additional 200-bed wing. Since then, the state has civilly committed over 500 of Wisconsin’s 23,000 registered sexual offenders. However, the additional wing is neither staffed nor occupied because of the successful discharge rate, which nearly quadrupled from 2009 to 2013.⁹²

Part of the reason offenders are discharging at such a high rate in Wisconsin is that state officials have updated the assessment models that are used to determine risk upon release. Previously, officials used data from the 1980s, which indicated highly exaggerated recidivism rates, but now officials use more current research and reliable data on sexual offender recidivism.⁹³ Additionally, beginning in 2013, the state imposed more conditions upon release, including monitoring, supervision, and mandated treatment.⁹⁴ The annual fiscal budget for the program was \$37.3 million in 2007, but it increased to \$50.9 million by

89. The Research Director at Sand Ridge observed, “This may reflect the maturing of treatment programs and the gradual discovery that under the right conditions it is possible to selectively release these individuals without exposing the community to greater danger.” Nora Hertel, *Rethinking Sex Offenders: Inside the Walls of Sand Ridge: “We Have a Huge Challenge Here”*, WIS. WATCH (Feb. 3, 2014), <https://www.wisconsinwatch.org/2014/02/inside-the-walls-of-sand-ridge-we-have-a-huge-challenge-here/> [https://perma.cc/A5L7-8HMS] [hereinafter Hertel, *Inside Walls of Sand Ridge*].

90. *Id.*

91. *Id.*

92. From 2004 to 2008, Wisconsin released thirty-one offenders; from 2009 to 2013, Wisconsin released 114 offenders, most of whom were discharged with electronic monitoring but with no further treatment. Of the sixty-seven offenders who were released by 2010, forty-nine had committed no crime within three years—a standard variable used in assessing recidivism. Of the eighteen offenders released who did commit a crime, five were convicted of a sex crime. Nora Hertel, *Rethinking Sex Offenders, Wisconsin Freeing More Sex Offenders From Mental Lockup*, WIS. WATCH (Feb. 2, 2014), <https://www.wisconsinwatch.org/2014/02/wisconsin-freeing-more-sex-offenders-from-mental-lockup/> [https://perma.cc/8P9A-QWQV] [hereinafter Hertel, *Wisconsin Freeing More Sex Offenders*]; see also Nora Hertel & Gilman Halsted, *Photos: Inside Sand Ridge, Where the Sexually Violent Are Treated*, WIS. WATCH (Feb. 2, 2014), <https://www.wisconsinwatch.org/2014/02/state-freeing-more-sex-offenders-from-mental-lockup/> [https://perma.cc/DL6H-25ZP]. In 2013, the state began to issue more supervised releases, with continued treatment and monitoring. Hertel, *Wisconsin Freeing More Sex Offenders*, *supra* note 92.

93. Hertel, *Inside Walls of Sand Ridge*, *supra* note 89; Hertel, *Wisconsin Freeing More Sex Offenders*, *supra* note 92.

94. Hertel, *Inside Walls of Sand Ridge*, *supra* note 89; Hertel, *Wisconsin Freeing More Sex Offenders*, *supra* note 92.

2012, despite the steady decrease in population.⁹⁵ Thus, there is financial incentive to discharge qualified offenders, whereas, in 2014, it cost the State of Wisconsin \$147,460 per year (\$404 per day) to house one committed offender, but the cost of supervising an offender who was released was only \$119,000 per year.⁹⁶

However, many feel the financial savings is not worth the risk of release.⁹⁷ There is a reason the Sand Ridge facility functions as a hospital in a civil setting, yet the local community requires that it be structured with a maximum security perimeter, much like a prison. And there is a reason that offenders otherwise qualified for release remain committed: there is no available unrestricted housing to which they can be released safely. I propose that part of the reason is the uncanny valley effect. However, Wisconsin officials maintain that with effective treatment and constitutional management, releasing qualified offenders poses no unacceptable risk. In fact, the Wisconsin Office of Crime Victim Services—a division of the State Department of Justice—assists victims and the public to come to terms with the release of known offenders.⁹⁸ Thus, the state must reconcile the conflicting, seemingly incommensurable interests at stake—the civil liberty of sexual offenders and the safety of the community into which sexual offenders are released. Between these two principles lies a vast and inexplicable component of human nature that is subject to the uncanny valley. Bridging this uncanny valley is the dilemma that policy-makers in every state must reconcile.

III. THE UNCANNY VALLEY HYPOTHESIS

Masahito Mori's hypothesis of the uncanny valley sprung from his experience engineering robotic/prosthetic hands and fingers.⁹⁹ At the time, in 1970, the most human-like commercial prosthetic hand, which was developed in Vienna, nevertheless left one with a sense of creepiness and unfamiliarity. Despite the technological development of the human-like silicone hand, Mori observed that "shaking such a cold, lifeless hand . . . left one shocked, and horrified to a degree."¹⁰⁰ Mori

95. See Hertel, *Inside Walls of Sand Ridge*, *supra* note 89; Hertel, *Wisconsin Freeing More Sex Offenders*, *supra* note 92.

96. See Hertel, *Inside Walls of Sand Ridge*, *supra* note 89; Hertel, *Wisconsin Freeing More Sex Offenders*, *supra* note 92; Hertel & Halsted, *supra* note 92.

97. Hertel, *Wisconsin Freeing More Sex Offenders*, *supra* note 92.

98. *Id.*

99. See generally W.A. Borody, *The Japanese Robotist Masahiro Mori's Buddhist Inspired Concept of "The Uncanny Valley"*, 23 J. EVOLUTION & TECH. 31 (2013).

100. *Id.* at 33.

Recently, owing to great advances in fabrication technology, we cannot distinguish at a glance a prosthetic hand from a real one. Some models simulate wrinkles, veins, fingernails, and even fingerprints. Though similar to a real hand, the prosthetic hand's color is pinker, as if it had just come out of the bath.

One might say that the prosthetic hand has achieved a degree of resemblance to the human form, perhaps on a par with false teeth. However, once we realize that the

felt “robots and robotically enhanced humans ought to be experienced as non-threatening.”¹⁰¹ He “advised his fellow roboticists to design humanoid robots that act and perform as humans, but do not look and move exactly like the human, in order that the humanoid robots will be more socially accepted.”¹⁰² Mori, a practicing Buddhist, associated being fully “human” with Buddhist compassion. Thus, Mori suggested that a wooden hand, modeled after the hand of the Buddha of Compassion¹⁰³ but with the same technological precision as the Viennese design, might more likely be accepted by humans. From this subtext, Mori developed his hypothesis of the uncanny valley.¹⁰⁴

A. Conceptual Development of the “Uncanny”

Mori proposed that the sudden and steep descent of our affinity for nonhuman stimuli that are essentially indistinguishable from ourselves “explains the secret lying deep beneath the uncanny valley.” He pondered, “Why were we equipped with this eerie sensation?” and

hand that looked real at first site is actually artificial, we experience an eerie sensation. For example, we could be startled during a handshake by its limp boneless grip together with its texture and coldness. When this happens, we lose our sense of affinity, and the hand becomes uncanny.

Mori Translation, *supra* note 14, at 98–99.

101. Borody, *supra* note 99, at 33.

102. *Id.*

103. Mori’s design modeled the hand of Avalokiteśvara, the Bodhisattva of Compassion, who always holds a Lotus in the left hand and whose right hand is often lowered, so as to offer a blessing or gesture of compassion. *Id.* at 33 n.7.

104. In a letter that Mori sent to sociologist Karl MacDorman in 2005, Mori expressed a different perspective on his representation of his theory. Mori later suggested that the healthy human, represented at the highest peak on the scale of affinity, should be replaced by Buddhist statues that evoke the enlightenment of compassion. Likewise, the corpse should no longer assume the most negative point on the scale, whereas the corpse no longer suffers the burden of having to make decisions during life. Mori also expressed that, now, in the later stage of life, he was no longer struck by the significance of the uncanny. *Id.* at 39. Freud expressed a similar change of perspective of the uncanny, stating that the older he became, the less he experienced a sense of the uncanny in his life. SIGMUND FREUD, *THE UNCANNY* 124 (David McClintock trans., Penguin Books, 2003) (1919). Ernst Jentsche and others would posit that because fear of the unknown is what drives the uncanny, one’s experience of the uncanny fades as exposure to the uncanny increases. See ERNST JENTSCH, *ON THE PSYCHOLOGY OF THE UNCANNY 2* (Roy Sellars trans.) (1906), http://www.art3idea.psu.edu/locus/Jentsch_uncanny.pdf [<https://perma.cc/MQ3D-KSCN>]; see also Erico Guizzo, *Who’s Afraid of the Uncanny Valley?*, IEEE SPECTRUM (Apr. 2, 2010), <https://spectrum.ieee.org/automaton/robotics/humanoids/040210-who-is-afraid-of-the-uncanny-valley> [<https://perma.cc/8XE4-6R63>] (sharing critical views of Mori’s theory by other roboticists, like David Hanson, who stated, “In my experience, people get used to the robots very quickly. . . . As in, within minutes.”); Erik Sofge, *The Truth About Robots and the Uncanny Valley: Analysis*, POPULAR MECHANICS (Jan. 20, 2010), <https://www.popularmechanics.com/technology/robots/a5001/4343054/> [<https://perma.cc/RX7T-BAW6>] (suggesting, based on the author’s personal experience, that the uncanny, when confronting MIT’s social robot, Nexi, presented nothing more than “a fleeting cognitive glitch that has no bearing on the way humans will live with machines”).

asked whether this uncanny reaction is essential for human beings. To these questions, Mori asserted, “I have no doubt it is an integral part of our instinct for self-preservation.”¹⁰⁵ However, Mori’s perspective obviously derived from concepts of the “uncanny” first premised in fields other than robotics.

Mori was the first to theorize the effect of the uncanny valley mathematically, as a monotonically increasing function, within the context of robotics—his theory demonstrates that this is a false impression.¹⁰⁶ However, Mori certainly was not the first to contemplate this cognitive phenomenon. In 1906, in his essay *Zur Psychologie des Unheimlichen*—translated *On the Psychology of the Uncanny*—Ernst Jentsch first conceptualized the “uncanny” as a psychological phenomenon that primarily represents one’s reaction to situations or stimuli that present unfamiliar context.¹⁰⁷ For Jentsche, unfamiliar context produces the feeling of being threatened by enigmatic and incomprehensible objects, which results in psychological disorientation and an internal psychical conflict.¹⁰⁸

Sigmund Freud elaborated on Jentsche’s limited concept of the “uncanny” in his 1919 essay *Das Unheimliche*, translated, “*The Uncanny*.”¹⁰⁹ Contrasting the root word, “heimlich” (meaning “familiar,” “native,” “belonging to the [home]”), with the German adjective, “unheimlich,” (meaning “what is concealed and kept out of sight”),¹¹⁰ Freud contended that the uncanny presents as something that is familiar to us, yet conceals within its appearance that which is opposite. Thus, the uncanny “exhibits one which is identical with its opposite”¹¹¹ Freud’s conception of the uncanny is more than simply intellectual uncertainty, as Jentsche proposed. Instead, Freud identified the uncanny as being more specifically concerned with the idea of a

105. Mori clarifies that the “sense of eeriness is probably a form of instinct that protects us from proximal, rather than distal, sources of danger. Proximal sources of danger are corpses, members of different species, and other entities we can closely approach. Distal sources of danger include windstorms and floods.” Mori Translation, *supra* note 14, at 100.

106. “The mathematical term *monotonically increasing function* describes a relation in which the function $y = f(x)$ increases continuously with the variable x .” *Id.* at 98 (emphasis in original). Mori actually theorizes that viewing the goal of robotics of creating humanoid robots as a monotonically increasing function is a false impression and that the uncanny valley is a phenomenon that is not represented by such a function. *Id.*

107. JENTSCH, *supra* note 104, at 2.

108. *Id.* at 13.

109. 17 Sigmund Freud, *Das Unheimliche (The ‘Uncanny’)*, in THE STANDARD EDITION OF THE COMPLETE PSYCHOLOGICAL WORKS OF SIGMUND FREUD: AN INFANTILE NEUROSIS AND OTHER WORKS, 220–41 (James Strachey trans., Hogarth Press 1925) (1919).

110. Freud derives this meaning from the work of Philosopher F. W. J. Schelling, who proposed that “everything is *unheimlich* [(uncanny)] that ought to have remained secret and hidden but has come to light.” *Id.* at 224–25.

111. *Id.* at 224.

"double," as addressed by Otto Rank in his work, *Der Doppelgänger*.¹¹² Freud proposed that the uncanniness manifested by a "double"—most specifically, "when an inanimate object becomes too much like an animate one"¹¹³ or "with persons . . . who are to be considered identical by reason of looking alike"—causes the self to become confounded and substitute the foreign self for one's own.¹¹⁴ One's reaction, therefore, is an impulse toward self-preservation of the ego by projecting the identical object as something foreign to one's self.¹¹⁵

Likewise, Freud also contended that uncanniness manifests in the helpless feeling one experiences from the otherwise innocent, involuntary recurrence of the same situations, things, or events—what we generally might understand as mere chance or coincidence, or, perhaps, what we understand as the common experience of "deja-vu"—wherein something entirely foreign to us brings us back to something with which we are familiar. Freud proposed that human beings have an instinctual compulsion, in the unconscious mind, to ascribe a secret meaning to such occurrences. This compulsion is man's "narcissistic overevaluation of his own mental processes"—what Freud calls the "omnipotence of thoughts"¹¹⁶—with which man strives to reconcile his experience or perspective of the world with reality. Attributing all of this to psychoanalytic theory, Freud concluded that the uncanny is not at all the result of our experience of the unfamiliar or foreign. Rather, the uncanny results from an expression of something familiar that has already been established in the mind but has been repressed and, thereby, estranged.¹¹⁷ In this, Freud accommodates Friedrich Schelling's concept of the uncanny as something that ought to have been kept concealed but nevertheless has come to light.¹¹⁸

112. Naturally, Freud's primary assessment of the uncanny—most particularly depicted in Hoffman's story of *The Sand-Man—Nachtstücken*—is that it represents a "castration complex," also associated with the fear of losing one's eyes. *Id.* at 230; see also Sadeq Rahimi, *The Ego, the Ocular, and the Uncanny: Why Are Metaphors of Vision Central in Accounts of the Uncanny?*, 94 INT'L J. PSYCHOANALYSIS 453, 476 (2013). This notion of the uncanny has no direct relevance to Mori's hypothesis, thus, I do not address it at all in this Article. However, Freud's concept of the "double," which he also describes as manifesting the uncanny, is quite relevant. Therefore, this notion of Freud and other theorists is the focus of this discussion.

113. Freud, *supra* note 109, at 234–35.

114. *Id.* at 234.

115. *Id.* at 234–36.

116. *Id.* at 240. "We appear to attribute an 'uncanny' quality to impressions that seek to confirm the omnipotence of thoughts and the animistic mode of thinking in general, after we have reached a stage at which, in our *judgl Jment*, we have abandoned such beliefs." *Id.* at 241 n.1.

117. *Id.* at 220. Freud defined the "uncanny" as "that class of the frightening which leads back to what is known of old and long familiar." *Id.*

118. *Id.* at 225 (Schelling concluded that "everything is uncanny that ought to have remained hidden and secret, and yet comes to light.").

Other theories have contributed to our understanding of the uncanny. Psychoanalytically, expanding on Freud's theories, Jacques Lacan described the uncanny as an irreducible anxiety resulting from not knowing how to distinguish one's desires (or perceptions of what is lacking) from reality.¹¹⁹ Sociologically, Julia Kristeva's concept of abjection is closely Freudian and Lacanian, describing one's adverse reaction to the abject by forcefully casting out that which confronts the self and the symbolic order, which at one time was part of one's identity but is now rejected.¹²⁰ Imogen Tyler explored this notion of the abject as a concept of marginalization and social exclusion, particularly of minority groups perceived as confronting the social order.¹²¹

Indeed there are many theories that explore and explain the concept of the uncanny that appear plausibly relevant to contexts other than robotics. Freud's theories would appear to be relevant and applicable if one were to explore the psychoanalytic components underlying society's reaction to sexual offenders. However, all of these theories simply explain the concept of the uncanny. While these theories are relevant and critical to our understanding of the concept of the uncanny, what I propose in this Article, more specifically, is that Mori's hypothesis of the uncanny valley effect, in the context of robotics, may inform the current dilemma of the sexual offender civil commitment process that I describe in the Introduction. I further propose that Mori's hypothesis not only presents an analogous dilemma, but it also informs us on how we might address it. To address this dilemma, however, we must first understand more specifically how Mori's hypothesis of the uncanny valley applies, and how, if at all, it might be expanded to accommodate the unique context of sexual offenders.

B. *Application of Mori's Uncanny Valley Hypothesis*

1. Robotics Design

There has been a long history of theories addressing the notion of "uncanniness."¹²² It is important that we understand these theories as context to understanding Mori's hypothesis of the uncanny valley. However, Mori's landmark study was not a theory about the nature of

119. See Jacques Lacan, Seminar X: Anxiety (Jan. 30, 1963) (transcript available with the *Texas A & M Law Review*).

120. JULIA KRISTEVA, POWERS OF HORROR: AN ESSAY ON ABJECTION (Leon S. Roudiez trans., Colum. Univ. Press 1982) (1941).

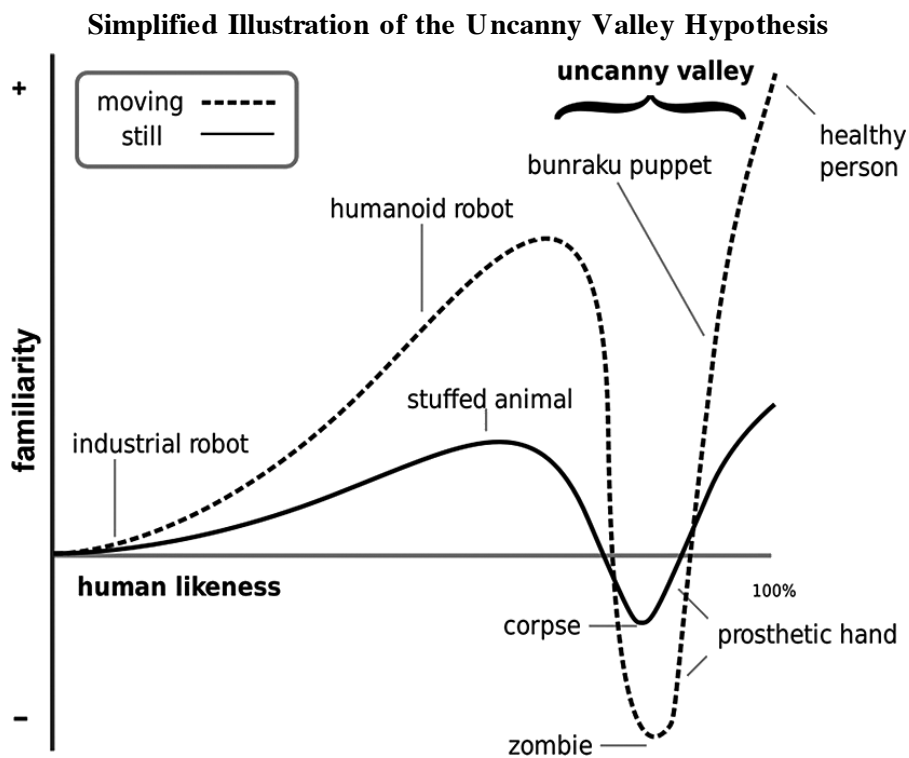
121. IMOGEN TYLER, REVOLTING SUBJECTS: SOCIAL ABJECTION AND RESISTANCE IN NEOLIBERAL BRITAIN (2013). See also LOÏC WACQUANT, PUNISHING THE POOR: THE NEOLIBERAL GOVERNMENT OF SOCIAL INSECURITY 209–39 (2009).

