"It Almost Wanted to Hurt Someone": The Impact of Intentional Creepiness on User Perceptions

Jessica Turner
jessica.turner@waikato.ac.nz
University of Waikato
Tauranga New Zealand

Nicholas Vanderschantz
nic.vanderschantz@waikato.ac.nz
University of Waikato
Hamilton New Zealand

Jemma L. König
jemma.konig@waikato.ac.nz
University of Waikato
Hamilton New Zealand

Rafeea Siddika
University of Waikato
Hamilton New Zealand
rs414@students.waikato.ac.nz

Abstract

The intentional design of robots to evoke creepiness provides a unique lens for studying human perception and willingness to engage. To understand user perceptions and acceptance of robots we developed a robot prototype designed with targeted facial, morphological, and movement features that may be perceived as "creepy". Using the Human-Robot Interaction Evaluation Scale (HRIES) we found that disturbance was moderate towards our intentionally creepy robot with significant participant variation. Furthermore, qualitative results confirmed this polarity, with descriptions ranging from "angry and unfriendly" to "cool and cute". This variability demonstrates that "creepiness" is more subjective than initially anticipated and highlights a key research gap in academic literature with the need for measurement tools which capture negative perceptions in HRI.

CCS Concepts

• **Human-centered computing → Human computer interaction (HCI)**; • **Computer systems organization → Robotics**.

Keywords

Social Robots, User Perceptions, Robot Aesthetics, Creepiness

ACM Reference Format:
Jessica Turner, Nicholas Vanderschantz, Jemma L. König, and Rafeea Siddika. 2026. "It Almost Wanted to Hurt Someone": The Impact of Intentional Creepiness on User Perceptions. In *Companion Proceedings of the 21st ACM/IEEE International Conference on Human-Robot Interaction (HRI Companion '26), March 16–19, 2026, Edinburgh, Scotland, UK*. ACM, New York, NY, USA, 6 pages. https://doi.org/10.1145/3776734.3794526

1 Introduction

Human-Robot Interaction (HRI) investigates how people and robots collaborate, communicate and coexist in everyday settings. However, most HRI research focuses on positive outcomes such as trust, user acceptance and likability [13, 23, 35]. Far less attention has been given to negative responses, particularly creepiness, even though these reactions can strongly influence user comfort and willingness to engage with robots. Feelings of unease may limit acceptance in social contexts, discourage interaction, or in some cases, provoke unintended forms of engagement. Therefore, further investigation into "creepiness" and the impact this plays on user perceptions is necessary to understand how users respond to robots deliberately designed to evoke a sense of creepiness.

In HRI, creepiness arises when users cannot make sense of a robot's appearance or behaviour. Creepiness is linked to uncertainty and violations of expectations that do not present obvious danger [28]. People who are less comfortable with ambiguity are more likely to perceive something as creepy [7], and this effect is intensified by disrupted mentalisation, which occurs when an agent appears to have a mind but its intentions remain unreadable [21]. Violations such as unnatural eye contact or a lack of discernible intent contribute to these feelings of unease [43]. Furthermore, unlike fear, which follows a clear threat, creepiness persists as uncertainty remains unresolved. This can impact users' willingness to engage, and therefore ambiguity, uncertainty and unpredictability become central design considerations for HRI.

In this paper we present the preliminary results of a broader study investigating the effects of "cute" and "creepy" robot design. Our central objective is to examine whether creepiness can be deliberately engineered into social robots and to explore how these design choices influence user perception and interaction. The contributions of this paper are threefold: first, we review literature on creepiness to identify attributes relevant to social robots; second, we apply these attributes to design an intentionally creepy robot, *Spike*; and third, we report on how these features shape user perceptions and interactions through a case study with Spike. The paper is structured as follows: we begin with related work on creepiness in HRI, then outline the methodology for our user study and present the results. We conclude with a discussion of the implications for social robot design, followed by closing remarks.

2 Related Work

In this section we outline the related work on morphology, physical, visual, and behavioural properties of robots, and the effects of creepiness on user perceptions.

