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Exploring Creepy Futures: Reflecting on the Value of Creepiness as Design Fiction

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What can designers learn from living in a Creepy Future? This paper presents a vision of the future drawn by a fictional autoethnography study imagining and living with fictional devices. Using an imaginary creepy device as a starting point, this paper reflects on the value of imagining Creepy Futures. We start evoking a future in which devices are designed with creepiness as a normative design feature with the description of the Catonator – a device that creates a nanorobotic twin of your pet when you are abroad. Using Design Fiction and a visual representation created with generative AI, we present insights on reflecting on a week of living with the fictional device. Through a reflection of our interpretation as the designer and end-user, we discuss the value of designing creepiness as a resource for responsible futures.

Speculative Design, Design Fiction, Responsible Futures, Generative AI, Creepiness

1. GREETINGS FROM CREEPY FUTURES



Figure 1: Visual imaginary of the Catonator – using Gemini (Generative AI). More information on the process and prompt used can be found in the Methodology section.

Hey! I found the perfect thing for you! The people at TamAlgochi have done it again! They have created the perfect compAlnion for your trips so you never miss your cats again. This is the Catonator, the next level of AI-powered nano-tech robotics.

The company got inspired by Westworld technology to bring you a portal to your cat flap. Whenever you are ready, hold the handles, shake it and shout: “Into the cat flap!”. The device will connect to footage (which is actually a scan) of the last time your cat went through the cat flap to create a virtual nano-clone. The device is capable of “printing” as the cat comes to life for you to pet. It’s the latest on haptics!

This version of the device hasn’t mastered printing colour yet, so your cat will look purple, which is a product of the viscous printing screen. Don’t worry, it does not spill.

The robotic cat will behave just like yours, so you can be yourself with them. You can pet them and stop missing them. Once you are done, you just shake the device and the cat avatar drowns, resetting the device until the next time you need them. Don’t worry, your cats won’t feel anything; this is just for you!

2. A VISION FOR CREEPY FUTURES

The adoption of emerging technologies in every aspect of our daily lives raises questions about their impact on the human experience, as new technology is often perceived as spooky (Byrne et al. 2022), intrusive (Pierce 2019) or creepy (Yip et al. 2019). But what if we lived in a future in which we are not spooked out by technology? *What if technology was explicitly designed to be creepy?* Would this make it more honest, or would it desensitise us to its dangers and normalise the unwanted features?

The field of Human-Computer Interaction has defined perceived creepiness in technology as an experiential quality in which data collection or human-like features of technology mismatch with social norms and expectations (Woźniak et al. 2021). However, creepiness is subjective and can be influenced by personal preferences or cultural biases, as it is defined as the “anxiety aroused by the ambiguity of whether there is something to fear or not” (McAndrew and Koehnke 2016). Indeed, the lived experience with technology in everyday settings can lead to interpretations that designers cannot foresee (Wakkary et al. 2016). As such, we envision a future in which creepiness is not a trait that is avoided, but is a quality intentionally embedded and embraced in every action of design.

Imagining Creepy Futures means designing systems that explicitly introduce emotional discomfort (Seberger et al. 2022) and disrupt users’ mental models, giving space to uncover their impact on the human experience. Adopting a disruptive and creative approach in the design of interactive technologies can increase awareness of the trade-offs they may introduce. For instance, the design of EyeCam (Teyssier et al. 2021) uses exaggerated anthropomorphic aesthetics to encourage reflection on surveillance systems by promoting a more open and transparent design, which in turn is perceived as more honest.

To innovate in Interaction Design, we need creative and critical design approaches (Cila 2024). As we strive to design Creepy Futures, the intentional focus on unwanted aspects of technology can allow practitioners to understand its impact beyond the perceived consequences and subjective concerns end-users might have. This could allow us to develop more responsible and ethical futures, helping to identify potential privacy, security and ethical issues. Furthermore, it could enable reflection on our relationship with technology as we balance the reasons for adoption, their integration with everyday life, and their impact on our user experience. To show how this could be done, we tested this vision in an exploratory study, imagining living with fictional devices from Creepy Futures.