122. For works broadly addressing the concept of the "uncanny," see, e.g., KATHERINE WITBY, HEIDEGGER ON BEING UNCANNY (2015); ANNELEEN MASSCHELEIN, THE UNCONCEPT: THE FREUDIAN UNCANNY IN LATE-TWENTIETH-CENTURY THEORY (Charles Shepherdson ed., 2011); NICHOLAS ROYLE, THE UNCANNY (2003); SIGMUND FREUD, THE UNCANNY 124 (David McClintock trans., Penguin Books 2003) (1919).

uncanniness, per se. Rather, Mori's study was, very specifically, a study of the aesthetics of robot design. Mori hypothesized that a human subject's affinity for a robot increases as the design of a robot becomes more human-like, but that when the human-like robot becomes *too* human-like, the subject experiences a feeling of eeriness or uncanniness and reacts negatively toward the "nearly-indistinguishable-but-not-quite-fully-human-looking" robot.

Figure 1 represents a simplified version of Mori's hypothesis.

FIGURE 1



Mori constructed his theory using stimuli that subjects would initially identify as obviously nonhuman. On a diagram charting human likeness on the horizontal axis and familiarity on the vertical axis,¹²³ the foundational stimuli in Mori's theory is an industrial robot. In

123. On Mori's graph, he describes the vertical function with the word "Shinwakan," which is translated to mean "affinity," but other theorists have equated the function with "familiarity" or "likeability," depending on the salience of the function within a particular study. See, e.g., Christopher Bartneck et al., *My Robotic Doppelgänger—A Critical Look at the Uncanny Valley*, PROCEEDINGS OF THE 18TH IEEE INT'L SYMP. ROBOT & HUM. INTERACTIVE COMM. 269, 270 (2009) (questioning whether the concept Mori was trying to convey was "lost in translation").

terms of robot design, Mori observed that “these robots just extend, contract, and rotate their arms; without faces or legs, they do not look very human. . . . [G]iven their lack of resemblance to human beings, in general, people hardly feel any affinity for them.”¹²⁴ However, one’s affinity for clearly nonhuman stimuli that possess more human-like features, such as a child’s toy robot or stuffed animal, with arms, legs, a torso, and a face, will increase and thus is plotted half-way up the scale of positive affinity, at the first (or medium) peak.

Healthy human persons are positioned at the crest of the second (or maximum) peak, garnering full affinity. As the stimuli progress toward greater human likeness across the horizontal axis, Mori represents them on two different planes—the solid plane representing stimuli that are immobile (i.e., a stuffed animal, corpse, and prosthetic hand), and the dotted plane representing stimuli that are able to move physically (i.e., a humanoid robot, zombie, bunraku puppet,¹²⁵ and a healthy or fully human person). Mori theorized that movement in the stimuli amplifies the subjects’ reactions to the stimuli. Compared to the plane representing immobile stimuli, the plane representing stimuli that move produces a higher peak for positive affinity and a deeper valley for negative affinity, thus steepening the slope of the uncanny valley.¹²⁶

Thus, on the plane for stimuli that move, we see in Mori’s diagram that a humanoid robot, which has more anthropomorphic or “human-like” qualities than an industrial robot, provokes progressively greater affinity the more it resembles a human. However, we see Mori’s concept of the uncanny valley manifesting at the crest of the first peak, which Mori asserts is the point at which the nonhuman stimuli develops to so closely resemble a human that it becomes virtually indistinguishable and thus provokes a sense of eeriness, uncomfortableness, or repulsion. In Mori’s diagram, this is represented by a steep descent into the area of negative affinity. Note that corpses and zombies, which produce the greatest sense of eeriness or repulsion, are represented at the deepest valley of negative affinity on the respective planes, with the negative response to a zombie amplified by its ability to move (perhaps even lurching robotically forward with typically outstretched arms), as compared to a corpse, which, of course, does not

124. Mori Translation, *supra* note 14, at 98.

125. “Bunraku” is a traditional Japanese form of musical puppet theater dating from the seventeenth century. *Id.* at 99; see Fig.1; see also *Bunraku*, JAPANESE PUPPET THEATER, <http://factsanddetails.com/japan/cat20/sub131/item713.html#chapter-1> (last visited Sept. 21, 2018) [<https://perma.cc/4SCE-SSJX>].

126. For purposes of this Article and the application of Mori’s theory to the context of sexual offenders, however, the capacity for physical movement bears no particular contextual relevance. Therefore, relevant stimuli plot only on one plane.

move.¹²⁷ Yet both represent the maximum negative affinity for their respective planes.¹²⁸

Mori then offers the example of the bunraku puppet as plotting much higher in positive affinity as we ascend again toward the healthy human. Mori asserts that, although the puppet resembles a human in its form, "its realism in terms of its size, skin texture, and so on, does not even reach that of a prosthetic hand." Mori asserts that:

when we enjoy a puppet show in the theater, we are seated at a certain distance from the stage. The puppet's absolute size is ignored, and its total appearance, including hand and eye movements, is close to that of a human being. So, given our tendency as an audience to become absorbed in this form of art, we might feel a high level of affinity for the puppet.¹²⁹

For Mori, the puppet produces high affinity because, upon close inspection, in reality, we are able to distinguish the puppet from a healthy human.

Finally, Mori contends that, "[a]s healthy persons, we are represented at the crest of the second peak . . ." ¹³⁰ Thus, Mori's hypothesis appears in Figure 2.

127. Some researchers caution against testing the uncanny valley theory by using inherently negative stimuli, like zombies or corpses. *See, e.g.*, Kätsyri, et al., *supra* note 14, at 11–12. This is particularly relevant to designing studies that test the existence of the uncanny valley in the context of sexual offenders because the hypothesis, as applied, predetermines sexual offenders to be connotatively negative, like a monster or zombie.

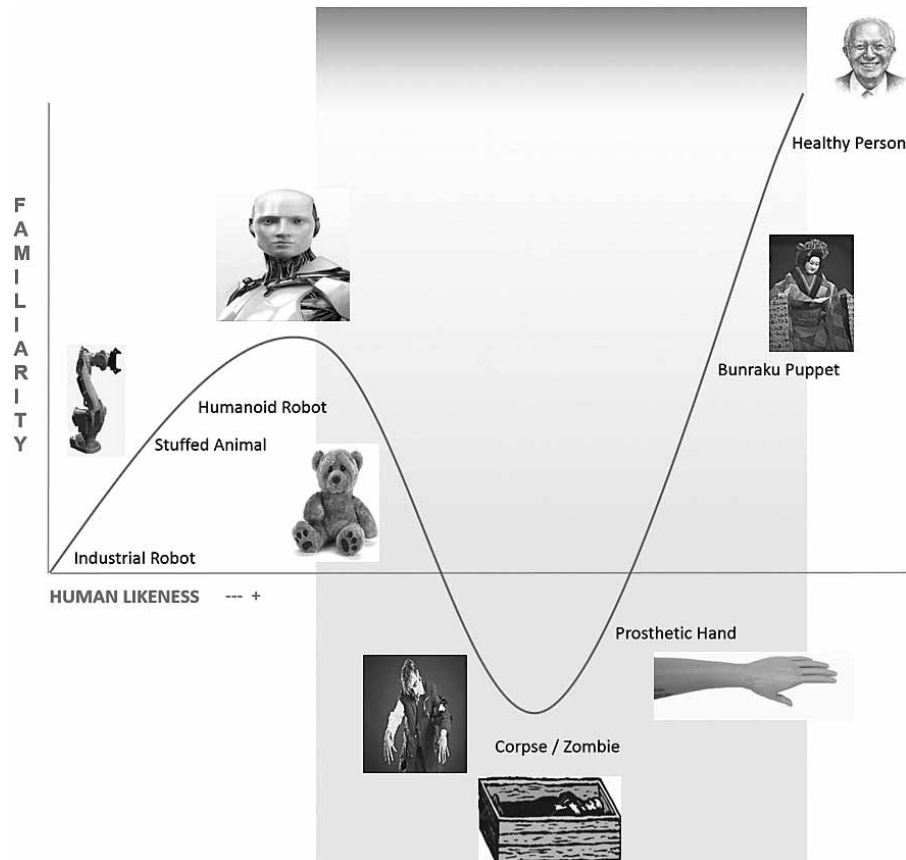
128. For a discussion of Mori's divergent attitude, later in life, about the plot location of the corpse on the uncanny valley scale, see Borody, *supra* note 99, at 38–39 ("The corpse is no longer an object to be considered 'uncanny.' It is now something about which to rejoice: it no longer has to suffer, which is the fate of all *living* beings.").

129. Mori Translation, *supra* note 14, at 99.

130. *Id.* at 100.

FIGURE 2

**Illustration of Masahito Mori's Uncanny Valley Hypothesis
Representing Progressively Human-Like Stimuli**



Mori's study supported his hypothesis, and from it, he conceptualized the "uncanny valley" effect.

As with the concept of uncanniness itself, there has been a variety of theories proposed to explain the cognitive mechanism underlying Mori's conclusions, including theories about male selection,¹³¹ mortality salience,¹³² pathogen aversion,¹³³ identity paradoxes,¹³⁴ normative

131. Male selection refers to the automatic appraisal of, and aversion to, mates with low fertility, poor hormonal health, or ineffective immune systems, based on visible features, such as the face and body, that are predictive of such aversive traits. See FACIAL ATTRACTIVENESS: EVOLUTIONARY, COGNITIVE, AND SOCIAL PERSPECTIVES 59-84 (Gillian Rhodes & Leslie A. Zebrowitz eds., 2002); Robert D. Green et al., *Sensitivity to the Proportions of Faces That Vary in Human Likeness*, 24 COMPUTERS HUM. BEHAV. 2456 (2008).

132. This theory contends that viewing what appears to be a partially assembled robot/human elicits an innate fear of the inevitability of death and the image of

expectations,¹³⁵ cognitive dissonance and conflicted perceptual cues,¹³⁶ and social distinctiveness.¹³⁷ Many studies suggest the un-

humans as just soulless machines. See Karl F. MacDorman & Hiroshi Ishiguro, *The Uncanny Advantage of Using Androids in Social and Cognitive Science Research*, 7 INTERACTION STAT. 297, 313 (2006); see also Karl F. MacDorman, *Mortality Salience and the Uncanny Valley*, PROCEEDINGS OF THE 2005 5TH IEEE-RAS INTERNATIONAL CONFERENCE ON HUMANOID ROBOTS, TSUKUBA, JAPAN 399, 399–405 (testing the mortality salience theory).

133. This theory explains the cognitive aversion to organism defects, which indicate disease or genetic dissimilarity. See Karl F. MacDorman et al., *Too Real for Comfort: Uncanny Responses to Computer-Generated Faces*, 25 COMPUTERS HUM. BEHAV. 695 (2009).

134. An identity paradox violates one’s sense of human identity by linking qualitatively different categories by degree of human likeness.

According to Ramey, an uncanny valley may result from any cognitive act that links qualitatively different categories by quantitative metrics that call into question the originally differentiated categories. This effect can be especially pronounced when one of those categories is one’s self or one’s humanity. From a phenomenological standpoint, humanlike robots may force one to confront one’s own being by creating intermediate conceptualizations that are neither human nor robot. (Ramey, 2005)

Unlike Mori, Ramey does not believe the uncanny valley to be a phenomenon that is limited to humanoid robotics.

MacDorman & Ishiguro, *supra* note 132, at 310 (quoting C. H. Ramey, *The Uncanny Valley of Similarities Concerning Abortion, Baldness, Heaps of Sand, and Humanlike Robots*, PROCEEDINGS OF THE VIEWS OF THE UNCANNY VALLEY WORKSHOP, IEEE-RAS INTERNATIONAL CONFERENCE ON HUMANOID ROBOTS, TSUKUBA, JAPAN 8, 8–13).

135. This theory describes the reactions associated with the normative expectations humans have for other entities that share or appear to have human characteristics. Under this theory, if a nonhuman entity’s human characteristics are noticeable and distinguish the entity, it evokes empathy. However, if the entity appears almost human, it elicits detailed normative expectations for human standards. Failure to satisfy those expectations elicits a sense of strangeness or uncanniness. See, e.g., MacDorman & Ishiguro, *supra* note 132, at 303; Ayse Pinar Saygin et al., *The Thing That Should Not Be: Predictive Coding and the Uncanny Valley in Perceiving Human and Humanoid Robot Actions*, 7 SOC. COGNITIVE AFFECTIVE NEUROSCIENCE 413 (2011).

136. Theories of conflicted perceptual cues or cognitive representations describe the negative effect associated with perceiving conflicted or hybrid cues that blur the identification of category membership, such as when experiencing genetically modified organisms (frankenfoods) or transgendered entities. See, e.g., Tyler J. Burleigh et al., *Does the Uncanny Valley Exist? An Empirical Test of the Relationship between Eeriness and the Human Likeness of Digitally Created Faces*, 29 COMPUTERS HUM. BEHAV. 759 (2013); Andrew J. Elliot & Patricia G. Devine, *On the Motivational Nature of Cognitive Dissonance: Dissonance as Psychological Discomfort*, 67 J. PERSONALITY & SOC. PSYCHOL. 382 (1994); Anne E. Ferrey et al., *Stimulus-Category Competition, Inhibition, and Affective Devaluation: A Novel Account of the Uncanny Valley*, FRONTIERS PSYCHOL. (Mar. 13, 2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4358369/pdf/fpsyg-06-00249.pdf> [<https://perma.cc/3AAK-RHKC>]; Jordan R. Schoenherr & Tyler J. Burleigh, *Uncanny Sociocultural Categories*, FRONTIERS PSYCHOL. (Jan. 21, 2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4300910/pdf/fpsyg-05-01456.pdf> [<https://perma.cc/6QPT-ZPY4>]; Yuki Yamada et al., *Categorization Difficulty Is Associated With Negative Evaluation in the “Uncanny Valley” Phenomenon*, 55 JAPANESE PSYCHOL. RES. 20 (2013).

137. Social distinctiveness theory is akin to identity paradox theory but describes other entities as a challenge to social identity or distinction. See, e.g., Francesco Fer-

canny valley effect is innate in the human species,¹³⁸ while other studies suggest it may be a learned behavior.¹³⁹ Determining which theory or combination of theories best explains the uncanny valley effect in the context of robots continues to be the goal of many researchers. This Article demonstrates that such research may inform policies related to sexual offenders if the uncanny valley actually exists in the sexual offender context. For example, determining through research in robotics whether the uncanny valley effect is a learned behavior may inform our research on the uncanny valley effect in the context of sexual offenders and how we might correct the way society understands and reacts to offenders within the community. However, the various theories explaining the uncanny valley are nevertheless beyond the scope of this initial Article. Instead, I assert here that, whatever the explanation for the uncanny valley effect may be, Mori's hypothesis provides an applicable format for studying the existence of the uncanny valley in the context of reintegrating civilly committed sexual offenders into the community.

Historically—notwithstanding the host of theories suggesting explanations for Mori's hypothesis—for approximately thirty-five years after Mori published his research, there was very little attention dedicated to the relevance of Mori's conclusions. However, with the advent of advanced technology in the field of robotics and robotics design, the implications of Mori's conclusions suddenly became quite significant in the past decade, particularly for the motion picture and video entertainment industries.¹⁴⁰

Consider Mori's hypothesis of the uncanny valley depicting animated characters in motion pictures and other computer graphic

rari et al., *Blurring Human-Machine Distinctions: Anthropomorphic Appearance in Social Robots as a Threat to Human Distinctiveness*, 8 INT'L J. SOC. ROBOTICS 287 (2016); Karl F. MacDorman & Steven O. Entenzari, *Individual Differences Predict Sensitivity to the Uncanny Valley*, 16 INTERACTION STUD. 141 (2015); Frédéric Kaplan, *Who Is Afraid of the Humanoid? Investigating Cultural Differences in the Acceptance of Robots*, 1 INT'L J. HUMANOID ROBOTICS 465 (2004).

138. See *supra* note 132.

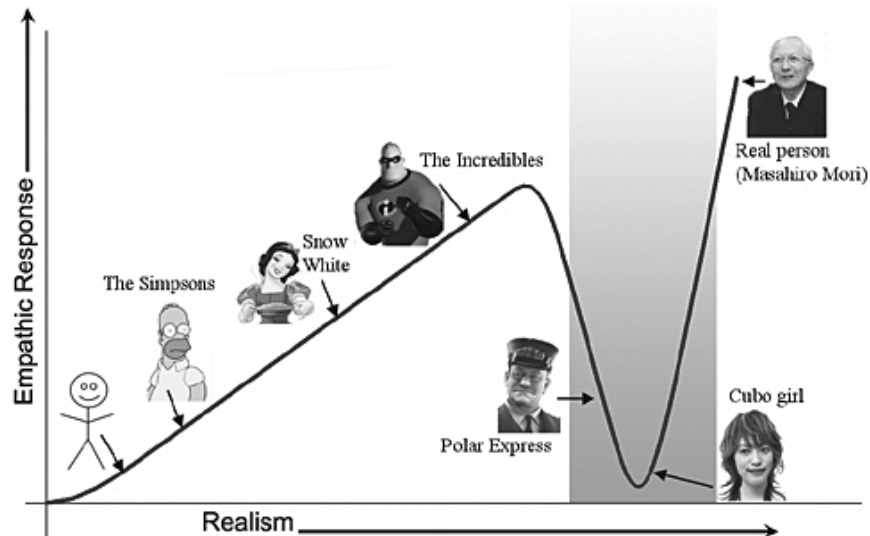
139. See Kimberly A. Brink et al., *Creepiness Creeps In: Uncanny Valley Feelings Are Acquired in Childhood*, CHILD DEV., Dec. 13, 2017; Shawn A. Steckenfinger & Asif A. Ghazanfar, *Monkey Visual Behavior Falls Into the Uncanny Valley*, 106 PROCEEDINGS NAT. ACAD. SCI. 18362, 18362 (2009). Researchers at Princeton University suspect there may be a biological component to the uncanny valley phenomenon that occurs as an evolutionary adaptation in the brain. In the first study of the uncanny valley phenomenon involving a subject other than a human, researchers have concluded that macaque monkeys also experience the effect of the uncanny valley. *Id.* Researchers believe that the results will be helpful in establishing the direction of future research that test the theories discussed in this Article. Kitta MacPherson, *Like Humans, Monkeys Fall into the 'Uncanny Valley'*, PRINCETON U. (Oct. 13, 2009, 11:00 AM), <https://www.princeton.edu/news/2009/10/13/humans-monkeys-fall-uncanny-valley> [<https://perma.cc/8VYR-TVJN>].

140. See, e.g., ANGELA TINWELL, THE UNCANNY VALLEY IN GAMES AND ANIMATION 10–21 (2014).

characters. Figure 3 presents the most typical depiction used in referencing this context.

FIGURE 3

Typical Illustration of the Uncanny Valley Hypothesis Presenting Stimuli in the Computer Graphic and Video Entertainment Industries



Within popular culture, the train conductor character in the movie *Polar Express* (2004), played by actor Tom Hanks, is commonly described as evoking “uncanny valley” responses in viewers because of how similarly the character in the movie resembles an actual human being, even though the character is clearly animated. The uncanniness evoked by the character is thought to have contributed to the disappointing acclaim of the production.¹⁴¹ Thus, plotted on Mori’s diagram, we see the *Polar Express* character plotted on the descent into the uncanny valley. Plotted deepest in the uncanny valley is a character called “Cubo Girl,” often referred to as “Creepy Girl,” which is a computer-generated image depicted on a flash page that follows with its eyes and head the movement of the user’s mouse icon.¹⁴² The

141. See Jari Kätsyri, “*The Polar Express*” Is Bipolar: *Critical Film Reviews Influence Uncanny Valley Phenomenon in Semi-Realistic Animation Films*, MIND MODELING 2344, <https://mindmodeling.org/cogsci2017/papers/0446/paper0446.pdf> (last visited Feb. 20, 2018) [<https://perma.cc/UJF8-7T87>]; *Corpses, Androids, and the Polar Express: A Social Neuroscience Perspective on the Uncanny Valley*, DARTMOUTH UNDERGRADUATE J. SCI. (May 22, 2009), <https://sites.dartmouth.edu/dujs/2009/05/22/corpses-androids-and-the-polar-express-a-social-neuroscience-perspective-on-the-uncanny-valley/> [<https://perma.cc/52CE-NA2M>].