HRI Companion '26, Edinburgh, Scotland, UK

ACM ISBN 979-8-4007-2321-6/2026/03
https://doi.org/10.1145/3776734.3794526

2.1 Morphology

Robot morphology strongly impacts user perception and acceptance. When a robot defies a clear classification, such as human, animal or machine, the resulting ambiguity can elicit discomfort. In anthropomorphism, when robots mimic humans, this is a phenomena widely known as the uncanny valley effect [32]. However, in zoomorphism, when robots mimic animals, people hold lower behavioural expectations due to emotional connections formed with pets [2, 27]. Unease can still arise when appearance or behaviour violates those connections, such as a robot resembling feared animals such as a shark or crocodile [10]. Mechanomorphic robots that possess machine-like traits, are frequently judged as cold or impersonal, being perceived as tools rather than social agents [2, 4, 41]. There is little work on whether mechanical traits create discomfort, and unease becomes more likely when they are combined with social cues since this creates inconsistency between expected function and apparent agency [41]. Furthermore, facial cues can guide inferences about emotion and intent, with distorted or absent features reducing readability and trust, especially when eyes appear narrow or dominant [9, 17, 19]. Therefore, to design an intentionally creepy robot, morphological features must be designed to blur distinctions between categories of anthropomorphism, zoomorphism and mechanomorphism, where the removal or distortion of facial features will deliberately evoke unease.

2.2 Physical Attributes & Movement

Similar to human experiences, the physical attributes of a robot influence a users first impressions. Taller robots tend to provoke more anxiety especially during initial encounters [14, 31], while sharp and complex forms intensify emotional reactions, often leading to discomfort; with protrusions and spikes being particularly strong cues for unease [26, 30, 34]. While warm and bright hues support positive responses, dark, desaturated, or cool palettes are often linked to negative emotions across different contexts [6, 18, 34]. Similarly, soft and smooth textures are linked to warmth and comfort, while rough or spiky textures evoke negative affect and distance [8, 16, 24]. In social contexts, softer and more natural materials are preferred over hard plastics [29].

When considering robot movement, research shows that unpredictability in motion is a key contributor to perceived unease. Smooth and slow movements read as calm, whereas erratic paths and abrupt speed changes feel unsettling and can reduce trust [12, 25, 39]. We can see in existing literature that physical attributes and movement are strongly linked to preconceived notions around appearance or behaviour, and by influencing these factors we may engineer creepiness by design.

2.3 Creepiness and HRI

Several established scales have been developed to assess human perceptions of robots and related technologies. The Perceived Creepiness of Technology Scale (PCTS) focuses on emotional responses such as unease, ambiguity and distrust in technological systems [44], however, it is not directly applicable to robots [42]. In contrast, the Negative Attitudes Towards Robots Scale (NARS) captures general negative predispositions towards robots in everyday contexts, however, it focuses on pre-existing technophobia rather than

Table 1: Attributes for Amplifying Creepiness in Robots

Category	Attributes	References
Morphology	Develop features that blur distinctions	[3, 4, 10, 27, 41, 43]
Animation & Movement	Jerky, angular movements and unpredictable paths	[12, 25, 39]
Colour	Use dark, desaturated hues to evoke negative affect	[6, 34]
Shape	Sharp, angular and complex shapes with spikes	[26, 30]
Texture	Rough, spiky, or gritty textures	[8, 16, 24]
Size	Tall to introduce a sense of unease	[14, 31]

Figure 1: Spike: an Intentionally Creepy Robot

creepiness [33]. In addition, we see recent work around exploring creepy futures [11] and the impacts of creepy tech [36], indicating the need for further exploration in HRI. Table 1 synthesises the literature explored in this section and describes key attributes for engineering intentionally creepy robots. We use these attributes to describe the design and development of *Spike*, our creepy robot.