3. PATHWAY TO THE VISION: METHODOLOGY

To develop a vision of a future in which “creepiness” is a normalised design attribute, we set a design process to create a dialogue between a **designer** and an **end-user** by assigning each author of this manuscript one of these roles. This process is part of a wider ongoing research study in which we share postcards from fictional ‘creepy’ futures. Here, we showcase the outcome of our research experiment through one example – *the Catonator* – which took place during the week between the 9th and 16th of May 2025. We followed four steps:

1. The end-user provided a design prompt in the format of the text from a postcard describing a plan for their next seven days.
2. The designer developed the description – as a response to the postcard – and a visual representation of a fictional creepy device using the end-user prompt, and shared it with them. The aim was to create something that was both intentionally creepy and useful.
3. The end-user “used” the designer’s idea as an imaginary probe, envisioning how it would impact their life, and recorded in a diary their reflections on living with this fictional creepy device.
4. The designer received the diary and the research team had a conversation about first impressions, the process, the ideas that were used, and what they could mean for this vision of the future.

Next, we present the method followed and discuss its role in creating this vision of the future.

3.1. Design Prompt: The Postcard

Hello! Hope everything is well! Travels continue but I miss my cats. I mean, I sometimes miss them when I'm in the office, but we've got one more week until travelling home so this time the feeling's actually justified. I know the cats are fine because I get regular updates from the cat sitter and we also have a camera aimed at a cat flap so I know when they come and go, but to be honest seeing them is not enough and I miss hugging them.

To make things worse, one of my cats is incredibly shy but also loves being brushed - and he hasn't been brushed (or even touched!) for two weeks now, poor thing. He's the sweetest, most cuddly cat, yet been living mostly in the garden as he basically moves out when we're away...

But! One more week to enjoy the adventures before I can pet and cuddle my fur babies – and until I can no longer sleep properly because they love to sleep on me!

3.2. Ideating Creepiness

The description of the device created in response to the end-user's postcard (Section 3) set in a Creepy Future in which *The Catonator* exists is presented in Section 1. To develop the idea, the designer focused on ideating a device that meets user needs (feeling connected with a pet when being away) whilst introducing creepiness by design. We decided to make the device intentionally creepy because designing interactive devices with a critical perspective (creepiness) can inspire debate and increase awareness of ethical issues that can change practice (Bardzell et al. 2012).

To make the idea be perceived as creepy, the designer drew from previous interpretations of creepiness (Yip et al. 2019; Woźniak et al. 2021). In particular, the concepts of *undesirability* (as the feeling of unease caused by being out of context) and *unpredictability* (as the worry that something might become sinister) served as the prompt to create opportunities for creepy interactions. The expectation was that since emotional bonds would be created with the duplicate, drowning the digital representation of the pet would be considered creepy, even if it would be harmless. This set an ambiguity on expectations and what the consequences of using this technology might be.

To create the visual representations of the device, the designer relied on the use of generative AI (Google's Gemini), using the following iterations of prompts (see also Figure 2):



Figure 2: Resulting GenerativeAI images created with Google's Gemini. See text for details of prompts.

- Can you create a photo-realistic image of a hand-held device that has two grips and the screen is made of a flexible material that can deform. I want a second version of the device to be placed next to it. The second device has a 3D cat avatar coming out of the screen [Figure 2a]
- Can you use those images and change the colour of the device to green, and make the cat [sic] purple? [Figure 2b]

- Can you improve the device to make it as big as a tablet, with two handles on the sides and the screen is empty but made of a green material that looks viscous, like fresh paint [Figure 2c]
- Can you make a real purple cat come out of that screen into the world? [Figure 2d]
- Excellent, keep that image as it is but make the screen made of a viscous material, and the tablet to have two handles on the sides. Add a woman's hand petting the head of the cat [Figure 1]

3.3. Living in the Creepy Future: Reflections from the End-User's Diary

[09/05/25] First impression: my older cat is so territorial and dislikes other cats so much, she would immediately fight the nanobot version of herself.

[13/05/25] For some reason, I've found this device the trickiest so far – I couldn't tell how exactly it works and what to expect. It should have been the most fun but instead it was the most confusing. For previous devices I reflected on and imagined their use regularly, but here the week is almost over and I'm looking back at the "use" and I'm still confused.

[14/05/25, morning] I thought about using the device in a hotel room, but then ended up overthinking the logistics: do the nano-cats shed their fur? What if it escapes? How do I "switch it off" and would it hurt it?