142. For a video of a person interacting with “Creepy Girl,” see Keng Wong, *Creepy Girl on Website*, YOUTUBE (Sept. 30, 2008), <https://www.youtube.com/watch?v=PF1NQFmOoAE> [<https://perma.cc/L43M-XX63>].

creepiness of the experience plots this character at the peak of the valley. However, several Pixar Studio productions that relied on human-like but quite stylized, *non-realistic* characters, such as *The Incredibles* (2004), *A Bug's Life* (1998), and *Toy Story* (1995), were well-received and highly successful.¹⁴³ Thus, the character from *The Incredibles* plots nearest to the first peak ascending on the affinity scale.

Because Mori's theory has not been fully scientifically studied, some critics contend that it is merely conjecture and not useful in robotics design.¹⁴⁴ However, there is a growing body of literature that indicates the contrary. As discussed here, in the context of motion pictures and computer-generated imagery, "empirical evidence for the [uncanny valley] phenomenon has already begun to accumulate, especially from studies with featurally mismatching . . . and naturalistic stimuli . . ." ¹⁴⁵ Such studies provide relevant information that appears to help designers assess how to approach the uncanny valley without falling into it. Alternatively, continued research may eventually reveal the formula for successfully *crossing* the uncanny valley and designing life-like androids or computer-generated models that function successfully without evoking negative reactions in those with whom they interact.

143. See Scott Mendelson, *From 'Toy Story' To 'Cars 3,' Every Pixar Movie Ranked by Box Office*, FORBES (Nov. 21, 2017, 3:00 PM), <https://www.forbes.com/sites/scottmendelson/2017/11/21/box-office-pixars-animated-films-ranked/#750997832584> [https://perma.cc/WGP5-K87B].

144. See Guizzo, *supra* note 104; Sofge, *supra* note 104; Wang et al., *supra* note 15, at 393, 403.

145. Kätsyri, *supra* note 141, at 2348 (citing K. F. MacDorman & D. Chatopadhyay, *Reducing Consistency in Human Realism Increases the Uncanny Valley Effect; Increasing Category Uncertainty Does Not*, 146 COGNITION 190 (2016); M. B. Mathur & D. B. Reichling, *Navigating A Social World With Robot Partners: A Quantitative Cartography of the Uncanny Valley*, 146 COGNITION 22 (2016); E. Poliakoff et al., *Can Looking at A Hand Make Your Skin Crawl? Peering Into the Uncanny Valley for Hands*, 42 PERCEPTION 998 (2013); J. Seyama & R. S. Nagayama, *The Uncanny Valley: Effect of Realism on the Impression of Artificial Human Faces*, 16 PRESENCE: TELEOPERATORS & VIRTUAL ENV'T 337 (2007)).

FIGURE 4

Saya—an Advertising Model for the Japanese Computer Graphics Company, Telyuka



Consider, for example, Saya, pictured in Figure 4. Saya is a school girl who serves as a model in advertisements for a Japanese company called “Telyuka.”¹⁴⁶ Telyuka is comprised of Japanese artists Teruyuki Ishikawa and Yuka Ishikawa, who are 3D computer graphic artists who design virtual humans, and Saya is actually a computer-generated project that Telyuka started in 2015.¹⁴⁷ Some who view Saya’s picture or see Saya strolling with life-like motions across the screen on Telyuka’s animated website remark that, were it not for knowing the context of her depiction, Saya is nearly indistinguishable from a real human, yet she evokes no eerie emotions whatsoever.¹⁴⁸ For those subjects, perhaps the uncanny valley has been crossed. Still, others may sense an inexplicable nonhuman quality in her depiction, and those subjects may recoil to some degree and, theoretically, descend into the uncanny valley proportionately.¹⁴⁹ Regardless of individual opinion, we must agree that the computer graphic imaging and robotics design industries have developed significantly and rapidly, with research focused on circumventing (or perhaps, relying upon) the effect of the uncanny valley in a way that facilitates effective interaction with

146. See TELYUKA, <https://www.telyuka.com/> (last visited Sept. 22, 2018) [<https://perma.cc/7YRH-3692>]; see also Yvette Tan, *Saya: Big Ambitions for Japanese ‘Digital Daughter,’* BBC (Oct. 8, 2016), <https://www.bbc.com/news/world-asia-37548733> [<https://perma.cc/PE6A-VPBZ>].

147. See Tan, *supra* note 146.

148. See Juan Buis, *This Girl Isn’t Real, and It’s Proof That CGI Isn’t Creepy Anymore,* NEXT WEB (Sept. 9, 2016), <https://thenextweb.com/creativity/2016/09/09/cgi-girl-isnt-real/> [<https://perma.cc/8EWW-STP6>].

149. See Kyoshiro Sasaki et al., *Avoidance of Novelty Contributes to the Uncanny Valley,* FRONTIERS PSYCHOL. 9 (Oct 26, 2017), <https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01792/pdf> [<https://perma.cc/5XSZ-YMHL>] (proposing that individual’s subjective impression of, and susceptibility to, uncanniness is part of the limitation to value it as a source of relevant or reliable empirical data).

humans. In Saya's case, her design *is* her function, which is to advertise the ability to design computer-animated virtual humans. Thus, avoiding Mori's uncanny valley is critical to her success. Research that continues to test and refine Mori's hypothesis, and the public's reaction to it, will only further perfect our ability to successfully integrate robotic entities into our lives by either relying on, crossing, or circumventing the uncanny valley. Specifically in the context of robotics design, Mori recommended that designers "take the first peak as their goal, which results in a moderate degree of human likeness and a considerable sense of affinity."¹⁵⁰ In fact, Mori predicted that "it is possible to create a safe level of affinity by deliberately pursuing a *nonhuman* design."¹⁵¹ In the third article of this series, within the context of the reintegration of sexual offenders, I will demonstrate that this observation by Mori will serve as a critical admonition to society if sexual offenders are to avoid the uncanny valley and successfully reintegrate into the community.

2. Human–Robot Interaction

Studies applying the uncanny valley in robotics design typically focus on the manipulation of visual stimuli to assess a subject's mere affinity for specific categories or combinations of stimuli. Beyond the mere aesthetic design of a robot, however, the field of social robotics focuses on the study of the interaction between humans and robots. Despite those who are skeptical of the relevance of the uncanny valley to research in robotics design,¹⁵² within the study of human–robot interactions, many feel that "[t]here is enormous potential for psychologists to contribute to this strangely compelling field."¹⁵³ This includes Mori's hypothesis of the uncanny valley.

In the context of human–robot interactions, Mori's hypothesis is quite relevant, whereas the specific research that scientists continue to conduct is frequently based on it. Often, the purpose of research about human–robot interactions is simply that—to understand how humans and robots interact. However, often, the purpose of conducting research that questions or applies Mori's hypothesis is for a variety of other, more specific purposes. For example, the application of Mori's theory may be relevant to contexts ranging from the treatment of child autism¹⁵⁴ to the adoption of culturally relevant educa-

150. Mori Translation, *supra* note 14, at 100.

151. *Id.* (emphasis added).

152. See, e.g., Bartneck et al., *supra* note 123, at 275 (noting scarce empirical proof for, and claiming weaknesses in, Mori's hypothesis).

153. Elizabeth Broadbent, *Interactions with Robots: The Truths We Reveal About Ourselves*, 68 ANN. REV. PSYCHOL. 627, 646 (2017).

154. See Matthieu Destephe, et al., *Uncanny Valley, Robot and Autism: Perception of the Uncanniness In An Emotional Gait*, 2014 IEEE INT'L CONF. ROBOTICS & BIOMIMETICS 1152, https://www.researchgate.net/publication/282315397_Uncanny_valley_robot_and_autism_Perception_of_the_uncanniness_in_an_emotional_gait [https://

tional pedagogy,¹⁵⁵ architectural theory,¹⁵⁶ and even the use of lethal autonomous weapons.¹⁵⁷ Mori’s theory of the uncanny valley may be applicable even to the study of society’s use of certain types of “sex dolls,” as well as the use of sex dolls in the treatment of sexual offenders.¹⁵⁸ Likewise, I assert that the uncanny valley may be relevant to whether a sexually violent predator is released from civil commitment. All of these are concepts that are being, or should be, studied, and possibly shaped, by Mori’s hypothesis of the uncanny valley.

Recall that the goal of many roboticists is to design the perfect android that is indistinguishable from a healthy human. In this endeavor, although science has not yet perfected such a design, it has progressed exponentially toward its goal in just a short time. Mori ultimately concluded, however, that the most effective robot design for appealing to humans is not the one that is perfectly human but the one that is moderately human-like so as to be familiar to subjects, thereby maximizing affinity, but sufficiently distinguishable such that subjects are not psychically confused or aesthetically repulsed.¹⁵⁹ Mori asserts that designing robots this way may minimize, or even avoid, the effect of the uncanny valley.¹⁶⁰ Likewise, it is the goal of most scientists in the field of social robotics to study the social interactions between robots and humans to create the most socially adept robot at interacting with humans. To accomplish this, social roboticists also must avoid the uncanny valley.¹⁶¹

/perma.cc/5HNP-WYST]; Yuki Ueyama, *A Bayesian Model of the Uncanny Valley Effect for Explaining the Effects of Therapeutic Robots in Autism Spectrum Disorder*, 10 PLoS 2 (Sept. 21, 2015), <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0138642&type=printable> [https://perma.cc/TL7G-4XUG]; Isabella Jaramillo, *Do Autistic Individuals Experience the Uncanny Valley Phenomenon?: The Role of Theory of Mind in Human-Robot Interaction* (2015) (unpublished Majors thesis, University of Central Florida), <http://stars.library.ucf.edu/cgi/viewcontent.cgi?article=1618&context=honorstheses1990-2015> [https://perma.cc/6YQY-AMJ8].

155. See Roberto Ollivier-Garza, *Neutralizing the Uncanny Through Culturally Relevant Teaching*, 8 ARAB WORLD ENG. J. 318 (2017); Roberto Ollivier-Garza, *Identifying the Uncanny Phenomena in Educational Practice*, 7 ARAB WORLD ENG. J. 175 (2016).

156. See Susan Piedmont-Palladino, *Into the Uncanny Valley*, PLACES J. (Apr. 2018), <https://placesjournal.org/article/into-the-uncanny-valley/> [https://perma.cc/F6TF-B6EU].

157. See Chris Jenks, *False Rubicons, Moral Panic, & Conceptual Cul-De-Sacs: Critiquing & Reframing the Call to Ban Lethal Autonomous Weapons*, 44 PEPP. L. REV. 1, 33 (2016).

158. See *infra* notes 214–26 and accompanying text; Mori Translation, *supra* note 14, at 100.

159. Mori Translation, *supra* note 14, at 100.

160. *Id.*

161. Sasaki et al., *supra* note 149, at 1. “[D]eveloping a way to bridge this valley is important if we want to have a future in which robots are properly integrated into our society.” *Id.*

One theory particularly relevant to avoiding the uncanny valley in the social robotics area is “categorization difficulty.”¹⁶² Put simply, when the subject observing the stimuli experiences difficulty identifying into which of two categories an object belongs—“Is it a robot, or is it a human?”—the observer becomes threatened by the object, creates a negative impression, and avoids the object as a defense mechanism.¹⁶³ Such was the basic format of Mori’s original study focused on robot design.¹⁶⁴ However, in the area of social robotics, Sasaki et al. note that research focused on stimulus-related factors, such as Mori’s research, is incomplete.¹⁶⁵ Instead, scientists must also consider subject-related factors, such as individual personality traits of the subjects observing the stimuli. Sasaki et al. contend that individual differences in perceived eeriness, particularly by those with personality traits inclined to avoid novel experiences, have a steeper slope into the uncanny valley than subjects with personalities motivated by reward and adventure-seeking.¹⁶⁶ Persons who tend to avoid novelty perceive unidentifiable objects with greater eeriness because of the need to create a new or novel category for the object.¹⁶⁷

There are some studies that support the categorization difficulty theory¹⁶⁸ and some that do not.¹⁶⁹ In creating stimuli, studies supporting the categorization difficulty theory presented objects that morphed two “eerie-neutral” objects, such as a real human and a child’s stuffed animal, whereas studies that opposed the theory morphed one stimuli that was eerie and one that was eerie-neutral—i.e., one of the morphed stimuli comprising the subject stimuli already provoked negativity or avoidance.¹⁷⁰ Although both groups of studies concluded that categorization is not a unitary factor in promoting the uncanny valley,¹⁷¹ variation in morphing manipulation may be a rele-

162. *See id.*

163. *See id.* at 2; *see also* Wang et al., *supra* note 15, at 393.

164. Mori Translation, *supra* note 14, at 98.

165. Sasaki et al., *supra* note 149, at 2.

166. Of course, generally, society does not “seek adventure” with respect to the safety of children in the sexual offense context. However, this Article nevertheless demonstrates the potential analogy of categorization difficulty in the context of sexual offenders.

167. *Id.* at 9.

168. *See* Ferrey et al., *supra* note 136; Yamada et al., *supra* note 136.

169. *See, e.g.*, Tyler J. Burleigh & Jordan R. Schoenherr, *A Reappraisal of the Uncanny Valley: Categorical Perception or Frequency-Based Sensitization?*, 6 *FRONTIER PSYCHOL.* 1488 (2015); Marcus Cheetham et al., *Perceptual Discrimination Difficulty and Familiarity in the Uncanny Valley: More Like a “Happy Valley”*, 5 *FRONTIER PSYCHOL.* 1219 (2014); Karl F. MacDorman & Debeleena Chattopadhyay, *Reducing Consistency in Human Realism Increases the Uncanny Valley Effect; Increasing Category Uncertainty Does Not*, 146 *COGNITION* 190 (2016).

170. Sasaki et al., *supra* note 149, at 10.

171. *Id.* at 9 (concluding that, based on a comprehensive analysis of numerous studies, the uncanny valley effect is the result of the interaction of neurophysiological, cognitive, and social factors that are finally integrated as a conscious perception of eeriness).

vant distinction, particularly when the subjects’ personality traits are considered.¹⁷² Some researchers caution that in studying the application of the uncanny valley hypothesis, researchers should not design stimuli scales that include inherently negative or revolting stimuli, such as corpses or zombies, because they are predetermined to be connotatively negative.¹⁷³ As I will describe in the second article of this series, this factor is particularly relevant when applying the uncanny valley hypothesis to the context of sexual offenders because the public has a predetermined negative perception of sexual offenders as inhuman monsters.¹⁷⁴

Relevant to this is another factor that may affect conclusions about categorization difficulty—the unconscious emotional processing pathways of individual subjects.¹⁷⁵ This variable may play a similar role of producing uncanny valley effects when incidental learning is considered. For example, “[t]he uncanny valley is an everyday phenomenon that occurs regardless of any explicit cognitive task[,] . . . [and] [i]ncidental learning is knowledge acquisition that occurs without intention. It is likely that incidental categorization also produces the uncanny valley for objects that are hard to categorize.”¹⁷⁶ One study tested this concept by morphing together two visual depictions of different kinds of fruit (for example, a strawberry and a tomato) and subliminally providing corresponding olfactory stimuli to determine the effect on the subject’s preference for the fruits. This study concluded that “subliminally presented odors mitigate negative impressions of hard-to-categorize foods”¹⁷⁷ Hypothetically, therefore, emotional pathways may be incidentally influenced by other emotional and knowledge-based stimuli. I propose that this is a significant factor in the public’s perception of sexual offenders, particularly with

172. *Id.* at 10. Interestingly, at least one study revealed that morphed images of mixed genders did not provoke a negative response, making it less likely that perceived differences in sex influenced outcomes. See Yamada et al., *supra* note 136, at 10. However, in the context of sex offenders, the perception and legal treatment of female offenders contrasts starkly with that of male offenders. See FLANNERY & O’BRIEN, *supra* note 4, at 23–39.

173. See Kätsyri et al., *supra* note 14, at 11–12.

174. Michael T. Flannery, *The Uncanny Valley and the Verisimilitude of Sexual Offenders—Part II: Perception Versus Reality* (forthcoming 2020).

175. Sasaki et al., *supra* note 149, at 10.

176. *Id.*

177. See Yuki Yamada et al., *Scents Boost Preference for Novel Fruits*, 81 APPETITE 102 (2014). See also Christopher C. Berger et al., *The Uncanny Valley of Haptics*, SCI. ROBOTICS 1 (Apr. 18, 2018), https://www.researchgate.net/profile/Christopher_Berger/publication/324597127_The_uncanny_valley_of_haptics/links/5ad78ccb0f7e9b28593ac4dc/The-uncanny-valley-of-haptics.pdf?origin=publication_detail [https://perma.cc/CHH3-FU2M] (finding an uncanny valley exists for subjects who interact with robots when the subject’s perception of forces (i.e., tactile sensations) rendered during human–robot interactions or virtual reality manipulations are incongruent with other sensory cues, thereby concluding that enhancements of the interactive forces with robots do not necessarily lead to an improved subjective experience by the human operator).

respect to how the media influences the public's perspective of sexual offenders. This is because the media is so often the originating source of the public's incidental knowledge of sexual offenders.¹⁷⁸

Also related to categorization difficulty is the theory of "perception mismatch" or "realism inconsistency," which is supported in many studies.¹⁷⁹ Perception mismatch occurs when one perceives conflicted cues that violate expectations, such as when a robot looks just like a human but acts clearly robotically.¹⁸⁰ Saygin et al. tested the uncanny valley theory by showing subjects three video clips: an android (appearing human-like but acting robotically); a human (appearing human and acting humanly); and a robot (appearing mechanical and acting mechanically).¹⁸¹ The study showed greater brain activity and neural processing in the subjects when observed behavior was mismatched with expectations.¹⁸² The study concluded that people expect humans to act like humans, so if people observe an android that they perceive to be human but that acts in nonhuman ways, it violates people's expectations for humans and sends negative feedback to the brain.¹⁸³

Although there are a variety of other theories that may explain Mori's hypothesis of the uncanny valley,¹⁸⁴ "categorization difficulty" and "perception mismatch" are the two theories that appear to be most effectual in the context of robot design and social robotics. The study of Mori's hypothesis in these areas has led to advances in areas not necessarily concerned with robotics per se, but areas for which robots merely function as tools to accomplish a specific purpose, such as in the area of healthcare robots designed to assist the elderly with specific daily functions.¹⁸⁵ In terms of robot design in such areas,

178. I discuss this concept in greater detail in the second article of this series.

179. See, e.g., Kätsyri et al., *supra* note 14, at 6–7; MacDorman & Chattopadhyay, *supra* note 169; MacDorman et al., *supra* note 133; Jun'ichiro Seyama & Ruth S. Nagayama, *The Uncanny Valley: Effect of Realism on the Impression of Artificial Human Faces*, 16 PRESENCE 337 (2007); Wade J. Mitchell et al., *A Mismatch in the Human Realism of Face and Voice Produces an Uncanny Valley*, 2 IMPERCEPTION 10 (2011).

180. Broadbent, *supra* note 153, at 627.

181. Saygin et al., *supra* note 135, at 415.

182. *Id.* at 420.