3 Design & Development: Spike

Figure 1 depicts Spike, our intentionally creepy robot designed following the attributes described in Table 1. Spike was developed using a Create3 Robot [1] as a movement hub, where the robot's body required stable and secure attachment to this base. We also utilised 3D printing to build Spike's "body" using Creality K1 Max printers [5], which provided a physical limitation with regards to a 300mm x 300mmm x 300mm print volume. A Raspberry Pi 4B [37] is used to control the movement hub and also a touch screen "face" to link movements with facial expressions. We will now outline the creepiness attributes used during the design phase, where we took an iterative approach to ensure inherent creepiness in our design.

Morphology: Spike's body was designed beginning with mood boards as inspiration based on the findings in Table 1. Focus was placed on ensuring Spike was not recognisable as a particular type of morphology, thus we included human-like aspects of a face, zoomorphic aspects such as his spiky mohawk similar to a birds crest, and mechanomorphic aspects that inspired the simple column form. Several iterations of Spike's face were developed to focus on distorted features such as his mechanical mouth, small pupils in large eyes, and lack of a nose.

Animation & Movement: Storyboarding was used to break down the robot's behaviour frame by frame. This allowed sharp, abrupt movements to be planned in line with the results from Table 1. The following behaviours were implemented:

- *Jerky Movement:* moving forward with random stopping.

- *Zigzag Movement:* moving forward in a sharp zig zag pattern, randomly changing angle and direction.
- *Obstacle Detection:* when hitting an object, look annoyed and turn until finding a clear path.
- *Twitch and Serve Movement:* swerve variably for a random number of repetitions with an eye twitch.
- *Pause and Twitch:* pause and twitch eyes at random intervals.

These unpredictable behaviours introduced uncertainty into Spike's animation and movement, with the intention to evoke unease and consequently creepiness in end users.

Colour: We investigated muted and cold coloured 3D printing filaments and settled on an irregular textured yet shiny navy blue finish for Spike. Similar colours, such as dark greens or purples would have been appropriate alternatives.

Shape: It was concluded that Spike required sharp edges with some protruding elements, thus we designed the robot body, in a hexagon style column. We also ensured a flat surface for incorporating Spike's face within the robot body, along with the head spikes, which give Spike its name.

Texture: As with our colour choices, we chose rough, spiky, and grity textures to evoke creepiness. While, limited by our choice of 3D printer for construction, we did no post-print processing in order to ensure some texture on Spike's body.

Size: Finally, we planned for Spike to be percieved as a "tall" robot and therefore printed the body shell in 3 individual pieces which were locked together. This allowed us to control Spike's overall height, increasing or decreasing as required. These three sections give Spike an overall height of approximately 930mm.

4 Method

To evaluate Spike's intentional creepiness, we conducted a user study to investigate user perception. Participants were recruited through a convenience sampling method and ethical approval was provided by the University of Waikato's ethics committee (Approval no. `STEM_HREC(2025)#33`). For this study we combined the use of an established HRI scale with qualitative questions used to help provide more detailed context to the results. We made use of the Finding the Perfect Scale database [38] which evaluates tools based on established development and validation criteria. As a result, we settled on the Human-Robot Interaction Evaluation Scale (HRIES) [40]. HRIES measures sociability, agency, animacy, and disturbance to capture both social and affective responses to robots during interaction. The validated 'Disturbance' dimension is useful to determine if Spike evokes discomfort in the participants.

During the study participants were able to observe Spike roaming around a dedicated "pen" area while performing the behaviours outlined above in Section 3. Participants completed a series of design activities while engaging with Spike. At the end of this workshop participants completed the HRIES scale and the open-ended questions about the robots' design and behaviour. These four open-ended questions asked participants to describe Spike in three words, discuss any elements of the behaviour or design that stood out to them, and provide any further comments about the robot.

Results were evaluated by identifying the mean, median, standard deviation, and range for each dimension of the HRIES scale following established guidelines. Open-ended responses were analysed using thematic analysis, to gain an understanding first of how participants described Spike, and second to understand sentiments of responses, to determine if creepiness does cause negative perceptions. These findings provide preliminary insights into the impact of engineering creepiness in social robot design.