[14/05/25, evening] I thought about using it on a train instead of watching the cat home video feed, but again: what if it escaped or started bothering other people? One of my cats is a shy coward, the other one loudly demands attention and belly rubs. Could I pick which one to summon? Would the nano-cat only copy the shape or would it also copy the behaviour? What about the personality?

[15/05/25] Last night we stayed in a capsule hotel and when I was in my little cocoon it was the first time when I thought I could summon the cat – because it was a closed, cozy space. The cat could sleep on me. And that got me thinking: would the nano-cat smell? I love the smell of one of my cats fur. What about the texture? My cats are standard short hairs, but their fur feels different. I could distinguish them with my eyes closed just by patting their backs. How accurate the nano-cat could be?

[16/05/25] All these questions made me both want and dislike this idea. The more accurate, the creepier the tech. But the more generic the nano-cat is, the more pointless...? The bottom line is that this wasn't a device I "used" at all. Is it because cats are too personal?

4. THE VALUE OF CREEPY FUTURES

The potential Creepy Future we presented aimed to illustrate how speculative design and imaginary creepy futures can help us reflect on the trade-offs of new technology. Design Fiction serves as a useful tool to help us understand what good design should look like. The case of *The Catonator* highlights tensions and considerations related to futures in which more-than-human digital twinning systems are in place and capable of “cloning” living agents’ behaviour beyond digital processes on the screen. As such, imagining speculative Creepy Futures serves as a catalyst for meta-reflection on the considerations when envisioning future technology.

For instance, the end-user diary showcases how the fictional device elicits confusion from the end-user as they try to figure out the logistics of living with this technology. This highlights the need to create evocative materials that support the suspension of beliefs to fully adopt the future. Fictional scenarios that expand the description of the object could add granularity and realism to the envisioned future. The outcome of this exploration is akin to Dourish and Bell (2011) discourse on the myth and mess of ubiquitous computing. Indeed, our fictional device is framed as an idealised technology “myth” set in a Creepy Future. However, designing with creepiness introduces the “mess” of the practical structures of day-to-day life (and the context of the end-user) as new tensions are exposed.

Considering imaginary autoethnographic accounts as part of Design Fictions facilitates reflection on the pragmatic impact (the mess) of emerging systems and their logistics beyond subjective connotations of creepiness. Additionally, the *Catonator* example highlights the exploration of interactions that would be perceived as (in)appropriate as a means to examine the ethics of interacting with more-than-human agents. However, this design point also emphasises the subjective nature of creepiness as the designer’s intentions and the user’s perception were mismatched. While the designer envisioned the interaction with and the dismissal of the ‘virtual’ pet to be the source of creepiness (in particular the act of “drowning” it), the user overlooked this feature and focused on the choreographies of everyday life with pets. Their concerns were the logistics of introducing the pet into the space, how realistic interaction could be, and its impact on others. This highlights the opportunities of imagining Creepy Futures as an ethical design tool, as it can help uncover differences in values, priorities and mental models.

We used generative AI as a tool for envisioning Creepy Futures. The opportunistic use of AI-generated content highlighted the value of this

approach by providing a canvas to ideate an imaginary of speculative objects. It allowed us to take inspiration from the set fictional future and abstract ideas, which otherwise would be challenging to sketch. Specifically, non-expert/novice designers, who may struggle to articulate their vision, could benefit from adding contextual information to the scene in ways a sketch would not. As such, using AI to create visual representations of objects (as photorealistic images) or computer-generated videos that portray user scenarios is a promising tool for prototyping futures. However, it is important to acknowledge the limitations of such tools (Naqvi et al. 2025) and their negative impact on the creative industries (e.g., Kawakami and Venkatagiri 2024).

Overall, the vision of the future could be further extended by using real devices, in the form of tangible probes or prototypes, which can add value to the fictional exploration. In turn, this could help designers raise questions of what characteristics are (un)desirable or their implications, e.g. the impact on the user’s experience and how it might affect others around them. Building on previous critical examinations, such as designing with ambiguity (Gaver et al. 2003), or uncomfortable interactions (Benford et al. 2012), we aim for our vision to design Creepy Futures to open a fertile research landscape and contribute a new lens that could help imagine alternative futures for HCI and Interaction Design.