183. Broadbent, *supra* note 153, at 638 (citing MacDorman & Chattopadhyay, *supra* note 169).

184. See Wang et al., *supra* note 15, at 394–98 (describing Pathogen Avoidance hypothesis, Mortality Salience hypothesis, Evolutionary Aesthetics hypothesis, Violation of Expectation hypothesis, Categorical Uncertainty hypothesis, and Mind Perception hypothesis); see also Kätsyri et al., *supra* note 14, at 4–7 (describing Naïve hypothesis, Morbidity hypothesis, Movement hypothesis, Categorization Ambiguity hypothesis, and Perceptual Mismatch hypothesis).

185. See Broadbent, *supra* note 153, at 629 (offering examples, like physical tasks (e.g., picking up or carrying objects), cognitive activities (e.g., remembering to take medication or bathe), health management (e.g., monitoring vital signs or alerting authorities to falls or other emergencies), and psychosocial issues (e.g., providing comfort or companionship)).

Mori’s advice to design a robot that is clearly distinguishable from humans is applicable, since a robot does not need to be indistinguishable from a human to accomplish the objective for which it is designed to function. Likewise, in terms of social robotics, although still quite experimental, researchers are studying Mori’s theory to learn how to program robots to interact with children with autism, who tend to have difficulty socializing with other humans, particularly in interpreting emotions. In this example, a humanoid robot that is not overly human-like may be programmed to be more simplistic and predictable in its limited behaviors and emotional responses, from which the autistic child may observe social cues and then assimilate those learned behaviors in his or her interactions with other people.¹⁸⁶ Thus, Mori’s theory is useful in studying not only how humans respond to how robots look (robot design) but also how humans interact with robots based on how the robots are designed to function.

One theory that expands upon Mori’s hypothesis based on the functionality of robots rather than the robots’ physical likeness to humans, and which proposes that Mori’s uncanny valley may be circumvented altogether, is the theory of ethorobotics. In the following Section, I explain the relevance and applicability of ethorobotics to robotic design and social robotics generally, and to Mori’s approach to the uncanny valley specifically. Notwithstanding the relevance and applicability of ethorobotics to Mori’s uncanny valley hypothesis with respect to the development of social robots, the third article of this series will question its effectiveness in avoiding the uncanny valley altogether when applied to the release and reintegration of civilly committed sexually violent predators.

C. *Expanding Mori’s Hypothesis: Ethorobotics*

Miklósi et al. proposed a new approach for solving the paradox of the uncanny valley within the field of human–robot relations.¹⁸⁷ The approach is premised on Mori’s hypothesis, but it relies on evolutionary, ecological, and ethological principles of human behavior and focuses on optimizing the functionality of robots within a defined “niche.”¹⁸⁸ The approach is called “ethorobotics,” and it addresses some of the problems associated with the categorization difficulty inherent in Mori’s hypothesis. Miklósi et al. proposed that, within any ecology, “biological agents should be able to discriminate others at three different levels: (1) conspecifics (same species) versus heterospecifics (other species, e.g., predators); (2) familiar conspecifics (e.g.,

186. See Destephe et al., *supra* note 154; Ueyama, *supra* note 154, at 1; Jaramillo, *supra* note 154.

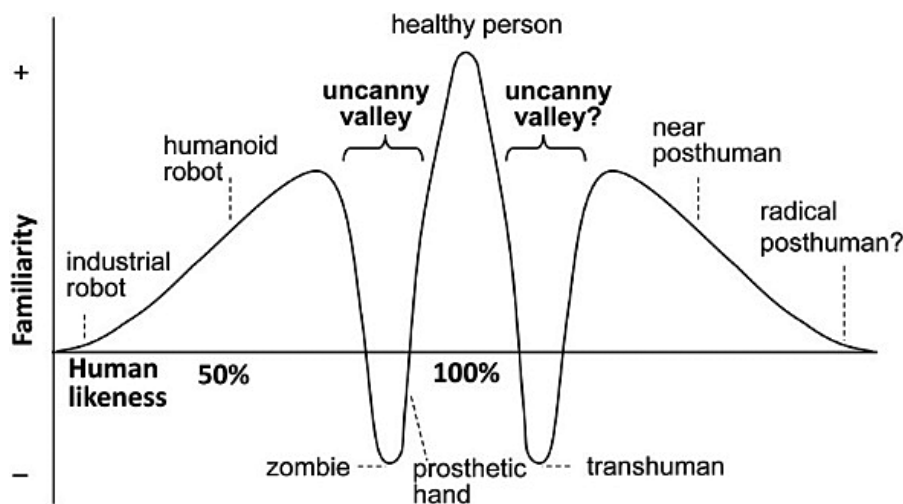
187. See Ádám Miklósi et al., *Ethorobotics: A New Approach to Human-Robot Relationship*, *FRONTIERS PSYCHOL.* (June 9, 2017), <https://www.frontiersin.org/articles/10.3389/fpsyg.2017.00958/pdf> [<https://perma.cc/VB56-47D9>].

188. *Id.* at 1.

group members) versus unfamiliar conspecifics (e.g., strangers/intruders); [and] (3) familiar conspecifics versus individuals (e.g., mate, friends, and pups).¹⁸⁹ Each level of discrimination occurs within a “peak” on the diagram of the uncanny valley, which, for ethorobotics, is plotted with three peaks, as presented in Figure 5.¹⁹⁰

FIGURE 5

Ethorbotic Illustration of the Uncanny Valley



In the diagram in Figure 5, the first or medium peak is essentially the same as that of Mori’s hypothesis for robots progressing in human likeness. The subject here is distinguishing robots, androids, and humans by degree of human likeness until the point at which the humanoid robots become too similar to humans and fall into the first uncanny valley. Likewise, as with Mori’s hypothesis, the ethorbotic diagram presents robots as eventually moving through the uncanny valley as they develop into perfect representations of human beings. However, the ethorbotic approach contemplates that robots will quickly surpass or transcend human capacity and become what researchers refer to as “trans-humans.”¹⁹¹ Note that the horizontal axis represented on the ethorbotic uncanny valley diagram represents not only human likeness but also the passage of time in the development of robotic technology. Thus, it represents that the time it takes a robot to transcend the second peak of perfect human likeness is of short

189. *Id.* at 2.

190. *Id.* Figure 5 is presented in Miklósi et al., which credits Jamais Cascio. *See id.* at 4 fig.2; *see also* James Cascio, *The Second Uncanny Valley*, OPEN FUTURE (Oct. 27, 2007), http://www.openthefuture.com/2007/10/the_second_uncanny_valley.html [<https://perma.cc/2QFU-Z6SW>].

191. Miklósi et al., *supra* note 187, at 4.

duration. This is because, technologically, once a robot becomes indistinguishable from humans, it will not be long before it transcends the peak of human performance and begins, once again, to distinguish itself from humans by surpassing human capacity. As in so many mainstream movies in which robots interact in society and quickly become so technologically advanced that they “take over” the human protagonists,¹⁹² it becomes our fear that, as these perfected human-like androids transcend human capacity, they once again will become either difficult to categorize or will more egregiously diverge from our expectations for humans. Thus, as they transcend humans, they consequently fall into a second uncanny valley. The diagram then ascends to a third peak as the technology that has now transcended human capacity continues to develop. Accordingly, as the transcendent robot continues to surpass human capacity, it increasingly distinguishes itself from being perceived and categorized as human. As stated in Miklósi et al., “[t]he hill after the valley is when differentiation is strong enough to create a new category.”¹⁹³ Thus, the third hill comprises a new category of “post-human” robots, which will not again approach the maximum humanness that it has already surpassed. Instead, as its technology continues to advance, humans will “have problems in predicting the behavior of robots that look like us but behave differently.”¹⁹⁴ As a result, the post-human robot will only descend again into further negative familiarity, mirroring its opposite ascent toward human likeness before it fell into the first uncanny valley.

Miklósi et al. propose that advanced robots may entirely circumvent the two uncanny valleys between the three peaks if they are perceived not in terms of human likeness but in terms of functionality within the environment in which they have developed. For example, “[i]nstead of aiming to build more and more human-like robots and trying to ‘climb’ the Maximum Peak, we may start robot construction by determining their function and their environment and design the m[o]st suited agent independently from its similarity to humans.”¹⁹⁵ Because—unlike humans—robots are not constrained by evolutionary continuity, we may design robots to “‘jump’ from one type of agent to a radically different one” without having to embody perfect humanness, thus allowing it to integrate into the human environment in a socially competent way based on its ethological functionality, without descending into the uncanny valley. A 3D “ethorobotic” version of advancing human–robot interaction is presented in Figure 6.¹⁹⁶

192. See, e.g., *THE TERMINATOR* (Orion Pictures 1984); *THE MATRIX* (Warner Brothers 1999); *UNCANNY* (RLJ Entertainment 2015).

193. Miklósi et al., *supra* note 187, at 4 fig.2.

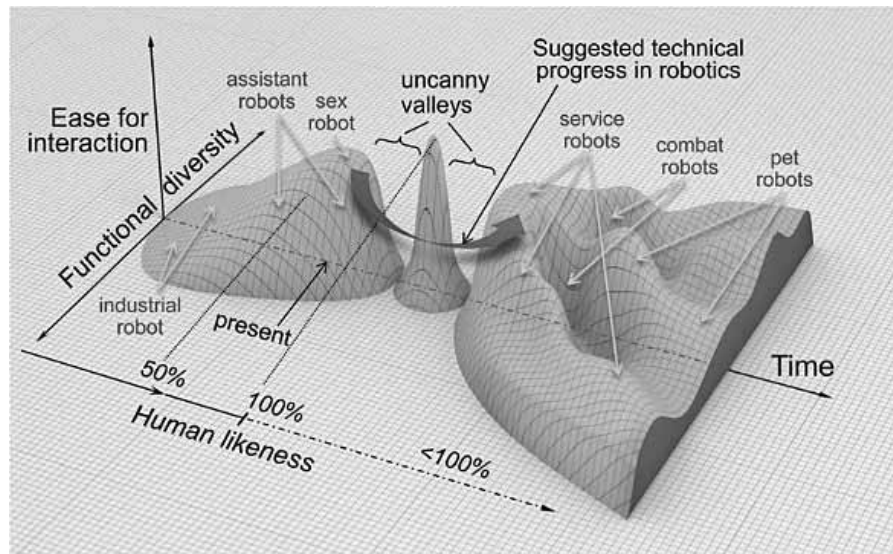
194. *Id.* at 4 (citing Saygin et al., *supra* note 135).

195. Miklósi et al., *supra* note 187, at 4.

196. *Id.* at 5 fig.3.

FIGURE 6

3D Ethorbotic Illustration of the Uncanny Valley for Advancing Robot Interaction



Premised on Mori's hypothesis, Miklósi et al. describe this three-dimensional ethorbotic concept, illustrated in Figure 6, as follows:

After the peak and the second uncanny valley, robots are likely to evolve into a diversity of morphologies and behaviors that, depending on their functions, gradually move away from perfect human likeness. The wide curved arrow indicates the possible detour for social robotics by moving directly from the present state to less humanlike robots with diverse functionality retaining high-level capacity for social interaction with humans. The labels on the terrain are only for informative purposes and do not necessarily refer to actual existing robots.¹⁹⁷

Thus, an ethological approach to effectively integrating robots into society is accomplished by designing and perceiving robots not in relation to their human likeness but rather in relation to their social competence and functionality within the environment into which they are integrated. Miklósi et al. offer the evolution and domestication of the dog as an analogous form of social integration that successfully circumvents the uncanny valley. Despite the dog's morphological and behavioral differences, the dog has demonstrated complex, human-like social competencies that maximize its functionality within society.¹⁹⁸ "Social competence" is defined as:

^{197.} *Id.*

^{198.} *Id.* at 5.

[A]n individual’s ability to generate social skills that conform to the expectations of others and the social rules of the group Such complex level of interaction emerges if the individual wants to participate, has the means to participate, and is regarded by others as being able to participate in the life of the group.¹⁹⁹

Important to the complexity of the interaction, at least from the human perspective, is that “humans can maintain control over ethorobots by controlling the nature of the interaction, and whether they maintain or close down the actual niche of the robot.”²⁰⁰ Assuming the viability of this assertion, Miklósi et al. conclude that the solution lies in categorizing social robots separately from humans, thereby removing the constraints of human expectations and circumventing the uncanny valley.

This ethorobotic expansion of Mori’s uncanny valley hypothesis offers a viable—or at least, testable—option for designing and recategorizing robots to maximize their functionality and, at the same time, to optimize their human likeness to suit their function and the environment in which they will interact with humans. With respect to human–robot interactions, there are sound benefits to such an approach. Consider, for example, a context in which human–robot interaction occurs, for which perfecting human likeness in the robot is essential, and within which simply avoiding the uncanny valley by not even approaching it (by pursuing a *nonhuman* design, as Mori proposed) is insufficient. This was the case involving the design of a computer-animated virtual avatar of a ten-year-old Filipina girl named “Sweetie”—pictured in Figure 7.

FIGURE 7

Computer-Animated Virtual Avatar, “Sweetie”



199. *Id.* at 5–6 (citations omitted).

200. *Id.* at 6.

In 2013, a Dutch children's rights group called Terre des Hommes, which sought to expose "webcam child sex tourism,"²⁰¹ contracted a computer animation company to design a human-like computer-animated child to be used in a sting operation targeting online sexual predators.²⁰² Officials posted a depiction of "Sweetie" online to lure predators into open webcam connections, during which programmers would use motion capture to animate Sweetie as necessary to interact with the predators. After engaging in some dialogue, the predator would wire-transfer \$20 and provide a Skype address to continue a sexual exchange online.²⁰³ Upon obtaining this identifying information, officials exited the chat room and provided the predator's identifying information to Interpol. In just ten weeks of operation—during which, at any one time, more than 750,000 child sexual predators were actively engaged in more than 40,000 online chat rooms, in only nineteen of which Sweetie posted her identity—more than 20,000 persons contacted Sweetie. Through this exercise, law enforcement was able to identify over 1,000 predators from seventy-one countries.²⁰⁴ Sweetie's sting operation became "the largest sexual abuse case in history."²⁰⁵

There is no way to know, of course, but one wonders to what extent the uncanny valley effect influenced the outcome in the case. Did Sweetie successfully cross the uncanny valley? Obviously, she did for over 1,000 sexual offenders. Of course, while there may have been countless reasons why 19,000 others did not pursue Sweetie as a viable option for sexual contact, it stands to reason that some of the 19,000 who initially contacted Sweetie were unsettled by her appearance and relegated her to the uncanny valley. One of the criticisms of Mori's theory is that the sense of the uncanny is subjective and, therefore,

201. The group defines "webcam child sex tourism" as "when adults pay to direct and view live-streaming video footage of children in another country performing sexual acts in front of a webcam." Mark Memmott, *Virtual 'Sweetie' Uncovered 1,000 Sexual Predators, Group Says*, NPR (Nov. 5, 2013, 2:20 PM), <https://www.npr.org/sections/thetwo-way/2013/11/05/243245567/virtual-sweetie-uncovered-1-000-sexual-predators-group-says> [<https://perma.cc/Y9YT-L4PZ>].

202. *Id.*

203. See Lia Grainger, *Operation 'Sweetie': How a Virtual Girl Brought a Real-Life Australian Sex Offender to Justice*, READER'S DIG. ASIA PACIFIC (Aug. 1, 2017), <https://www.liagrainger.com/#/sweetie/> [<https://perma.cc/K4UN-XM8G?type=image>] (describing the process by which Terre des Hommes created the sting operation and designed "Sweetie," and an account of the sting of one of the predators from Australia who contacted Sweetie).

204. *Id.* Of the 1,000 predators who were identified, only one was female; 254 were from the United States; 110 were from the United Kingdom; 103 were from India; fifty-four were from Canada; forty-six were from Australia; and forty-four were from Germany. *Id.*; see also Lauren Walker, *Computer-Generated 10-Year-Old Girl Leads to Conviction of Online Predator*, NEWSWEEK (Oct. 21, 2014, 1:27 PM), <https://www.newsweek.com/computer-generated-10-year-old-girl-leads-conviction-online-predator-278811> [<https://perma.cc/8B2Q-TW6M>].

205. See Grainger, *supra* note 203.

cannot be validated empirically.²⁰⁶ But even assuming the uncanny valley effect deterred all 19,000 predators who discontinued their exchange with Sweetie, in the case of identifying child predators, is it sufficient that Sweetie falls into the uncanny valley 95% of the time? Some researchers studying the uncanny valley effect on human–robot interactions might say, “Yes” because the goal should not be to create robots that are indistinguishable from humans; rather, the goal should be to create human-like robots that function to accommodate a projected niche,²⁰⁷ which Sweetie obviously did 1,000 times. Therefore, the question researchers may have to decide is whether to continue to strive to improve upon Sweetie’s human-like qualities so as to cross the uncanny valley with greater percentage, or to configure Sweetie to optimize her functionality in the desired niche of tracking online child sexual predators.²⁰⁸

The answer to this dilemma depends on which approach to the uncanny valley one takes. Obviously, Mori’s conclusion to avoid the uncanny valley by designing a robot that is clearly distinguishable from a human is ineffectual, whereas unless Sweetie appears to be indistinguishable from a human, she serves no function within the niche for identifying online sexual predators. It is possible, if not likely, that this was the case for at least some of the 19,000 sexual predators whose subjective response to Sweetie’s uncanny human likeness left her descended into the uncanny valley. Theoretically, according to Mori’s hypothesis, the only way to maximize Sweetie’s function as a resource for identifying online sexual predators is to continue to develop Sweetie’s technology by perfecting her human likeness, which is either limited technologically or necessarily subject to the effect of the uncanny valley for any length of time, which could be cost-prohibitive and, nevertheless, progressively ineffective.

Under an ethorobotic approach, however, instead of aiming to increase Sweetie’s capacity by perfecting her human likeness and ascending the “Maximum Peak,” designers may first identify Sweetie’s projected function and her environment, and then design her in a way that maximizes her function independently from her similarity to humans. Free from the constraints of the evolutionary biology of human agents, “robot engineering can proceed by ‘jumps’ from one type of agent to a radically different one” without having to embody perfect humanness.²⁰⁹ Design based on ethological functionality al-

206. See Guizzo, *supra* note 104; Sofge, *supra* note 104; Wang et al., *supra* note 15, at 393, 403.

207. See *supra* text accompanying notes 186–87 (quoting Miklósi et al., *supra* note 187, at 1) (alteration in original).

208. Since 2013, Sweetie’s designers have developed her into an automated chatbot, named “Sweetie 2.0,” that can chat simultaneously in numerous chat rooms and that “warns and deters (potential) offenders of webcam sex with children.” Grainger, *supra* note 203.

209. Miklósi et al., *supra* note 187, at 4–5.

lows Sweetie to integrate into the human environment in a socially competent way without descending into the uncanny valley. Thus, under an ethorobotic approach, through which the designer may control the interactions between Sweetie and the online predators, designers may terminate Sweetie's function within the niche without pursuing a perfected human-like version of her that must pass through the uncanny valley. Instead, designers may optimize her function by redesigning her as a "trans-human" robot, which surpasses a human's capacity for identifying online predators in chat rooms. In fact, this is precisely what occurred with Sweetie. Since the success of her tenure as an online computer-animated avatar, Sweetie's designers have developed her into an automated chatbot²¹⁰ named "Sweetie 2.0," which now functions measurably differently than the original avatar, Sweetie. "Sweetie 2.0" can now chat simultaneously in numerous chat rooms and "warns and deters (potential) offenders of webcam sex with children."²¹¹ While not *radically* different in terms of its purpose and environment, its functionality is optimized by designing the agent independently from its physical likeness to humans and transcending a human's capacity to animate an avatar's interactions with predators one chat room at a time, thus allowing it to integrate into the human environment in a socially competent way based on its ethological functionality. Thus, whereas Sweetie might appear on Mori's diagram as mired in the uncanny valley 95% of the time, on the ethorobotic diagram, "Sweetie" would plot atop the first peak as a computer-generated avatar and would "jump" to the third peak as "Sweetie 2.0," plotting as a trans-human chatbot and, thereby, circumventing the uncanny valleys altogether.