5 Results

In this section we present the quantitative HRIES scores and qualitative participant responses from our user study.

5.1 Participant Demographics

Participants included secondary students, tertiary students, university staff and community members. 104 participants completed the study with the average age of 24 years old (σ=13) and 62% (n=65) being 16-19 years old. All participants were provided with informed consent prior to the study taking place.

5.2 HRIES Findings

Table 2: Overall HRIES descriptive statistics

	Sociability	Disturbance	Agency	Animacy
Mean (μ)	2.8690	3.4048	3.6802	2.4937
Standard Error	0.1095	0.1372	0.1133	0.1277
Median	2.75	3.25	3.75	2.25
Mode	3.00	3.75	3.00	1.00
Standard Deviation	1.1224	1.4059	1.1605	1.3088
95% CI (half-width)	0.2172	0.2721	0.2246	0.2533
Range	4.75	6.00	6.00	5.50
Minimum	1.00	1.00	0.50	1.00
Maximum	5.75	7.00	6.50	6.50

Across all participants, agency recorded the highest mean, however, this interval still sits below the scale midpoint of 4, which suggests participants perceived the robot has some intention or purpose but not at a high level. Disturbance was the second highest rating, indicating some moderate unease but no strong results here either, demonstrating that the intentional creepiness in the design was not perceived by the majority of the participants. However, sociability was lower than both agency and disturbance, which implies the robot was not viewed as friendly or approachable, indicating mixed findings with regards to creepiness. Lastly, animacy was the lowest rated attribute, indicating that participants did not perceive the robot as lifelike or alive. The medians support this pattern, although the standard deviations show responses were moderately spread rather than tightly clustered.

In addition, when looking at the range of responses disturbance ranges from 1 to 7. This spread is consistent with the idea that "creepiness" is subjective; that is, some participants reported little disturbance whereas others rated it highly. Overall, the quantitative data suggests that the robot is purposeful, moderately disturbing, but not sociable, or lifelike. None of the factors exceed the midpoint, so the central tendency does not indicate strong creepiness.

5.3 Qualitative Results

When investigating the word descriptors provided by the first qualitative question we found 435 words used to describe Spike with 202 unique words. Out of these descriptors, affective descriptors were most common, including words like "angry" (n=28), "scary" (n=18), and "cool" (n=16). Of note the word "creepy" only appeared 6 times in these results. This demonstrates again the highly subjective nature of creepiness and reinforces our HRIES findings, what some participants found angry or scary, others found cool. It is worth noting that both "angry" and "scary" are considered synonyms of "creepy" and this may reflect why responses were lower.

We coded each participant response as positive (9.9%), negative (45.5%), mixed (34.65%), or neutral (9.9%). Many comments about Spike were unfavourable, while several were ambivalent, containing both positive and negative remarks. Positive comments focused on aspects of Spike's appearance, such as "it was blue and looks angry but I still like it" [P29] and "the spikes on top give it edge or spunk" [P37]. Negative comments often referred to its movement or characterisation, describing its "jerky almost aggressive movement" [P41], calling Spike "sentinel like" [P53], or "the twitching is almost like it wanted to hurt someone" [P104]. Participants with mixed responses appreciated Spike's edgy look, stating "it looks cool to use for aggressive activities like robot fights" [P44], or commenting on its "gamer vibes" [P11]. Neutral comments tended to describe design features without expressing a clear positive or negative stance, such as "it is a bit tall, making it slightly unstable" [P54].

6 Discussion

The HRIES findings suggest that creepiness reduces sociability and many participants described the robot as unfriendly or difficult to relate to. However, this does not always lead to avoidance, as participants still engaged, noting its oddness as funny or appealing. This indicates that creepiness limits, but does not eliminate social potential, and calls for further research into creepy robots.