5. FORMAT AT THE CONFERENCE

We will present this work as a participatory activity to enable the audience to experience and envision their own Creepy Futures. The demo will consist of a stand showcasing postcards with the diaries and designs produced during our research study, of which *The Catonator* is just a single idea.

During the conference, attendees will be able to browse the outcomes of the process and have access to blank postcards, pens, arts and craft materials and a laptop with a portable printer to imagine their own Creepy Future. This will give attendees the opportunity to create their own responses to our vision and pin their postcards onto a poster display to share with other attendees and stimulate discussions during the event.

Attendees will be invited to “borrow” an imagined device from the Creepy Future to live with during the event and then leave a short diary of their experience as they contribute towards collectively envisioning Creepy Futures. Finally, contributors will be able to retrieve their postcards as a conference memento of what is possible when we imagine together.

REFERENCES

- Bardzell, S., J. Bardzell, J. Forlizzi, J. Zimmerman, and J. Antanitis (2012). Critical design and critical theory: the challenge of designing for provocation. In *Proceedings of the designing interactive systems conference*, pp. 288–297.
- Benford, S., C. Greenhalgh, G. Giannachi, B. Walker, J. Marshall, and T. Rodden (2012). Uncomfortable interactions. In *Proceedings of the sigchi conference on human factors in computing systems*, pp. 2005–2014.
- Byrne, D., D. Lockton, M. Hu, M. Luong, A. Ranade, K. Escarcha, K. Giesa, Y. Huang, C. Yochum, G. Robertson, L. Y. Y. Yeung, M. Cruz, C. Danner, E. Wang, M. Khurana, Z. Chen, A. Heyison, and Y. Fu (2022). Spooky technology: The ethereal and otherworldly as a resource for design. In *Designing Interactive Systems Conference, DIS '22*, New York, NY, USA, pp. 759–775. Association for Computing Machinery.
- Cila, N. (2024). Understanding designerly contributions. In *Designing Interactions with Robots*, pp. 161–169. Chapman and Hall/CRC.
- Dourish, P. and G. Bell (2011). *Divining a digital future: Mess and mythology in ubiquitous computing*. Mit Press.
- Gaver, W. W., J. Beaver, and S. Benford (2003). Ambiguity as a resource for design. In *Proceedings of the SIGCHI conference on Human factors in computing systems*, pp. 233–240.
- Kawakami, R. and S. Venkatagiri (2024). The impact of generative ai on artists. In *Proceedings of the 16th Conference on Creativity & Cognition, CC '24*, New York, NY, USA, pp. 79–82. Association for Computing Machinery.
- McAndrew, F. T. and S. S. Koehnke (2016). On the nature of creepiness. *New ideas in psychology* 43, 10–15.
- Naqvi, S. M., R. He, and H. Kaur (2025). Catalyst for creativity or a hollow trend?: A cross-level perspective on the role of generative ai in design. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems, CHI '25*, New York, NY, USA. Association for Computing Machinery.
- Pierce, J. (2019). Smart home security cameras and shifting lines of creepiness: A design-led inquiry. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, pp. 1–14.
- Seberger, J. S., I. Shklovski, E. Swiatek, and S. Patil (2022). Still creepy after all these years: the normalization of affective discomfort in app use. In *Proceedings of the 2022 CHI conference on human factors in computing systems*, pp. 1–19.
- Teyssier, M., M. Koelle, P. Strohmeier, B. Fruchard, and J. Steimle (2021). Eyecam: Revealing relations between humans and sensing devices through an anthropomorphic webcam. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, pp. 1–13.
- Wakkary, R., A. Desjardins, and S. Hauser (2016). Unselfconscious interaction: A conceptual construct. *Interacting with Computers* 28(4), 501–520.
- Woźniak, P. W., J. Karolus, F. Lang, C. Eckerth, J. Schöning, Y. Rogers, and J. 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*, pp. 1–13.
- Yip, J. C., K. Sobel, X. Gao, A. M. Hishikawa, A. Lim, L. Meng, R. F. Ofiana, J. Park, and A. Hiniker (2019). Laughing is scary, but farting is cute: A conceptual model of children's perspectives of creepy technologies. In *Proceedings of the 2019 CHI conference on human factors in computing systems*, pp. 1–15.