Because the focus is on functionality rather than human likeness, an ethorobotic approach avoids that point of robot development in Mori's diagram at which the ability to categorize and socially recognize distinctions in human likeness becomes problematic. In discussing categorization difficulty and the importance of social recognition, specifically for infants, Miklósi et al. assert that Mori's hypothesis provides for limited options for developing social robots that avoid the uncanny valley.

[The] natural process of emerging social recognition in humans suggests that only by massively exposing babies to (future) social robots can we avoid that they "fall in the uncanny valley." Such forced exposure seems unrealistic and would be also unethical, moreover,

210. A "chatbot" is defined as "a computer program designed to have a conversation with a human being, especially over the internet." *Chatbot*, CAMBRIDGE DICTIONARY, <https://dictionary.cambridge.org/us/dictionary/english/chatbot> (last visited Sept. 21, 2018) [<https://perma.cc/A5YP-WH99>].

211. Grainger, *supra* note 203.

it could also confuse the social recognition system of humans, and lead to misguided social and sexual preferences.²¹²

Conversely, Miklósi et al. contend that one of the advantages of ethorobotics is that it avoids the “possible dangers that may emerge if the present trend of technical development continues.”²¹³ This would include the “misguided social and sexual preferences” that arguably may result from over-exposure to social robots. Yet, on the terrain of the ethorobotic concept of emerging human–robot interaction (Figure 6), Miklósi et al. nevertheless include “sex robot” as a category of functional interaction between robots and humans. Although, to many, the use of sex robots and sex dolls may be “creepy” or “uncanny”—perhaps even socially or morally objectionable—it is not illegal in most places,²¹⁴ and some advocate the practice as a healthy form of sexual expression.²¹⁵ With the sex toy industry projected as a nearly-\$30 billion a year industry by 2020,²¹⁶ we can be sure that one of the primary goals of the industry is to avoid the uncanny valley in the area of sex robots and sex dolls.

212. Miklósi et al., *supra* note 187, at 3; *see also* David Levy, “Falling in Love With a Companion,” in 8 CLOSE ENGAGEMENTS WITH ARTIFICIAL COMPANIONS: KEY SOCIAL, PSYCHOLOGICAL, ETHICAL AND DESIGN ISSUES 89–90 (Yorick Wilks ed., 2010).

213. Miklósi et al., *supra* note 187, at 6.

214. Child sex dolls have been banned in Australia and the U.K. *See* Andrew Blake, *House Passes Bill Targeting Child Sex Robots*, WASH. TIMES (June 14, 2018), <https://www.washingtontimes.com/news/2018/jun/14/house-passes-bill-targeting-child-sex-robots/> [https://perma.cc/8QYB-R4Q7]. On December 14, 2017, House Representative Daniel M. Donovan, Jr. introduced a new bill to Congress designed to “prohibit the importation or transportation of child sex dolls” H.R. 4655, 115th Cong. (2018). The bill is called the “Curbing Realistic Exploitative Electronic Pedophile Robots Act of 2017” (the “CREEPER Act of 2017”). The House passed the bill in 2018. *See* 164 CONG. REC. H5119–H5121 (daily ed. June 13, 2018). The bill only applies to the importation and distribution of specific forms of dolls, however; possessing or using such dolls is not prohibited. *See, e.g., No Porn Charge for Man Who Ordered Child Sex Dolls*, U.S. NEWS (Oct. 4, 2018, 4:29 AM), <https://www.usnews.com/news/best-states/kentucky/articles/2018-10-04/no-porn-charge-for-kentucky-man-who-ordered-child-sex-dolls> [https://perma.cc/3NPP-ZG64] (reporting on Kentucky case of Scott L. Phillips, who, after ordering child sex dolls resembling an infant and a six- to eight-year-old child, was charged with having an item portraying a sexual performance by a minor, but for whom the court dismissed the charges because there was no actual child involved). Some states are considering specific legislation prohibiting other conduct involving child sex dolls. *See, e.g., Ryan Nicol, Lauren Book Files State Ban of ‘Obscene, Child-Like’ Sex Dolls*, FLA. POL. (Dec. 17, 2018), <https://floridapolitics.com/archives/283624-book-bill-sex-dolls> [https://perma.cc/65BB-WLQ7] (describing Florida SB 160, which prohibits the possession of an obscene, child-like sex doll with the intent of selling, distributing, or showing the doll, or advertising the doll in any manner).

215. *See, e.g.,* David Knox et al., *Sex Dolls – Creepy or Healthy?: Attitudes of Undergraduates*, 3 J. POSITIVE SEXUALITY 32, 37 (2017) (suggesting that using sex dolls “is not creepy but healthy sexuality”).

216. *Global Adult Toys Market to Exceed USD 29 Billion by 2020, According to Technavio*, BUS. WIRE (Apr. 12, 2016, 3:20 PM), <https://www.businesswire.com/news/home/20160412005747/en/Global-Adult-Toys-Market-Exceed-USD-29> [https://perma.cc/SLL8-A2X9].

Note that on the ethorobotic scale in Figure 6, sex robots plot just over the peak of the first hill, at the beginning of the steep downward slope of the first uncanny valley. Plotted on Mori's scale, sex robots most likely would plot at approximately the same point—at or near the top or downslope of the first peak.²¹⁷ On Mori's scale, as sex robots continue to develop technologically and become even more human-like, they begin a descent into the uncanny valley, resulting from the typical categorization and perception factors that account for so many uncanny valley descents in robotics. However, some researchers believe that an additional consequence of perfecting the development of sex-robot design—perhaps by employing it with artificial intelligence that is cognitive, responsive, and even emotive—is the deterioration of healthy and intimate human relationships²¹⁸ and the increase of “misguided social and sexual preferences” that Miklósi et al. caution against.²¹⁹ Miklósi et al. assert, instead, that an ethorobotic approach avoids this effect of the uncanny valley.

Consider that the sex robot's function is to replace or supplement the intimacy and sexuality of the traditional human sexual relationship. Thus, as in the case of Sweetie, once again we confront a context in which the functionality of the robot is dependent upon maximizing its human likeness. Taken to its extreme in terms of technological development, the controversial issue that arises is the acceptability, or integration into society, of sex robots of which the perfected human likeness is that of a child.²²⁰ In such an inherently disturbing and un-

217. Sex robots are plotted on the downslope of the first peak on Mori's scale because of their advanced life-like technological development and the capacity for artificial intelligence. See Noel Sharkey et al., *Our Sexual Future With Robots: A Foundation for Responsible Robotics Consultation Report*, FOUND. FOR RESPONSIBLE ROBOTICS 10 (2017), <https://responsible-robotics-myxf6pn3xr.netdna-ssl.com/wp-content/uploads/2017/11/FRR-Consultation-Report-Our-Sexual-Future-with-robots-1-1.pdf> [<https://perma.cc/AWM9-ADNS>] (describing how life-like sex dolls can be).

218. Research suggests that an overall societal movement “inward,” with less traditional social interaction, coordinates with the development of social technologies. However, the data also shows a concomitant increase in loneliness, depression, and suicide rate. As a result of new technologies, the familiar traditional relationship is being replaced by opportunities for detached relationships with strangers in distant places, without physical contact, and without normative behaviors for interacting. The result is a feeling of being outcast from society that clings to traditional norms premised on social integration and, consequently, a sense of cognitive dissonance. Likewise, the prevalence of the use of sex robots as a form of intimate relationship to replace traditional sexual relationships anticipates a decrease in the desire for intimacy or sexuality with other humans. However, research conducted at the University of Montreal evidenced differential sexual outcomes from which researchers could not conclusively determine if such intimate relationships were harmful or beneficial. Colin Wright, *Sex Dolls*, LET'S KNOW THINGS (Dec. 12, 2017), <http://letsknowthings.com/author/colin/> [<https://perma.cc/YA9J-CLCC>].

219. See Sharkey et al., *supra* note 217, at 20–22 (describing unnatural relationships and effect on human sexual relationships).

220. The production and distribution of child-like sex robots and sex dolls has become a global industry. “The ultimate goal of manufacturers is to make the child sex dolls look and feel as realistic as possible.” Marie-Helen Maras & Lauren R. Shapiro,

natural context, which is uncomfortable even to conceptualize, this is not a function society wishes to optimize under an ethorobotic approach to developing robotic technology. Nor is this an uncanny valley that society should determine to circumvent. Indeed, there are those who assert that child sex robots should be used in the treatment of sexual pedophiles to satisfy or channel the otherwise uncontrollable impulse of the pedophile to offend against a real child.²²¹ Should “child sex dolls for the treatment of pedophilia” plot on the third plateau as a “trans-human” category of human–robot interaction that optimizes its function on the ethorobotic scale? What if, like “Sweetie 2.0,” the child sex robot “jumped” to the third peak on the ethorobotic scale and avoided the uncanny valley by adopting a design that presented merely human features but was clearly distinguishable from a real child, yet still optimized its function as a sex robot that was simply *labeled* as a child? Should we not rely on Mori’s uncanny valley to isolate the socially unacceptable behaviors that violate normative human or societal expectations? Will our normative expectations change as we study the actual effect of child sex robots as a function of the treatment of pedophilia?—or the protection of women and children in the prostitution industry?—or the reduction of human trafficking?—or the quelling of the rapist’s urge to rape?²²²—How much “creepiness” will society tolerate if it serves a greater function?²²³

‘Shadow’ Trade in Child Sex Dolls Should be Banned, Say Profs, CRIME REP. (Jan. 24, 2018), <https://thecrimereport.org/2018/01/24/the-growing-danger-of-child-sex-dolls/> [<https://perma.cc/25V3-3TXC>].

221. See Roc Morin, *Can Child Dolls Keep Pedophiles from Offending?*, ATLANTIC (Jan. 11, 2016), <https://www.theatlantic.com/health/archive/2016/01/can-child-dolls-keep-pedophiles-from-offending/423324/> [<https://perma.cc/GD7L-4RYX>] (interviewing Shin Takagi, self-admitted pedophile and founder of a company called Trotlla, which manufactures and sells anatomically correct, life-like child sex dolls). Takagi believes his dolls serve as a source of harm-reduction in the treatment of pedophilia. *Id.* However, Peter Fagan, a paraphilia researcher at John Hopkins School of Medicine, believes that “contact with Trotlla’s products would likely have a ‘reinforcing effect’ on pedophilic ideation and ‘in many instances, cause it to be acted upon with greater urgency.’” *Id.*

222. One company, True Companion, produces a sex robot with programmable personalities, one of which is called “Frigid Farrah,” which is designed to reject and resist all sexual advances, thus “encouraging the user to rape the robot.” Maras & Shapiro, *supra* note 220; see also Laura Bates, *The Trouble with Sex Robots*, N.Y. TIMES (July 17, 2017), <https://www.nytimes.com/2017/07/17/opinion/sex-robots-consent.html> [<https://perma.cc/3322-WNSL>] (offering the opinion that making sex robots available “is to risk normalizing rape by giving it a publicly acceptable face”); Beth Timmins, *New Sex Robots With ‘Frigid’ Setting Allow Men to Simulate Rape*, INDEPENDENT (July 18, 2017), <https://www.independent.co.uk/life-style/sex-robots-frigid-settings-rape-simulation-men-sexual-assault-a7847296.html> [<https://perma.cc/X62F-J23B>].

223. In an interview in 2016, Takagi was asked about his view of the nature of the sex dolls and their emotional status. The interview exchange was replete with anthropomorphic references and overtones of “uncanniness”:

“Does she have a name?” I asked gesturing towards the nearest doll—a model he later described as a 10-to-12-year-old.

In the context of sex robots and child sex dolls, Mori's diagram of the uncanny valley serves positively to deter such behaviors that society may deem unacceptable. Likewise, the ethorobotic approach to the technological development of sex robots may serve equally to prohibit socially unacceptable behaviors like the use of child sex dolls. As was the case in the context of Sweetie, under an ethorobotic approach, the designer has the power to regulate the functional interactions of the sex robot within the human environment. Thus, if, in the course of optimizing the functionality of the sex robot, its need for human likeness forces it unavoidably into the uncanny valley—such as in the context of child sex robots—the designer can simply remove it from its functional niche in the human environment. This may occur within an ethorobotic approach—as well as within Mori's approach—through industry restraint,²²⁴ social regulation,²²⁵ or legal prohibition.²²⁶ Al-

"There is no name," he said, "just a code name—LP1."

"What emotions do you see in her face?" I asked.

"This one looks like she's sad," he said. "One must make a variety of expressions to fulfill a variety of client needs."

In Japan, where many have animist Shinto beliefs, *the dolls have a complicated status*. "In Shinto," Takagi said, "*everything has a soul*. Even if you don't want the dolls anymore, *you can't abandon them*. There is a special ceremony that is performed for them at a shrine. It's like a *ceremony for a dead person*. *Since dolls have a human form, they must be treated as such*."

He described a recent case in which a client who needed to get rid of a doll called, requesting his help. "He wanted me to dispose of it," Takagi remembered. "But, he didn't say 'dispose.' *The phrase he used was 'send back home.'*"

At the end of our interview, as I was photographing a set of fiberglass molds, I noticed Takagi and my translator speaking in a corner.

"What were you talking about?" I asked her later.

"My husband died in a motorcycle crash several years ago," she said. "I was asking Mr. Takagi *how much it would cost to make a replica of him*."

We all walked out together, the same way we came in—passing a pile of discarded fiberglass skeletons waiting to be removed. These were the remains of some of the *dolls that had been sent "back home."* "They're toxic," Takagi explained. "So, we need a special company to come and pick them up. They have to be crushed with hammers. *Everything with form must be broken eventually*."

On the drive back to the station, *I asked Takagi if his work had changed the way he defined the real and the artificial*.

"It is a common belief in Japan that *dolls are mirrors*," he said. "*The dolls show their owner's true self*."

Morin, *supra* note 221 (emphasis added to highlight references to uncanniness).

224. Industry restraint may be the equivalent of what Mori, later in life, described as a Buddhist version of a fully healthy person's control of one's desires. See Borody, *supra* note 99, at 38 ("In order to function properly alongside robots, and to welcome humanoid robots in our social world, . . . we must first learn how to control our own desires . . .").

225. For example, public outcry forced e-commerce moguls like Amazon and China's Alibaba to remove child sex dolls for sale on their sites. See Tom Grundy, *Alibaba Removes Child Sex Dolls from AliExpress Online Marketplace*, H.K. FREE PRESS (Apr. 14, 2018, 3:56 PM), <https://www.hongkongfp.com/2018/04/14/alibaba-removes-child-sex-dolls-aliexpress-online-marketplace/> [https://perma.cc/XZY4-WRSC]; Kieran Guilbert, *Amazon Pulls Child Sex Dolls After Criticism from UK*

though the processes for these two approaches occur somewhat differently within the context of human–robot interactions, both approaches are equipped to either avoid or rely upon the effect of the uncanny valley as normative social expectations dictate.

Indeed, the two approaches categorize the robotic agents according to different criteria—Mori’s assessment is based on physicality, and the ethorobotic approach is premised on functionality. Additionally, the two approaches apply differently, as is evidenced by the divergent structures of the scales in their respective hypotheses—Mori’s hypothesis, which is premised on physicality, is limited in its application because robots will never physically appear more human-like than humans. However, the ethorobotic approach, which is premised on functionality, necessarily extends Mori’s limited hypothesis because robots have transcended human functionality in so many areas. Despite these distinctions, however, both approaches nevertheless test the same thing—public perception of a false reality. Mori’s approach is based simply on the *perception* of the robot as looking and acting, physically, like a human, and it plots the public’s reaction to, or tolerance of, its own perception. For example, under Mori’s theory, for at least some of 19,000 online predators, Sweetie descended into the uncanny valley not because her physicality or activity changed; rather, only the offenders’ perceptions of her human likeness varied. Likewise, the ethorobotic approach is based simply on the *perception* of the robot as functioning like a human, and it plots the public’s reaction to, or tolerance of, this perception. For example, those who desire alternative forms of intimacy or sexuality perceive the sex robot as optimizing that function, therefore, their tolerance for sex robots plots atop the peak of the niche in which it functions. Likewise, a *child* sex robot equally may optimize its unique function within its separate but unique niche—in fact, arguably, it may even function to *treat* pedophiles and avoid future offenses—yet most perceive a *child* sex

Watchdog, REUTERS (Apr. 12, 2018), <https://www.reuters.com/article/us-amazon-com-children-sexcrimes/amazon-pulls-child-sex-dolls-after-criticism-from-uk-watchdog-id-USKBN1HJ2BG> [https://perma.cc/P86P-KF3N]; see also John W. Yelland, *Thousands Sign Petition to Ban Child Sex Dolls*, KUTV (Nov. 10, 2017), <https://abc3340.com/news/nation-world/thousands-sign-petition-to-ban-child-sex-dolls> [https://perma.cc/PTD9-YWB4] (describing petition to ban child sex dolls on Change.org, signed by over 88,500 people).

226. See Miklósi et al., *supra* note 187; see also Alanna Vagianos, *House Passes Bill Banning Sex Dolls That Look Like Children*, HUFFINGTON POST (June 15, 2018, 11:34 AM), https://www.huffingtonpost.com/entry/house-passes-bill-banning-sex-dolls-that-look-like-children_us_5b23c2f7e4b07cb1712dcc7d [https://perma.cc/5DK6-LRZ4] (discussing legal prohibition). In the United Kingdom, where possession and production of child sex dolls are prohibited, the government seized 128 child sex dolls in 2017; the majority of the owners were found to also possess child pornography. Alice B. Lloyd, *Congressman: Child Sex Dolls Are Coming—And We’re Not Ready*, WEEKLY STANDARD (Mar. 15, 2018, 12:15 PM), <https://www.weeklystandard.com/alice-b-lloyd/congressman-child-sex-dolls-are-coming-mdash-and-were-not-ready> [https://perma.cc/KJW4-MCBG].

robot as intolerable, even within this latter context.²²⁷ Therefore, not only do child sex robots plot negatively on the ethorobotic scale, but in some instances, they are prohibited from functioning within an acceptable niche in society. Just as the robot's *physicality* never changed under Mori's theory, the *function* of the robot never changed (or it changed positively, if its theoretical purpose was for the treatment of pedophilia) under the ethorobotic approach; rather, only the public's *perception* and acceptance of that function changed. Thus, despite the critically distinctive contexts of physicality and functionality premised in the respective hypotheses, both approaches nevertheless test and account for the same outcome—public perception. For purposes of this Article, then, the issue becomes: How do these respective approaches assess the public's perception of sexual offenders?