The jerky and unstable movements of Spike were linked with unease, anger or intimidation by participants. However, those same behaviours, when combined with certain expressions, were described as amusing or intentional. This illustrates that behaviour is not judged in isolation but rather the holistic impression of the robot including form, movement and expression impact user perceptions. This aligns with work completed by Hwang *et al.* where they found that shape impacts the emotions invoked in users based on the perceived personalities of service robots [15]. In addition, it aligns with Klüber *et al.*'s findings which demonstrate that communication rather than appearance alone are "a key determinant of robot preference" [22]. Our findings here highlight the importance of investigating these seemingly separate but interconnected dimensions (appearance, behaviour, and personality) together to determine user perception.

Engineering an intentionally creepy robot did influence user perceptions, however, the results underline that creepiness is highly subjective. Features such as angular geometry, dark colours, and distorted facial traits were perceived to be disturbing, but others found them angry, unfriendly, or cool, but not necessarily creepy. Some participants even linked this form to intimidation or defense, hinting at potential applications in security. The wide range in disturbance scores is consistent with theories of perception by Kenyon and Sen who describe perception as an active process of selecting and interpreting sensory information in light of personal background, cultural context and individual preferences [20]. While some diversity was expected, this variation was wider than anticipated, and thus designing a robot that is universally creepy is much harder than the existing literature implies.

Overall, these findings challenge the idea that designers can follow a simple formula to elicit specific social responses. Our results suggest that design guidance should be framed as limits on what may provoke discomfort, rather than step-by-step instructions. Furthermore, this unpredictability in the results demonstrates that robots will never be received in the same way by everyone. If social robots are deployed in healthcare, education or other public spaces, we must account for this diversity, being intentional when introducing robots into sensitive environments. This perspective demonstrates that robots are best positioned as assistants rather than replacement for humans, and that adoption strategies should include user choice, clear education, and avenues for feedback.

7 Conclusion and Future Work

In this work we have demonstrated that designing for creepiness is fundamentally different from designing against it. While we incorporated attributes identified in academic literature as "creepy", participant responses varied widely. These findings challenge the notion that creepiness can be reliably engineered through a formula, and prompt the need for further research into creepy robots and their applications. Furthermore, our research demonstrates the need to refine measurement tools for creepiness, in order to measure negative user perceptions accurately. In future, work should consider the design of holistic robot personalities rather than the combination of isolated features. This would provide more reliable guidance for balancing usability, acceptance, and the ethical deployment of robots in social settings.

Acknowledgments

We wish to thank Milica Pandurevic, Shaheer Shabbir, and Dylan Cumming, for their contributions to the robot design; and to the participants of the study for their time and creativity.

References

[1] Evan Ackerman. 2022. Event Sensors to the Edge. *IEEE Spectrum* (apr 2022). https://spectrum.ieee.org/event-sensors-to-the-edge Digital magazine article.

[2] Hannah L. Bradwell, Rhona Winnington, Serge Thill, and Ray B. Jones. 2021. Morphology of socially assistive robots for health and social care: A reflection on 24 months of research with anthropomorphic, zoomorphic and mechanomorphic devices. In *2021 30th IEEE International Conference on Robot & Human Interactive Communication (RO-MAN)*. IEEE, Vancouver, BC, Canada, 376–383. doi:10.1109/RO-MAN50785.2021.9515446

[3] Robert S. Cohen and Marx W. Wartofsky (Eds.). 1969. *Proceedings of the Boston Colloquium for the Philosophy of Science 1966/1968*. Boston Studies in the Philosophy of Science, Vol. 4. Springer Netherlands, Dordrecht. doi:10.1007/978-94-010-3378-7

[4] Gail Collyer-Hoar, Elisa Rubegni, Laura Malinverni, and Jason Yip. 2024. "It's kind of weird talking to a sphere": Exploring Children's Hopes and Fears on Social Robot Morphology Using Speculative Research Methods. In *Designing Interactive Systems Conference*. ACM, IT University of Copenhagen Denmark, 276–288. doi:10.1145/3643834.3661526

[5] Creality. [n. d.]. K1 Max 3D Printer. https://store.creality.com/au/products/k1-max-3d-printer. Accessed: 2025-12-03.

[6] Osvaldo Da Pos and Paul Green-Armytage. 2007. Facial Expressions, Colours and Basic Emotions. 1 (2007). https://api.semanticscholar.org/CorpusID:143411364

[7] Jessie N. Doyle, Margo C. Watt, Melissa Howse, Karen Blair, and Petra Hauf. 2022. What is creepiness? The underlying role of ambiguity. *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement* 54, 3 (July 2022), 173–181. doi:10.1037/cbs0000269

[8] Roberta Etzi and Alberto Gallace. 2016. The arousing power of everyday materials: an analysis of the physiological and behavioral responses to visually and tactually presented textures. *Experimental Brain Research* 234, 6 (June 2016), 1659–1666. doi:10.1007/s00221-016-4574-z

[9] Ylva Ferstl, Elena Kokkinara, and Rachel McDonnell. 2016. Do I trust you, abstract creature?: a study on personality perception of abstract virtual faces. In *Proceedings of the ACM Symposium on Applied Perception*. ACM, Anaheim California, 39–43. doi:10.1145/2931002.2931014

[10] Daniel Frynta, Hassan Sh Abdirahman Elmi, Kateřina Rexová, Markéta Janovcová, Veronika Rudolfová, Iveta Štolhoferová, David Král, David Sommer, Daniel Alex Berti, and Petra Frýdlová. 2023. Animals evoking fear in the Cradle of Humankind: snakes, scorpions, and large carnivores. *The Science of Nature* 110, 4 (Aug. 2023), 33. doi:10.1007/s00114-023-01859-4

[11] Argenis Ramirez Gomez and Katarzyna Stawarz. 2025. Exploring Creepy Futures: Reflecting on the Value of Creepiness as Design Fiction. In *Proceedings of the 38th International BCS Human-Computer Interaction Conference* (Cardiff University, UK) *(BCS HCI '25)*. BCS Learning & Development Ltd, Swindon, GBR, 267–271. doi:10.14236/ewic/BCSHCI2025.25

[12] Kasper Hald, Matthias Rehm, and Thomas B. Moeslund. 2019. Proposing Human-Robot Trust Assessment Through Tracking Physical Apprehension Signals in Close-Proximity Human-Robot Collaboration. In *2019 28th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*. IEEE, New Delhi, India, 1–6. doi:10.1109/RO-MAN46459.2019.8956335

[13] Peter A. Hancock, Deborah R. Billings, Kristin E. Schaefer, Jessie Y. C. Chen, Ewart J. De Visser, and Raja Parasuraman. 2011. A Meta-Analysis of Factors Affecting Trust in Human-Robot Interaction. *Human Factors: The Journal of the Human Factors and Ergonomics Society* 53, 5 (Oct. 2011), 517–527. doi:10.1177/0018720811417254

[14] Yutaka Hiroi and Akinori Ito. 2008. Are bigger robots scary? —The relationship between robot size and psychological threat—. In *2008 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*. 546–551. doi:10.1109/AIM.2008.4601719 ISSN: 2159-6255.

[15] Jihong Hwang, Taezoon Park, and Wonil Hwang. 2013. The effects of overall robot shape on the emotions invoked in users and the perceived personalities of robot. *Applied Ergonomics* 44, 3 (2013), 459–471. doi:10.1016/j.apergo.2012.10.010

[16] Marina Iosifyan and Olga Korolkova. 2019. Emotions associated with different textures during touch. *Consciousness and Cognition* 71 (May 2019), 79–85. doi:10.1016/j.concog.2019.03.012

[17] Xiaoyu Jia and Chien-Hsiung Chen. 2024. Minimal Social Cues, Body Proportion, Head Shape, and Participant's Gender on the Trustworthiness of Social Robots. *International Journal of Human–Computer Interaction* 40, 23 (Dec. 2024), 8328–8339. doi:10.1080/10447318.2023.2279418

[18] Domicele Jonauskaite and Christine Mohr. 2025. Do we feel colours? A systematic review of 128 years of psychological research linking colours and emotions. *Psychonomic Bulletin & Review* (Jan. 2025). doi:10.3758/s13423-024-02615-z