IV. APPLYING THE UNCANNY VALLEY HYPOTHESIS TO SEXUAL OFFENDERS

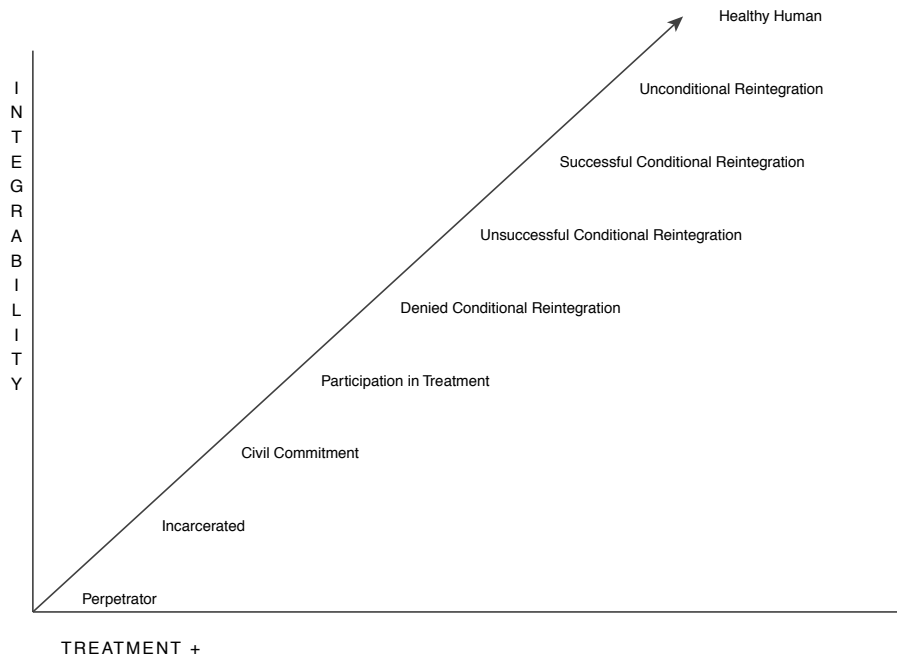
Just as Mori's diagram includes categories of nonhuman agents that progressively transition on the horizontal axis of human likeness from inanimate objects, starting with industrial robots, to healthy human beings, I premise that there is an analogous progressive transition of categories of agents within the context of civilly committed sexual offenders that is similarly plotted. In this analogy for sexual offenders, the horizontal axis represents transitions from an active perpetrator, plotted furthest to the left on the diagram (analogous to Mori's industrial robot), to the fully healthy human, which Mori designates to the far right of the diagram. Ideally, in this context, agents progress from left to right—from perpetration to healthy human likeness—through treatment in the civil commitment process. Between these two polarized categories of sexual offender are seven additional categories of sexual offender that represent progression, from left to right, through the civil commitment process. These include: (1) a convicted sexual offender serving a criminal sentence (i.e., incarcerated); (2) a sexual offender who has served a criminal sentence but is civilly committed; (3) a sexual offender who is civilly committed and participating in treatment but who has not yet been determined to be qualified for release; (4) a sexual offender who has satisfied the requirements of treatment and is determined to be qualified for conditional release and reintegration but is denied; (5) a sexual offender who is determined to be qualified for, and is granted, conditional release and reintegration but recidivates or is otherwise unsuccessful and, therefore, is

227. See Marie-Helen Maras & Lauren R. Shapiro, *Child Sex Dolls and Robots: More Than Just an Uncanny Valley*, 21 J. INTERNET L. 3 (2017) (arguing to ban child sex dolls); Daniel M. Donovan, *Child Sex Dolls, the Newest Outlet for Pedophiles, Must Be Banned*, HILL (Dec. 12, 2017, 12:15 PM), <http://thehill.com/blogs/congress-blog/judicial/364438-child-sex-dolls-the-newest-outlet-for-pedophiles-must-be-banned> [https://perma.cc/7X23-AC32].

recommitted; (6) a sexual offender who is conditionally released and reintegrated, does not recidivate, and is otherwise successful; and (7) a sexual offender who is unconditionally released and fully reintegrated into society. These categories of sexual offender typify the progression of a theoretically successful sexual offender treatment program. As offenders progress and succeed in treatment over time—as indicated on the horizontal axis in the diagram below—they become more integrable into society. Thus, the scaled diagram in Figure 8 represents an offender’s proximity to successful integration or “integrability” over time.

FIGURE 8

A Progression Scale for Sexual Offender Treatment and Integrability Over Time



Comparing all the diagrams represented in this Article, note that the vertical axis of the various diagrams represents different concepts. In Mori’s diagram (Figure 1), the vertical axis represents “Familiarity.”²²⁸ In the diagram depicting animated and computer graphic characters (Figure 3), the vertical axis represents the “Empathetic Response” to the characters.²²⁹ And in the ethorobotic diagram (Figure 6), the vertical axis measures “Ease for Interaction.”²³⁰ Because

228. See *supra* Figure 1.

229. See *supra* text accompanying notes 141–43 and Figure 3.

230. See *supra* text accompanying notes 191–94 and Figure 6.

the narrow issue discussed here focuses on the ability of the sexual offender to reintegrate into society, which is (or should be) one of the purposes of the civil commitment process, I have designated the vertical axis in Figure 8 as representing an offender's "integrability."

To better represent each category of offender in Figure 8, consider individual offenders that I propose are representative of each category. With respect to the first agent in the diagram—the perpetrator—consider the case of Roy Whiting, who murdered eight-year-old Sarah Payne in West Sussex, England, in July 2000.²³¹ Whiting, pictured in Figure 9, epitomizes society's common perception of a sexually violent predator as some sort of hideous creature—the misconceived but stereotypical disheveled old man in a long trench coat, lurking in the shadows and waiting to snatch children away. Whiting admitted to abducting and sexually assaulting a nine-year-old girl in 1995.²³² As a result, he was sentenced to four years in jail.²³³ After two years, even though a psychiatrist who assessed Whiting stated that Whiting was likely to reoffend and could possibly kill, Whiting was released from prison in 1997 and was placed on the sexual offender registry.²³⁴ Nevertheless, on July 1, 2000, Whiting abducted eight-year-old Sarah Payne while she played with her siblings

FIGURE 9

Roy Whiting

231. *Timeline: The Sarah Payne Tragedy*, BBC NEWS (Dec. 12, 2001, 2:53 PM), http://news.bbc.co.uk/2/hi/uk_news/england/1703534.stm [https://perma.cc/64L7-SWHJ] (describing daily update of Sarah Payne investigation).

232. *See Sarah Payne Killer Roy Whiting Opens Up in Prison Letters*, ARGUS (Apr. 25, 2012), <https://www.theargus.co.uk/news/9669161.sarah-payne-killer-roy-whiting-opens-up-in-prison-letters/> [https://perma.cc/55WL-JRXU] (discussing another sexual assault of a young girl that Roy Whiting committed).

233. *Id.*

234. Jason Bennetto & Paul Peachey, *Payne Verdict: Attack on Girl of Nine Brought Jail Term and a 'High Risk' Tag*, INDEP. (Dec. 13, 2001), <https://www.independent.co.uk/news/uk/crime/payne-verdict-attack-on-girl-of-nine-brought->

in a field near her grandmother’s home.²³⁵ Sixteen days later, Sarah Payne’s body was found buried in a shallow grave, just miles from where she was abducted.²³⁶ Whiting was convicted of her murder and sentenced to life in prison—one of the rare times in British legal history when such a sentence was imposed for such a crime.

In 2010, Whiting’s sentence was reduced to a minimum term of forty years, but the case led to a frenzied media campaign for public access to the sexual offender registry and tighter controls on sexual offenders released from prison—changes commonly referred to in England as “Sarah’s Law,” analogous to “Megan’s Law”²³⁷ in the United States. At Whiting’s trial, Sarah’s older brother, who saw Whiting at the time of the abduction, described Whiting as a “greasy” and “scruffy-looking man with ‘yellowish’ teeth,” who grinned and waved as he drove away with Sarah in the back of his van.²³⁸ In fact, Whiting’s nickname in prison is “Catweasel” due to his unkempt appearance.²³⁹ Based on the depravity of his acts and his appearance, many reports in the media dehumanize Whiting as a “monster” that should be locked away forever, unfit to participate in society.²⁴⁰ I premise

jail-term-and-a-high-risk-tag-9201052.html [https://perma.cc/3AXA-DD5B] (discussing Roy Whiting’s history of violence and various officials’ assessments of Whiting).

235. *Sarah Payne: the Timetable*, GUARDIAN (Dec. 12, 2001), <https://www.theguardian.com/society/2001/dec/12/childprotection2> [https://perma.cc/ED4A-LD3Z] (describing chronological timeline of Sarah Payne’s case).

236. *Id.*

237. “Megan’s Law” refers to Megan Kanka, a seven-year-old New Jersey girl who was sexually assaulted and murdered by a neighbor, Jesse Timmendequas, in 1994. Unbeknown to Megan’s family, Timmendequas was a convicted sexual offender. In 1994, Congress passed the Jacob Wetterling Crimes Against Children and Sexually Violent Offender Registration Act, Pub. L. No. 103-322, § 170101, 108 Stat. 1796, 2038, as amended, 42 U.S.C. § 14071, which sets minimum standards for state sexual offender registration programs. The subsection of the federal law that now requires law enforcement to provide information to the public regarding registered sexual offenders is referred to as “Megan’s Law.” Megan’s Law, Pub. L. No. 104-145, 110 Stat. 1345 (1996). By 1996, every state, the District of Columbia, and the Federal Government had enacted some variation of Megan’s Law.

238. Shuaib Shafi-DNU, *The Murder of Sarah Payne – What Happened 17 Years Ago?*, SURREYLIVE (July 20, 2017, 9:21 AM), <https://www.getsurrey.co.uk/news/surrey-news/murder-sarah-payne-what-happened-13350480> [https://perma.cc/8J9C-9JC3] (discussing Sarah Payne’s story with her siblings).

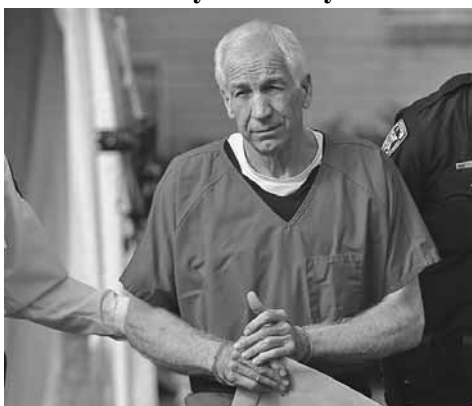
239. Jeremy Armstrong et al., *Killer Roy Whiting Found with Pictures of His Child Victim Sarah Payne*, MIRROR (Jan. 27, 2012), <https://www.mirror.co.uk/news/uk-news/killer-roy-whiting-found-with-pictures-209503> [https://perma.cc/5N27-SAVP] (describing officials’ reactions to discovery that Whiting possessed pictures of his victim in his jail cell).

240. See, e.g., Lauren Fruen & Sofia Petkar, *Pure Evil: Who is Sarah Payne Murderer Roy Whiting, Where is He Now and What Previous Convictions Did He Have?*, SUN (July 19, 2017), <https://www.thesun.co.uk/news/4036616/roy-whiting-sarah-payne-murderer-previous-convictions/> [https://perma.cc/53ZR-TDBT]; *A Monster Who Would Kill Again*, ARGUS (Apr. 23, 2004), https://www.theargus.co.uk/news/5094287.A_monster_who_would_kill_again/ [https://perma.cc/9PLD-38K6] (“Whiting is a disgusting, psychopathic monster, an evil, evil man who should never be let loose on society ever again.”).

here and throughout this series of articles that although there are, of course, exceptions, this monstrous, dehumanized conception of Whiting generally typifies the public's perception of *all* sexual offenders as incurable monsters because all sexual offenders are perceived as perpetrating equally intolerable and "un-human-like" or "inhuman" acts.²⁴¹ On the scale represented in Figure 8, I suspect the public would plot perpetrators at the bottom of the scale and to the far left, with the least progression in the treatment system and as the least integrable into society.

However, when a sex offender is caught, convicted, and incarcerated, the integrability of the offender is slightly increased beyond that of a perpetrator because the offender is incarcerated, serving an appropriate criminal sentence for the offense he or she committed, and beginning the process that, ideally, will transition the offender from a perpetrator to a reintegrated member of human society. Although the public may still view the offender as a dehumanized monster, the system is designed for the offender to serve the appropriate sentence, undergo civil commitment, and participate in treatment until he or she successfully completes the program and qualifies for some form of release. Epitomizing the public's view of an appropriately incarcerated sexual offender is former Penn State University football coach, Jerry Sandusky, pictured in Figure 10.²⁴² Although the public may perceive Sandusky as a monster because of his crimes, in reality, in the context of an ideal progression toward reintegration and living as a healthy

FIGURE 10

Jerry Sandusky

241. See Levine & Meiners, *supra* note 17.

242. In 2012, Sandusky was convicted of forty-five counts of child sexual abuse and was sentenced to thirty to sixty years in prison for abusing numerous young boys between 1994 and 2009, all of which stemmed from his interaction with the boys through "The Second Mile," a charity organization that Sandusky founded in 1977 to assist troubled young boys. See FLANNERY & O'BRIEN, *supra* note 4, at 978–79.

member of society, he is more integrable than an offender at large because he has begun the process that offers treatment and, therefore, is categorized slightly higher than a perpetrator in Figure 8.

Plotted next on the progression in Figure 8, moving from "perpetrator" to "healthy human" in society, is the offender who has served his or her criminal sentence for the offense but who is civilly committed. To represent those who are civilly committed for sexual offenses, we may picture Leroy Hendricks, who is the defendant in *Kansas v. Hendricks*²⁴³ and is pictured in Figure 11. Hendricks had a history of sexually molesting children, for which he was convicted and incarcerated. When he completed his sentence and was set to be released, the State of Kansas petitioned to have Hendricks civilly committed under the Kansas Sexually Violent Predator Act. Hendricks's case established the constitutionality of sexual offender statutes and the procedures required for the indefinite civil commitment of those convicted of a sexual offense and whom the state deems dangerous because of a mental illness or abnormality. Prisoners who are civilly committed plot higher on the "Integrability" scale (Figure 8) than those who are merely incarcerated because they will have the opportunity to participate in a post-release civil commitment treatment program and work toward reintegration into the community, while posing no risk to society.

Not all civilly committed offenders participate in the sexual offender treatment program that is available during civil commitment.²⁴⁴ However, comparatively, offenders who *do* participate in

FIGURE 11

Leroy Hendricks

243. *Kansas v. Hendricks*, 521 U.S. 346 (1997).

244. According to 2010 data pertaining to the MSOP, at a time when no offenders had ever been discharged from the program, about 80% of civilly committed sexual offenders in the program were participating in treatment. See OFFICE OF THE MINNESOTA LEGISLATIVE AUDITOR, CIVIL COMMITMENT OF SEX OFFENDERS: EVALUATION

appropriate treatment programs are more integrable because treatment is one of the primary goals of civil commitment, and participation in treatment arguably demonstrates progress toward becoming a healthy human being who is able to function effectively in society and interact with other human beings without imposing danger. Thus, on the “Integrability” scale (Figure 8), those who participate in treatment plot higher than those who do not.

Civilly committed offenders who successfully complete the treatment program but who are not yet approved for release, or who are not qualified to be released, plot at a slightly higher point on the “Integrability” scale (Figure 8) in the progression toward healthy integration because they have successfully participated in treatment and, ideally, should be postured for release and successful reintegration into society. Representing such civilly committed offenders, consider Dennis Richard Steiner, pictured in Figure 12.

In 1992, to avoid a twelve-year prison sentence for a sexual offense conviction, Steiner agreed to enter a precursor to the current MSOP. Steiner was told he would spend no more than four years in the precursor program, in which he agreed to participate in treatment. However, in 2015, at the time of the litigation in *Karsjens v. Jesson*, Steiner was sixty-six years old and had been civilly committed at Minnesota’s Moose Lake facility for twenty-four years. He was the longest civil committee under MSOP and the first offender to testify in the case.²⁴⁵

FIGURE 12

Dennis Richard Steiner

REPORT 56 (Mar. 2011), <https://www.auditor.leg.state.mn.us/ped/pedrep/ccso.pdf> [<https://perma.cc/7K68-UQ4A>].

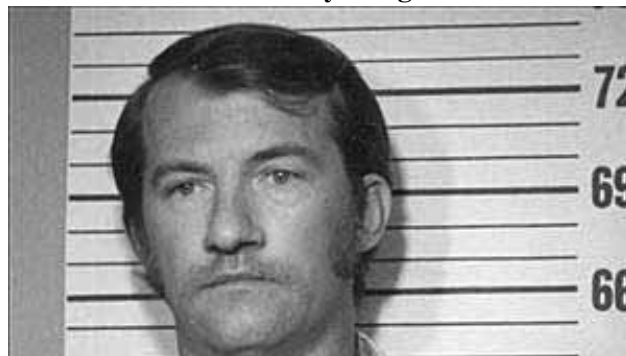
245. Elizabeth Mohr, *Federal Judge Demands Changes to Controversial Minnesota Sex Offender Program*, ST. PAUL PIONEER PRESS (Aug. 10, 2015, 6:15 AM), <http://www.grandforksherald.com/news/crime-and-courts/3814323-federal-judge-demands-changes-controversial-minnesota-sex-offender> [<https://perma.cc/RJ9V-2KUW>]; see also Steve Karnowski, *Sex Offender Describes Years Trying For Release From Pro-*

In the ideal progression toward reintegration, Steiner plots higher on the “Integrability” scale (Figure 8) as a civil committee who has successfully completed treatment and, ideally, should be able to be reintegrated into society.

The next category of offender in the process of moving toward reintegration into society is the offender who is subject to supervision under conditional or provisional release. Conditional release allows the offender to physically leave the secured treatment facility to reside in a residential treatment facility, half-way house, or perhaps even a private residence, located off the secured grounds of the treatment facility and, therefore, plots higher on the “Integrability” axis (Figure 8). However, conditional release requires the offender to submit to extensive supervision and strictly enforced conditions that, if not satisfied, will result in the offender’s recommitment.

Not all offenders who apply for provisional release are successful. For example, the first offender to complete Minnesota’s required treatment program and to be recommended for provisional release was John Rydberg, pictured in Figure 13. In 2010, a state human services panel selected Rydberg as one of several conditional release test cases. However, Department of Human Services Commissioner Lucinda Jesson opposed Rydberg’s release.²⁴⁶ Rydberg was civilly com-

FIGURE 13

John Rydberg

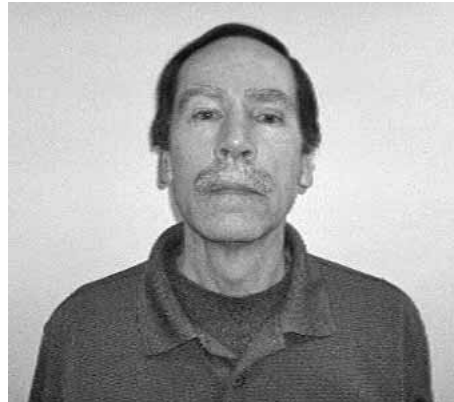
gram, WASH. TIMES (Feb. 17, 2015), <https://www.washingtontimes.com/news/2015/feb/17/suit-against-minnesota-sex-offender-program-enters/> [https://perma.cc/582N-4GS3]. Steiner stated, “There’s no out. They planned it that way. They had no intent on letting anybody out . . . The Legislature’s the one who’s got this place strapped to the ground, and they’ll tell you that right to your face.” Elizabeth Mohr, *Talks in Controversial Minnesota Sex Offender Program Case Begin*, DULUTH NEWS TRIB. (Aug. 9, 2015, 3:50 PM), <https://www.duluthnewstribune.com/news/3814263-talks-controversial-minnesota-sex-offender-program-case-begin> [https://perma.cc/7L5E-WM9M].

246. Paul McEnroe, *Rapist Won’t Be Released from Sex Offender Program*, ST. PAUL STAR TRIB. (May 18, 2012, 10:59 PM), <http://www.startribune.com/rapist-won-t-be-released-from-sex-offender-program/152070425/> [https://perma.cc/D7SD-NHAM].

mitted in 1993 after admitting to more than ninety sexual offenses, some of which were of a particularly sadistic and humiliating nature. Based on Jesson's opposition, and the fact that Rydberg was sometimes evasive and threatening with his treatment teams, a panel of the State Supreme Court denied Rydberg's release in 2012.²⁴⁷ Thus, Rydberg was never conditionally released. However, in terms of integrability, he progressed further than Dennis Steiner and, therefore, plots slightly higher in Figure 8. As a result of Rydberg's denial, the first person actually to be conditionally discharged from the Minnesota program—Ray Hubbard—was conditionally discharged in 2000. However, although Hubbard did not reoffend while released, in 2003, his discharge was revoked for failing to satisfy the conditions of his release, for leaving the state, and because his therapist believed Hubbard would recidivate. Hubbard died in 2007, at the age of forty-five, while recommitted.²⁴⁸

Likewise, the first sexual offender to be civilly committed under California's Sexually Violent Predator law—Christopher Evans Hubbard, notoriously known as the "Pillowcase Rapist,"²⁴⁹—was not successful functioning under conditional release. Hubbard is pictured in Figure 14. In 1972, Hubbard was convicted of rape and released after

FIGURE 14

Christopher Evans Hubbard

247. *Id.*

248. Warren Wolfe, *A Turning Point for State's Sex Offender Program*, ST. PAUL STAR TRIB. (Feb. 20, 2012, 4:11 PM), <http://www.startribune.com/man-who-admitted-to-molesting-29-to-be-first-in-decade-to-be-freed/139595093/> [https://perma.cc/W4YU-T5B6].