[19] Alisa Kalegina, Grace Schroeder, Aidan Allchin, Keara Berlin, and Maya Cakmak. 2018. Characterizing the Design Space of Rendered Robot Faces. In *Proceedings of the 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI '18)*. Association for Computing Machinery, New York, NY, USA, 96–104. doi:10.1145/3171221.3171286

[20] George N. Kenyon and Kabir C. Sen. 2015. The Perception Process. In *The Perception of Quality*. Springer London, London, 41–50. doi:10.1007/978-1-4471-6627-6_5

[21] Jens Kjeldgaard-Christiansen. 2024. What Is Creepiness, and What Makes Chat-GPT Creepy? *Leviathan: Interdisciplinary Journal in English* 10 (March 2024), 1–15. doi:10.7146/lev102024144284 Number: 10.

[22] Kim Klüber and Linda Onnasch. 2022. Appearance is not everything - Preferred feature combinations for care robots. *Computers in Human Behavior* 128 (2022), 107128. doi:10.1016/j.chb.2021.107128

[23] Johannes Kraus, Franziska Babel, Philipp Hock, Katrin Hauber, and Martin Baumann. 2022. The trustworthy and acceptable HRI checklist (TA-HRI): questions and design recommendations to support a trust-worthy and acceptable design of human-robot interaction. *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO)* 53, 3 (Sept. 2022), 307–328. doi:10.1007/s11612-022-00643-8

[24] Jianli Liu, Edwin Lughofer, Xianyi Zeng, and Zhengxin Li. 2018. The Power of Visual Texture in Aesthetic Perception: An Exploration of the Predictability of Perceived Aesthetic Emotions. *Computational Intelligence and Neuroscience* 2018, 1 (2018), 1812980. doi:10.1155/2018/1812980 _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1155/2018/1812980.

[25] Matt Lockyer and Lyn Bartram. 2012. Affective motion textures. *Computers & Graphics* 36, 6 (Oct. 2012), 776–790. doi:10.1016/j.cag.2012.04.009

[26] Xin Lu, Poonam Suryanarayan, Reginald B. Adams, Jia Li, Michelle G. Newman, and James Z. Wang. 2012. On shape and the computability of emotions. In *Proceedings of the 20th ACM international conference on Multimedia*. ACM, Nara Japan, 229–238. doi:10.1145/2393347.2393384

[27] Diana Löffler, Judith Dörrenbächer, and Marc Hassenzahl. 2020. The Uncanny Valley Effect in Zoomorphic Robots: The U-Shaped Relation Between Animal Likeness and Likeability. In *Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction*. ACM, Cambridge United Kingdom, 261–270. doi:10.1145/3319502.3374788

[28] Francis T. McAndrew and Sara S. Koehnke. 2016. On the nature of creepiness. *New Ideas in Psychology* 43 (Dec. 2016), 10–15. doi:10.1016/j.newideapsych.2016.03.003

[29] Conor McGinn and Dylan Dooley. 2020. What Should Robots Feel Like?. In *Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction*. ACM, Cambridge United Kingdom, 281–288. doi:10.1145/3319502.3374835

[30] Edward Melcer and Katherine Isbister. 2016. Motion, Emotion, and Form: Exploring Affective Dimensions of Shape. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*. ACM, San Jose California USA, 1430–1437. doi:10.1145/2851581.2892361

[31] Linda Miller, Johannes Kraus, Franziska Babel, Matthias Messner, and Martin Baumann. 2020. Come Closer: Experimental Investigation of Robots' Appearance on Proximity, Affect and Trust in a Domestic Environment. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* 64, 1 (Dec. 2020), 395–399. doi:10.1177/1071181320641089

[32] Masahiro Mori, Karl F. MacDorman, and Norri Kageki. 2012. The Uncanny Valley [From the Field]. *IEEE Robotics & Automation Magazine* 19, 2 (June 2012), 98–100. doi:10.1109/MRA.2012.2192811 Conference Name: IEEE Robotics & Automation Magazine.