249. Hubbard was known as the "Pillowcase Rapist" because he placed pillowcases over the heads of his victims during his assaults. Marisa Gerber, *'Pillowcase Rapist,' Who Was Living in L.A. Area, Must Be Confined to a State Hospital, Judge Rules*, L.A. TIMES (Jan. 13, 2017, 6:00 PM), <https://www.latimes.com/local/lanow/la-me-la-in-pillowcase-rapist-ruling-20170113-story.html> [https://perma.cc/26NS-HGZ8].

serving his criminal sentence.²⁵⁰ Hubbart was convicted of additional rapes several years later and spent eight more years in prison. Two months after his subsequent release from prison, he assaulted another woman and returned to prison. Before he completed his sentence, prosecutors petitioned the court to civilly commit Hubbart to Coalinga State Hospital, where he was civilly committed.

In July 2014, after waiting a year to find a suitable location where a landlord was willing to rent a residence to him, Hubbart was conditionally released from his civil commitment at Coalinga State Hospital. He moved into a small house in the desert, forty miles north of Los Angeles, subject to sixteen pages of explicit conditions, including twenty-four-hour guarded surveillance, a GPS ankle monitor, participation in group and individual therapy sessions twice per week, a strict curfew, random searches, drug testing, polygraph analysis, and limited permission to use the internet or watch television programs that might arouse him.²⁵¹ In addition, however, Hubbart was subjected to death threats and constant protests and demonstrations by local citizens outside his home.²⁵² In May 2015, prosecutors requested that Hubbart be recommitted after he let the power on his ankle monitor expire, but a judge denied that request. Then, in August 2016, after only two years of supervised reintegration, 65-year-old Hubbart was arrested and returned to Coalinga State Hospital for failing five different polygraph tests and violating several other terms of his conditional release.²⁵³ Nevertheless, in terms of his progress in the treatment process moving toward healthy reintegration, Hubbart plots higher on the "Integrability" axis in Figure 8 because of his conditional, albeit temporary, release.

250. Marisa Gerber, *Forty Years Later, Vivid Memories of the Pillowcase Rapist*, L.A. TIMES (Jan. 9, 2016), <http://graphics.latimes.com/sexually-violent-predator-history/> [https://perma.cc/33S2-Y3RG] (discussing history of Hubbart's case).

251. For a PDF of the terms and conditions, see *Hubbart Signs a 16-Page Terms-And-Conditions Document*, L.A. TIMES (Apr. 17, 2014), <http://documents.latimes.com/prior-release-hubbart-signs-16-page-terms-and-conditions-document/> [https://perma.cc/TA25-MG9A].

252. *Judge Revokes Release of Notorious 'Pillowcase Rapist'*, CBS S.F. (Jan. 13, 2017, 1:53 PM), <http://sanfrancisco.cbslocal.com/2017/01/13/pillowcase-rapist-christopher-hubbart-release-revoked/> [https://perma.cc/3E2L-RT3W]; Veronica Rocha & Marisa Gerber, *'Pillowcase Rapist' Christopher Hubbart Back In Custody After Failing To Meet Release Terms*, L.A. TIMES (Aug. 9, 2016, 7:50 PM), <http://www.latimes.com/local/lanow/la-me-ln-pillowcase-rapist-christopher-hubbart-arrested-20160809-snap-story.html> [https://perma.cc/49LB-Z4UY].

253. *'Pillowcase Rapist' Locked Back Up Over 'Distorted Thinking'*, N.Y. POST (Jan. 14, 2017, 11:20 AM), <https://nypost.com/2017/01/14/pillowcase-rapist-locked-back-up-over-distorted-thinking/> [https://perma.cc/GX8V-8XXY].

The first *successful* conditional discharge from the Minnesota program began in 2012, when sixty-four-year-old Clarence Opheim, pictured in Figure 15, was provisionally released from MSOP.²⁵⁴ Opheim entered MSOP in 1994—the year it opened—after serving four-and-a-half years in prison for molesting an eleven-year-old boy.²⁵⁵ Opheim admitted to molesting twenty-nine boys, ages eight to seventeen.²⁵⁶ However, Opheim was conditionally released to a halfway house after completing the required treatment program during more than twenty years of civil commitment. At the time, the success of Opheim’s release was critical for many other offenders who had all but given up hope of ever being released.²⁵⁷ Perhaps partly because of Opheim’s success, since the litigation surrounding Minnesota’s program, a total of eight offenders, including Opheim, have been placed on conditional release.²⁵⁸ Accordingly, Opheim represents the category of offender who successfully, but conditionally, reintegrates into society and, therefore, plots yet higher on the “Integrability” axis in Figure 8.

FIGURE 15

Clarence Opheim

The final stage of the process of reintegration is unconditional release. Administrators of the MSOP “believe[] slow reintegration into society is the best way for many of the offenders to prepare themselves for the real world.”²⁵⁹ Accordingly, “Minnesota is one of the

254. Steve Karnowski, *Court Declines to Hear Challenge to State Sex Offender Program*, FOX (Oct. 8, 2017, 10:58 AM), <http://www.fox9.com/news/court-declines-to-hear-challenge-to-state-sex-offender-program> [<https://perma.cc/33R3-DKEW>]; Wolfe, *supra* note 248.

255. Karnowski, *supra* note 245.

256. *Id.*

257. See Rupa Shenoy, *Families of Sex Offenders Find Hope in Clarence Opheim’s Release*, MPR NEWS (Mar. 5, 2012), <https://www.mprnews.org/story/2012/03/05/minnesota-sex-offender-program> [<https://perma.cc/8X5Z-PEN8>].

258. Karnowski, *supra* note 245.

259. Briana Bierschbach, *After Years of Indefinitely Locking Up Sex Offenders, Minnesota Now Faces a Thornier Issue: How to Let Them Out*, MINN. POST. (Apr. 13,

only states with a step-down system in place where clients slowly prepare for reentrance into the community."²⁶⁰ In 2016, twenty-six-year-old Eric Terhaar, whom I choose not to picture,²⁶¹ became the first sexual offender in the Minnesota program for whom a special review board recommended full, unconditional release.²⁶² Terhaar was one of about sixty offenders at MSOP who were committed because of sexual offenses perpetrated as a juvenile. Although they committed no sexual offenses as an adult, they remained civilly committed in the program. Arguably, juvenile offenders pose a low risk of recidivism.²⁶³ Thus, in 2014, a group of court-appointed experts in the ongoing Minnesota litigation evaluated the treatment program and singled-out Terhaar for immediate release, without any conditions. Despite major disciplinary problems during his supervised release and objection from the Commissioner of the Department of Human Services, a three-member Judicial Appeal Panel granted Terhaar's unconditional release in August 2016.²⁶⁴ Accordingly, in the context of integrability, Terhaar plots even higher in Figure 8.

2016), <https://www.minnpost.com/politics-policy/2016/04/after-years-indefinitely-locking-sex-offenders-minnesota-now-faces-thornier/> [<https://perma.cc/F3WN-GJQN>].

260. *Id.* (quoting Nancy Johnston, Deputy Commissioner with the Department of Human Services, which oversees the MSOP).

261. Eric Terhaar is not pictured here because he committed his sexual offenses as a juvenile, at ages ten and fourteen; he was convicted of no known *sexual* offenses as an adult. Whereas this fact plays a significant role in the argument that civil commitment proceedings are particularly questionable constitutionally as applied to juvenile offenders who are committed indefinitely without having committed any sexual offense as an adult, I wish to respect this juvenile offender's privacy by not publicizing his picture.

262. Chris Serres, *State Clears the Way for First Unconditional Release from Minn. Sex Offender Program*, ST. PAUL STAR TRIB. (Sept. 7, 2016, 11:13 PM), <http://www.startribune.com/state-clears-the-way-for-first-unconditional-release-from-minn-sex-offender-program/392670041> [<https://perma.cc/H36J-7KGB>].

263. Bierschbach, *supra* note 259.

264. In *Karsjens v. Jessons*, the court recognized Terhaar's plight, stating:

Although Defendants were responsive to the experts' discovery of the fact that a juvenile offender like Terhaar was being held indefinitely at MSOP despite, in the experts' opinion, his lack of dangerousness or need for sex offender treatment, this does not explain how this troubling state of affairs came about. It is obvious that but for this litigation, Terhaar, who was stuck with hundreds of other persons in Phase I of MSOP, would likely have languished for years in the prison-like environment of MSOP–Moose Lake without any realistic hope of gaining his freedom. . . . And of course it is of great concern to the Court that this may not be an aberrant case of system failure but is symptomatic of a larger systemic problem of constitutional concern.

Karsjens v. Jesson, 6 F. Supp. 3d 958, 977 (D. Minn. 2014).

In January 2018, fifty-year-old Kirk Alan Fugelseth, pictured in Figure 16, became the first person after Terhaar to be unconditionally discharged from the MSOP.²⁶⁵ Unlike Terhaar, however, Fugelseth admitted to molesting, as an adult in the 1990s, thirty-one children in Arizona, Oregon, and Minnesota, with some victims as young as three-years-old.²⁶⁶ In 2001, Fugelseth was convicted of possessing child pornography and was incarcerated, after which he was civilly committed in 2003. After fifteen years of incarceration and commitment in the MSOP, in 2016, he requested full, unconditional discharge from the program, but the review panel denied his request. Upon Fugelseth's petition for reconsideration, the Minnesota Court of Appeals determined that there was insufficient evidence that Fugelseth needed continued inpatient treatment or that he remained a dangerous threat to the public, and it granted his unconditional release.²⁶⁷ Thus, in terms of the progress through the treatment process toward reintegration, on the "Integrability" axis in Figure 8, Fugelseth plots as integrating most closely to fully healthy persons in society because he reintegrated with no conditions imposed upon him.

FIGURE 16

Kirk Alan Fugelseth

There are similar "unconditional release" stories in other states,²⁶⁸ but not all commitment discharges in other states are as novel as those

265. See Forum News Service, *Court Supports Discharge of Convicted Clay County Child Abuser from Sex Offender Program*, BRAINERD DISPATCH (Jan. 29, 2018, 9:35 PM), <http://www.brainerddispatch.com/news/4395602-court-supports-discharge-convicted-clay-county-child-abuser-sex-offender-program> [https://perma.cc/4SJZ-L6L5].

266. *Id.*

267. *In re* Commitment of Fugelseth, 907 N.W.2d 248 (Minn. Ct. App. 2018). On January 29, 2018, the State Attorney General filed in the State Supreme Court a Petition for Review of Decision of Court of Appeals, which was denied on April 17, 2018.

268. See, e.g., Thomas Clouse, *Jury Sets Convicted Rapist Terrance Laramie Free After Civil Commitment Trial*, SPOKESMAN-REV. (Feb. 1, 2017, 7:07 PM), <http://>

in Minnesota. In Wisconsin, for example, there have been more than 100 sexual offenders unconditionally released from civil commitment and reintegrated into society, and more than 200 offenders granted supervised release, all with low rates of recidivism.²⁶⁹ Such variation raises the obvious question of whether the sudden controversial releases in Minnesota are simply irresponsible reactions to the recent litigation as a way to demonstrate that the existing program really is working, or whether there has been an effective paradigm shift in the treatment and assessment methods that have resulted from the court's directives to improve the unconstitutional aspects of the former program. Which is perception, and which is reality?

The goal, of course, is for treatment to be effective, assessments to be accurate, and only appropriate offenders with a low risk of recidivism to be unconditionally released to reintegrate with fully healthy humans in society. Therefore, for purposes of completing a working representation of the successful process, I include Masahito Mori, pictured in Figure 17, as the fully "healthy human," plotting highest on the scale represented in Figure 8.

FIGURE 17

Masahito Mori



Accordingly, in an ideal progression from perpetrator to reintegration, through civil commitment and treatment, the integrability of an offender represents the degree to which each individual offender becomes more "healthy-human-like" and, ideally, should be able to reintegrate successfully into human society. Thus, as treatment progresses,

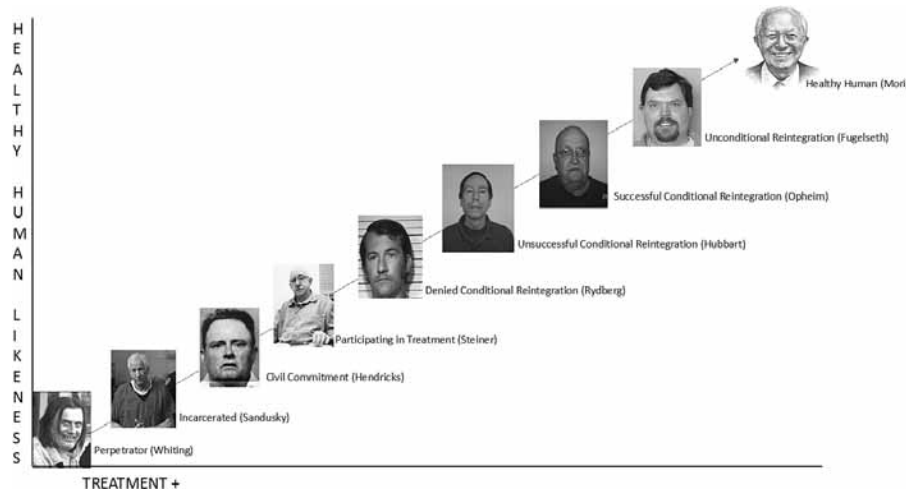
www.spokesman.com/stories/2017/feb/01/jury-sets-convicted-rapist-terrance-laramie-free-a/ [<https://perma.cc/T6BY-TP3U>] (describing the case of Terrance Michael Laramie, who was the first sexual offender in Spokane County, Washington, to be unconditionally released from civil commitment).

269. Bierschbach, *supra* note 259.

when plotted on a continuum scale, a successful progression from “perpetrator” to “healthy human” should present as in Figure 18.

FIGURE 18

**Successful Progression through Sexual Offender Civil
Commitment, from “Perpetrator”
to “Healthy Human”**

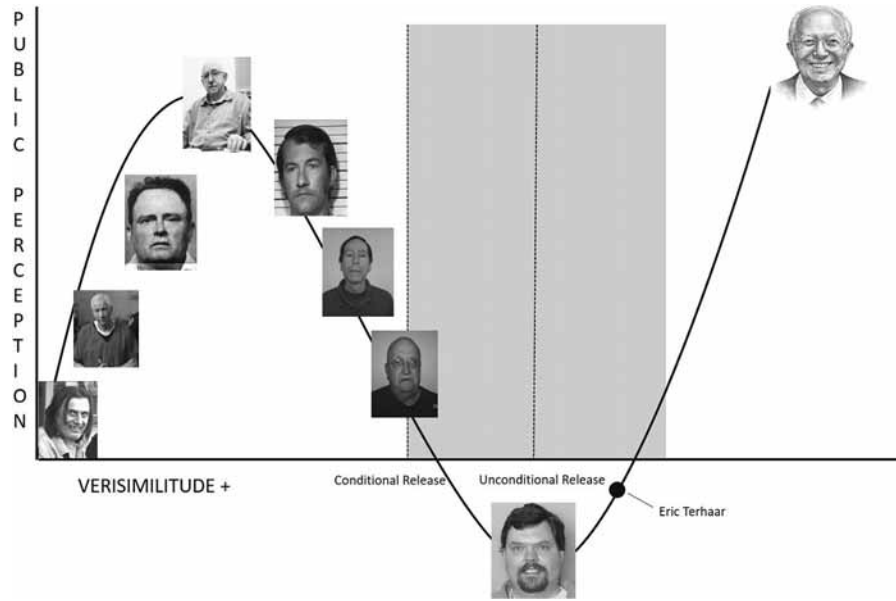


Recall that on Mori’s diagram involving robots, the vertical axis represents the subject’s affinity for an obviously inhuman agent (a commercial robot) as its physical human likeness progressively increases along the horizontal axis. Thus, the horizontal axis in Mori’s diagram represents the agent’s “human likeness.” Within the context of the public’s perception of the integrability of sexual offenders, however, the public does not form its opinion of sexual offenders based on the “human likeness” of the agent’s physicality but rather on the “truthlikeness” or “verisimilitude” of the sexual offender’s human nature. Thus, to make an accurate distinction, when applying Mori’s hypothesis to the context of sexual offenders, I describe the horizontal axis as representing the progressively increasing “verisimilitude” or “truthlikeness” of the agent’s human nature. It is the conflicted paradox between the public’s *perception* of sexual offenders as inhuman monsters and the presentation of sexual offenders as healthy, integrable members of society that determines the success of reintegration and, consequently, the constitutionality of the civil commitment process itself.

Therefore, analogizing Mori’s uncanny valley hypothesis, I propose that the “public perception” categorization of sexual offenders should appear as in Figure 19.

FIGURE 19

Mori's "Uncanny Valley" Scale Plotting the Public Perception of Sexual Offenders



Note that the vertical axis in Figure 19 scales public perception, with a low plot representing negative public perception and a higher plot representing a more positive public perception. The horizontal axis in Figure 19 scales the offender's verisimilitude, vis-à-vis the truthlikeness of his or her "healthy human" nature.

On the scale in Figure 19, agents plot from left to right as they progress through the ideal civil commitment treatment process, from perpetrator to healthy human. Whereas I premise that the public generally views *all* perpetrators as inhuman monsters, "perpetrators" (represented by Roy Whiting) are categorized to the left, representing very low public perception and minimal verisimilitude. As described previously, the public views sexual offenders serving prison sentences (represented by Jerry Sandusky) with a slightly higher view than perpetrators because they are incarcerated and presumably serving a sentence justified by their crimes. Slightly higher on the scale of public perception are those who are civilly committed (represented by Leroy Hendricks). At the first peak on the "Public Perception" scale are those, like Dennis Steiner, who have completed their treatment program and, therefore, appear more "healthy human-like," yet remain committed in a locked facility despite posing little or no risk of danger to the public, which, in reality, the public favors. Therefore, offenders like Steiner are viewed more positively than those who have not completed treatment and those who are released.

As offenders progressively approach release and reintegration, however, they gradually descend into Mori's uncanny valley. Offenders like John Rydberg, who are recommended for conditional release but are denied, plot lower in the public's perception than offenders like Steiner because they have more potential for release, but they are not quite relegated to the uncanny valley because they have not only completed treatment, but they remain committed to a secured facility and pose no immediate risk of harm to the public.

Offenders like Christopher Evan Hubbart, who have obtained conditional release but have proven unsuccessful and have been recommitted, plot lower on the scale than offenders like Rydberg because they have already been released and have failed. Nevertheless, they have completed treatment and are recommitted, thereby posing no continued threat to public safety. As depicted in Figure 19, however, their release and failed reintegration plots them into the uncanny valley, whereas the public is now confronted with category uncertainty—Are they healthy enough to be reintegrated into society or do they pose sufficient danger to require continued commitment? Are they now healthy humans or do they remain inhuman monsters? In the public's eyes, offenders like Hubbart still plot higher than unconditionally released offenders like Eric Terhaar. While this is certainly because those like Hubbart are once again committed to a secured facility, even upon release, they are identified by their restrictions as a conditionally-released offender. Whereas offenders like Eric Terhaar, who reintegrate into society subject to no restrictions, present as nearly indistinguishable from a healthy human in society and thereby are perceived, nevertheless, as uncanny.