[33] Tatsuya Nomura, Tomohiro Suzuki, Takayuki Kanda, and Kensuke Kato. 2006. Measurement of negative attitudes toward robots. *Interaction Studies* 7, 3 (Jan. 2006), 437–454. doi:10.1075/is.7.3.14nom Publisher: John Benjamins.

[34] Jan L. Plass, Bruce D. Homer, Andrew MacNamara, Teresa Ober, Maya C. Rose, Shashank Pawar, Chris M. Hovey, and Alvaro Olsen. 2020. Emotional design for digital games for learning: The effect of expression, color, shape, and dimensionality on the affective quality of game characters. *Learning and Instruction* 70 (Dec. 2020), 101194. doi:10.1016/j.learninstruc.2019.01.005

[35] Akanksha Prakash and Wendy A Rogers. 2015. Why some humanoid faces are perceived more positively than others: effects of human-likeness and task. *International journal of social robotics* 7, 2 (2015), 309–331. doi:10.1007/s12369-014-0269-4

[36] Argenis Ramirez Gomez, Carolina Fuentes Toro, Samuelson Atiba, Nervo Verdezoto Dias, and Katarzyna Stawarz. 2025. Understanding #CreepyTech: Exploring the Context of Creepiness of Emerging Technology. In *Proceedings of the 38th International BCS Human-Computer Interaction Conference* (Cardiff University, UK) *(BCS HCI '25)*. BCS Learning & Development Ltd, Swindon, GBR, 103–119. doi:10.14236/ewic/BCSHCI2025.11

[37] Raspberry Pi Foundation. [n. d.]. Raspberry Pi 4 Model B. https://www.raspberrypi.com/products/raspberry-pi-4-model-b/. Accessed: 2025-12-03.

[38] Eileen Roesler, Laura Saad, and Elizabeth Phillips. [n. d.]. Finding the "Perfect" Scale. http://hriscaledatabase.psychology.gmu.edu/Database/

[39] Harrison Jesse Smith and Michael Neff. 2017. Understanding the impact of animated gesture performance on personality perceptions. *ACM Transactions on Graphics* 36, 4 (Aug. 2017), 1–12. doi:10.1145/3072959.3073697

[40] Nicolas Spatola, Barbara Kühnlenz, and Gordon Cheng. 2021. Perception and Evaluation in Human–Robot Interaction: The Human–Robot Interaction Evaluation Scale (HRIES)—A Multicomponent Approach of Anthropomorphism. *International Journal of Social Robotics* 13, 7 (Nov. 2021), 1517–1539. doi:10.1007/s12369-020-00667-4

[41] Steven J. Stroessner and Jonathan Benitez. 2019. The Social Perception of Humanoid and Non-Humanoid Robots: Effects of Gendered and Machinelike Features. *International Journal of Social Robotics* 11, 2 (April 2019), 305–315. doi:10.1007/s12369-018-0502-7

[42] Jessica Turner, Judy Bowen, Jemma König, Katarzyna Stawarz, and Nicholas Vanderschantz. 2025. Applying the Perceived Creepiness of Technology Scale to Social Robots. In *2025 20th ACM/IEEE International Conference on Human-Robot Interaction (HRI)*. 1695–1699. doi:10.1109/HRI61500.2025.10973926

[43] Margo C. Watt, Rebecca A. Maitland, and Catherine E. Gallagher. 2017. A case of the "heeby jeebies": An examination of intuitive judgements of "creepiness". *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement* 49, 1 (Jan. 2017), 58–69. doi:10.1037/cbs0000066

[44] Paweł W. Woźniak, Jakob Karolus, Florian Lang, Caroline Eckerth, Johannes Schöning, Yvonne Rogers, and Jasmin Niess. 2021. Creepy Technology:What Is It and How Do You Measure It?. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–13. doi:10.1145/3411764.3445299

Received 2025-12-08; accepted 2026-01-12