Plotting lower on the descent into the uncanny valley, in the public's view, are offenders like Clarence Opheim, who have completed treatment and arguably pose little risk to society but who are subject to numerous restrictions and oversights that, in theory, offer some protection to the public, even if only through the disclosure of information that puts the public on notice that this person is not fully healthy and, therefore, is someone from whom the public may need to protect itself. In a practical sense, Clarence Opheim is no different than Dennis Steiner in terms of having successfully completed treatment and posing little risk of recidivism. In that sense, Opheim and Steiner are essentially the same in terms of "healthy human likeness." However, in reality, because Steiner remains committed with no access to the public, the public perceives him clearly—with no category confusion—as a sexual offender (albeit one who presents minimal risk). Therefore, Steiner plots higher than Opheim on Mori's pre-release peak. The public would perceive Opheim, post-release, more negatively than it would Steiner, pre-released, because the public perceives Opheim as posing more risk since he is now reintegrated into society and has access to the public (albeit subject to identifying re-

strictions). As with released offenders like Fugelseth, this perception conflicts with the designers' presentation of Opheim as qualified for reintegration into the environment of the fully healthy human. Because of this category confusion, Opheim plots more negatively, post-release, than Steiner plots pre-released.

In the public's eyes, offenders who are unconditionally released, like Kyle Alan Fugelseth, plot most negatively on Mori's scale. Despite successful completion of treatment and minimal risk of recidivism, which is precisely the purpose of civil commitment and what the public appears to want, offenders who are unconditionally released with no identifying restrictions or oversights, and who are fully reintegrated into society, are perceived by the public as inhuman monsters roaming unchecked throughout the countryside. This is because, by definition, the designers of civil commitment programs—legislatures, governing officials, public policy-makers, and courts—are representing once violent, mentally ill, and dangerous but now treated, sexual predators as functional, healthy human beings in society. Thus, the public perceives, at once, an agent who presents as a healthy human but who has acted inhumanely and inconsistently with the norms of human society. With no safeguard in place or distinguishing feature demonstrated, such as a GPS monitor, housing restriction, or some imposition on personal privacy, any of which might distinguish the unconditionally released sexual offender from the fully healthy human, the public perceives conflict, experiences category uncertainty, and relegates the unconditionally released offender to the peak of the uncanny valley.

Thus, despite the arguable success of the treatment program and the fact that, as presented, an offender who is unconditionally released most closely functions like a healthy human being, the public perceives such an offender as uncanny and receives the offender with fear because it perceives the irreconcilability of a violent sexual offender being presented to society as a healthy human being. Without any distinguishing indicator, the public is unsure whether to categorize the agent as a sexual offender whom one should protect against or as a healthy human being who should reintegrate with ease. Consequently, unconditionally released sexual offenders are relegated to the uncanny valley. Note, however, that from the perspective of many, juvenile offenders who have committed no sexual offenses as an adult, like Eric Terhaar, may plot slightly higher on Mori's scale upon release but, in the public's perception, may nevertheless invoke fear and, therefore, plot on Mori's scale as remaining in the uncanny valley.

Note also that, from the public's perspective, once an offender is released—either conditionally or unconditionally—no offender ever begins to ascend toward healthy human likeness. The exception, for some, may be juvenile offenders, like Terhaar. However, in the public's perception, the only offenders who become more tolerable or

more acceptable are those who are either incarcerated or who are civilly committed and receiving treatment. Regardless of the success of the treatment, however, the public views more negatively any offender with access to the community. Ironically, even though Opheim is less “healthy human-like” than Fugelseth (whereas Opheim requires conditional restrictions for his release and Fugelseth does not), Opheim nevertheless plots higher than Fugelseth in the eyes of the public because the restrictions placed on Opheim identify him as a sexual offender. Such identifiers dispel the public’s category confusion for Opheim but are lacking for the public’s categorization of Fugelseth, thereby abdicating him to the peak of the uncanny valley. This paradox between the public’s perception of all sexual offenders and the reality of the risk of recidivism of conditionally or unconditionally released sexual offenders is what defines the *real* “healthy human likeness” (i.e., the verisimilitude) of the reintegrated sexual offender.²⁷⁰

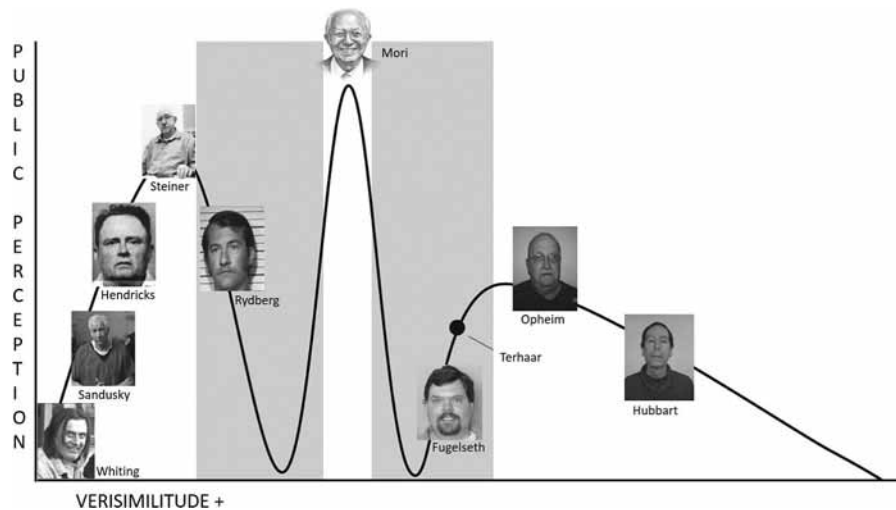
Like the nonhuman robot that is designed to perfectly integrate and function in human society, when viewed through Mori’s lens of human likeness, there is a perceived verisimilitude of sexual offenders that leads sexual offenders through the process of civil commitment and treatment and strives to effectively reintegrate sexual offenders into a fully healthy society but yet, at the same time, relegates the sexual offender into the uncanny valley. However, the ethorobotic approach arguably reconciles this paradox and claims to avoid the uncanny valley.

Recall that, in Figure 5, which depicts an ethorobotic extension of Mori’s uncanny valley hypothesis, Miklósi et al. describe three peaks that represent various levels of “familiarity” (on Mori’s scale) as the development of robot human likeness progresses over time, from left to right. The middle and highest peak represents the fully healthy human. The peak to the left represents the familiarity level of robots that have not yet reached full human likeness, with the industrial robot at the far left, progressing in development to the humanoid robot, nearing the peak of the first hill, before descending into the first uncanny valley, where zombies and corpses are plotted. The hill to the right represents “trans-humans,” which surpass fully healthy humans on the scale of human capacity and then gradually become less human-like with further development. Likewise, an ethorobotic extension of Mori’s uncanny valley hypothesis, considered in the context of the verisimilitude of sexual offenders, appears as in Figure 20.

270. The verisimilitude of sexual offenders is discussed more fully in the forthcoming second article of this series.

FIGURE 20

Ethorobotic Extension of Mori's Uncanny Valley Hypothesis, Considered in the Context of the Verisimilitude of Sexual Offenders



Under the ethorobotic approach in Figure 20, the pre-release offenders (to the left of the first uncanny valley) plot just as they do under Mori's approach, with the perpetrator (Whiting) to the far left and at the lowest level of "familiarity" in the public's view, and then progressively ascending positively in the public's perception as the offender participates in, and completes, treatment, thereby progressing in healthy human likeness while removed from the environment of the healthy human. Beyond the first peak, however, those offenders who qualify for release and reintegration begin to descend into the first uncanny valley. The middle peak, of course, represents the height of true healthy human likeness (Mori). The hill to the right of the middle peak represents the offenders who are released and reintegrated into society. Moving away from the middle peak, the verisimilitude of sexual offenders progresses away from the appearance of healthy human likeness over time (the horizontal axis). Accordingly, unconditionally released offenders, like Fugelseth and Terhaar, present as most "healthy human-like" by their absence of restrictions and, thus, plot closest to the middle hill, which represents fully healthy humans. Because these offenders are the most indistinguishable from healthy humans, they are received as the most uncanny and, therefore, plot lowest on the post-release scale. As offenders like Opheim, who appear to function effectively under conditional release, become less "healthy human-like" (i.e., present decreased verisimilitude), they plot slightly higher on the scale of public perception because they are more easily identified and categorized as sexual offenders based on

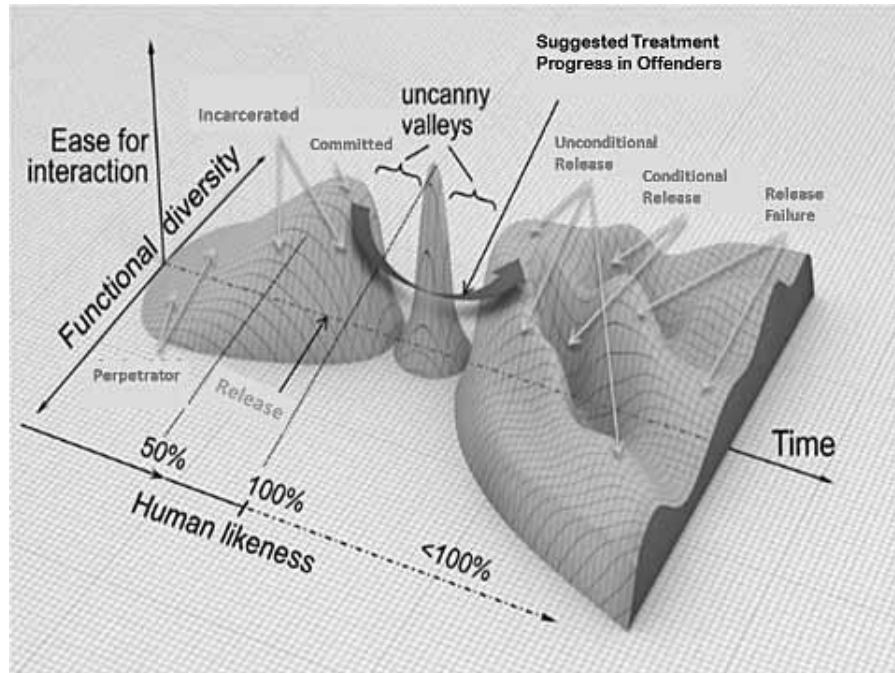
their identifying restrictions. Offenders like Hubbart, who are released but fail to effectively reintegrate, however, plot lower on the public perception scale because of their failure to reintegrate, but these offenders do not plot as low as unconditionally released offenders because, upon their failure, they are recommitted and, consequently, are once again removed from society.

As described in the discussion of human–robot relations, when assessing the effectiveness of the agent’s reintegration into the human environment, the arguable success of the ethorbotic approach in avoiding the uncanny valley lies in its conception of each agent’s functionality within a specific niche of the environment, as opposed to the conception of human likeness as a measure of integrability. Recall, in Figure 6, that the ethorbotic approach allows robot designers to design robots to function within a particular niche of the human environment without designers concerning themselves with how the robots appear in terms of human likeness. Thus, service robots can be optimized to fulfill specific service needs without having to appear human-like, and combat robots can be designed optimally for combat without having to appear like soldiers, and so on. If the optimization of a robot’s function requires such human likeness that it approaches the uncanny valley—such as in the case of Sweetie or the child sex robot—the designer may simply remove the robot from the environment and redesign the robot for another function, thereby “jumping” the robot to another niche and avoiding the uncanny valley altogether.

As applied to the integration of sexual offenders within a healthy human environment based on progress, over time, through the civil commitment and treatment process, and gauging the ease with which the respective agents would integrate into the environment based on functionality within its specific niche, an “ethorbotic” approach would appear as in Figure 21.

FIGURE 21

3D Ethorobotic Extension of Mori’s Uncanny Valley Hypothesis in the Context of Sexual Offenders²⁷¹



In Figure 21, we see the progression from perpetrator (far left) to variations of released offenders (far right) over time, based on treatment progress that presents the respective categories of sexual offender as progressively “healthy human-like.” The level of “ease of interaction” for each niche of offender across the terrain is based on the capacity of the offender to optimize its functionality within its niche. Ideally, this “etho-offender” approach allows policy-makers to circumvent the uncanny valley of public perception that Mori’s approach appears to be unable to avoid. However, the litigation in states like Minnesota and Missouri has proven that the treatment and release of sexually violent predators is never ideal.

Mori’s hypothesis of the uncanny valley originated within the field of robotics design. Most of the research involving the application of this phenomenon since then has been directed at other, related aspects of robotics, such as technological development, human–robot interactions, and artificial intelligence. Conceptually, researchers and commentators in other fields have applied the uncanny valley princi-

²⁷¹. This diagram is entirely derived from the concept and diagram presented in Miklósi et al., *supra* note 187, at 5 fig.3. However, it has been altered to accommodate the sexual offender context of this Article.

ple to other contexts *not* involving robots,²⁷² but these other contexts are scarce. Nevertheless, in this Article, I propose that Mori's uncanny valley hypothesis supports the current social and legal perception of sexual offenders, and explains the current predicament of so many civilly committed sexually violent predators who have been denied release from civil commitment in so many states, like Minnesota and Missouri. Mori's uncanny valley hypothesis may also explain the United States Supreme Court's unwillingness to address what arguably is an unconstitutional application of substantive and procedural due process by some civil commitment states. An ethological approach to the application of Mori's theory may offer a possible solution for avoiding—or at least bridging—the uncanny valley in the context of sexual offenders. However, such an application is premised on a critical assumption that must be made—an assumption that is equally paradoxical in human nature and that presents some additional rather “uncanny” social, philosophical, and legal issues.

Specifically, Mori's hypothesis of the uncanny valley applies strictly to the character or “ethos” of nonhuman robots. Subsequent studies that either assessed or applied the uncanny valley principle involved some degree of inanimate or nonhuman object designed with some aspect of human likeness—either physical characteristics or behavioral traits, or some combination of both. Even the ethological approach extending Mori's theory tested the hypothesis as applied to nonhuman agents—dogs and technologically developed robots of varying degrees of functionality. Under the ethological approach, the test was whether these nonhuman species were able to integrate and function effectively in the environment of the human species. However, in the context of sexually violent predators, we are dealing with the reintegration of one species within the environment of its own species, from which the subject agents already have been banished. In this context, although, psychologically, the insights of Jentsche, Freud, Schelling, Lacan, and others may account for the uncanniness that one may experience when confronting the nature of sexual offenders, Mori's consideration of the human likeness of inanimate objects and the uncanny valley effect of that experience, on its face, seems inapplicable to agents of the same species bound by evolutionary consistency. Rather, the more modern abjective principles of Kristeva and Tyler, for example, appear more appropriate in assessing the marginalization of sexual offenders as a sociological inquiry, rather than as an ethological analogy to the integration of animals and nonhuman robots into human society. However, the uncanny valley theory is applicable to the predicament of civilly committed sexual offenders since, after all, sexual offenders are not human—at least in the public's perception.²⁷³ And therein lies the problem.

272. See *supra* notes 154–58 and accompanying text.

273. See Levine & Meiners, *supra* note 17.

It is this question—Are sexual offenders human?—wherein lies the uncanny paradox of the verisimilitude of sexual offenders such that Mori’s theory may explain the predicament of sexual offenders in the civil commitment process.²⁷⁴ It is the public’s misguided perception of *all* sexual offenders—even those who have served their criminal sentence, been civilly committed, and successfully completed treatment—as dangerous and unfit to live in society that leaves sexual offenders lingering unconstitutionally in civil commitment.

This is *not* to assert that any sexual offender is sub-human. Of course, sexual offenders *are* human—created as members of the human species. And although the acts of sexual offenders may violate normative expectations for human behavior, their acts do not subjugate their human nature to that of a nonhuman species. Thus, evolutionary consistency remains a possible limitation on the application—or existence—of Mori’s uncanny valley hypothesis in the context of sexual offenders. However, an ethological extension of Mori’s hypothesis obviates this limitation.

Mori’s hypothesis remains a viable theory to be studied because it is society’s *perception* of sexual offenders as inhuman—what researchers call the “dehumanization hypothesis”—that causes the uncanny valley phenomenon for sexual offenders.²⁷⁵ There may be debate about whether violent sexual predators who are likely to recidivate are entitled to “human rights,”²⁷⁶ or whether, as a public policy matter, society should value essential liberty over temporary security, or vice-versa, but these controversial debates are beyond the scope of this Article. The only question here is whether humans who violate society’s expectations for normative social behavior by committing egregious sexual offenses can effectively reintegrate into a society of fully healthy humans who view the offenders as *inhuman*. In this first of a series of three articles, I hypothesize that the uncanny valley phenomenon exists within the context of this question, and I urge researchers to study this question. Within the limited scope of this Article, however, I conclude that if we are to study this question, for sexual offenders to avoid the uncanny valley and to reintegrate into the community, society must adopt an ethological perspective of sexual offenders.²⁷⁷

274. “Asking whether the sex offender is human only legitimizes the question and reinforces the doubt it arises from: if you have to ask, maybe the answer is no.” *Id.*

275. See Wang et al., *supra* note 15, at 401–04.

276. See Astrid Birgden & Tony Ward, *Sexual Offenders and Human Rights: Protecting Victims*, in *THE OXFORD HANDBOOK OF SEX OFFENCES AND SEX OFFENDERS* 59 (Teela Sanders ed., 2017) (arguing that the rights of sexual offenders should be viewed as equal, not subordinate, to the rights of victims).

277. I expand upon this conclusion in two forthcoming articles. See *supra* notes 15–16 and accompanying text.

V. CONCLUSION

Mori's hypothesis of the uncanny valley simply raised a question about the ability of nonhuman robots to integrate effectively into human society—not based on having committed sexual offenses, of course, but, rather, based on society's *perception* of robots as indistinguishably human-like. Although research evidences that there may be a host of other causative variables at work, the public's misperception of sexual offenders as "inhuman" has, to some degree, effectively relegated civilly committed sexual offenders to the uncanny valley, thereby preventing them from effectively reintegrating into human society. Accepting this premise, the question then becomes whether—or how—sexually violent predators can avoid the uncanny valley and more effectively reintegrate into a society of healthy humans that perceives them as incommensurably *inhuman*.

As I will show in a forthcoming article in this series, the answer lies in the verisimilitude of sexual offenders and the public's willingness to accept that its perception of *all* sexual offenders as inhuman monsters—or even as intolerably high risks of recidivism—is often inconsistent with reality. If the public can accept that its uncanny perception of sexual offenders is not *real*, it is possible for not all, but many, qualified sexual offenders to bridge the uncanny valley and more effectively reintegrate and function within society.

To do so, however, society—and "the law"—must adopt an ethological perspective of sexual offenders. With this perspective, society may receive reintegrated sexual offenders not as falsely-perceived inhuman monsters that officials merely *present* as fully healthy human beings but as real human beings who committed sexual offences but who have been successfully treated and determined to pose minimal risk to society. With this perspective, society may accept that, upon release, the purpose of sexual offenders within the social niche is not to function as an offender who merely presents as indistinguishable from fully healthy humans but, rather, to function optimally and safely within society as reintegrated sexual offenders, subject to constitutionally imposed, post-release management policies that effectively prescribe the legal and social parameters of the ethological niche within which sexual offenders must function.

Accepting this conclusion, I will explain in the second article of this series how such an approach applies to the verisimilitude of sexual offenders and reconciles the uncanny distinction between the perception and reality of sexual offenders. In the third article of this series, I will demonstrate how—or whether—such an approach may be implemented so as to bridge the uncanny valley constitutionally.