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Death of the Design Researcher? Creating Knowledge Resources for Designers Using Generative AI

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ABSTRACT

This workshop explores the transformative potential of generative artificial intelligence (GenAI) in design research. GenAI, capable of creating new content such as images, text, music, video, and code, raises important questions about authorship, agency, and design practice. Inspired by Roland Barthes' "The Death of the Author," this workshop examines how GenAI reshapes design research roles and methods. Key topics include best practices, ethical considerations, knowledge generation, and collaboration patterns between human and AI creatives.

Building on themes identified in the successful DIS 2023 workshop, this 2-day event invites designers and researchers to present completed projects, works-in-progress, and theoretical provocations. The structure allows time for both presentations and in-depth discussions, aiming to develop an online resource library and a collaborative publication. The workshop seeks to advance the discourse on GenAI, addressing its challenges and opportunities in design research.

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CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**; **Interaction design**.

KEYWORDS

generative artificial intelligence, design research, creative practices, computational creativity

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1 BACKGROUND AND MOTIVATION

Aligned with this year's conference theme, "Why Design?," this workshop draws inspiration from Roland Barthes' seminal 1967 essay, "The Death of the Author,"[8] to explore the shifting paradigms of authorship and agency in the context of Generative AI (GenAI) in design and human-computer interaction (HCI), paralleling the transformative impact on the roles of design researchers similar to how Barthes questioned the traditional authority of the author. We also signal the need to develop both an understanding of the ways in which Generative AI (GenAI) is being used in design research as well as the need to develop tools and resources for designers to use it mindfully and responsibly.

Over the last two years, the emergence and rapid evolution of GenAI has significantly impacted the fields of design and HCI, transforming how design researchers approach, conceptualize, and execute their work. The acceleration of GenAI technologies has not only expanded the toolkit available to design researchers, but also poses new questions and challenges about the nature of creativity [19, 21], collaboration [24], and ethics [29] in design practice and research. Since last year, the adoption of GenAI in design research has seen a remarkable increase, heralding a new era of innovation [51] while simultaneously inviting scrutiny regarding its implications for the future of the design research field.

As such, there has been much inquiry into the impact of GenAI on the creative sector and beyond. Examples include, but are not limited to (preliminary) reviews [e.g., 7], in-depth case studies [e.g., 38], economic impact reports [e.g., 14], and academic workshops [e.g., 49]. These inquiries have often focused on the impact on the workforce and on how to improve these models and tools and technologies. **In this workshop, we want to focus on how GenAI may shape the future of design research**—a discipline that studies creative practices but also uses creative methods for generating knowledge about the world [16, 17]. Therefore, GenAI is likely to alter what and how the field will conduct research in the coming years. Following a successful workshop at DIS 2023 [64], this workshop aims to build on last year's outcomes. **Our goal is to make this workshop more than a platform for presenting work; we aim to engage in an exploration of the challenges and opportunities that GenAI presents to design research, encouraging participants to critically reflect on and contribute to the evolving discourse**. Therefore, we ask questions like:

- What are best practices for design researchers when using GenAI in their projects or when studying it? (e.g., How might we use it? How do we report on using it? How might we navigate ethical concerns?)
- What is the impact might GenAI have on of authorship, agency, and integrity when applied in design research?
- How might GenAI affect knowledge generation in design research projects (e.g., Research-through-Design, ethnography, action research)?
- How might current and future AI safety and alignment efforts impact (the use of) GenAI in the context of design research, and *vice versa*?
- How might GenAI add to, or take away from, justice in design research projects?

We are particularly interested in (ongoing) projects with tangible outcomes that can be shared and function as examples for the world to see. Last year's submissions can be found at https://studiolab.ide.tudelft.nl/studiolab/genai-dis2023/ and our collaborative short paper summarizing the discussion of last year can be found on our website: https://designresearch.works/death-of-the-design-researcher/.

2 RELATED WORK

2.1 Generative AI

Generative AI (GenAI) has rapidly advanced, notably through innovations in algorithms like Variational Autoencoders (VAE) [43], Generative Adversarial Networks (GANs) [26], Denoising Diffusion Probabilistic Models (DDPM) [34], and Transformer Networks [65], widely used in Large Language Models (LLMs). These developments have significantly expanded GenAI's applications across various fields, such as video creation [6, 9, 44, 59], 3D modeling [5, 45, 54, 56], synthetic data generation [22, 52], among others.[1] The claimed democratization of AI, highlighted by the release of technologies like *Stable Diffusion* and *ChatGPT*, has facilitated community-driven innovation, enhancing design research and accessibility for non-experts. As GenAI evolves, it not only augments data and research material but also presents new challenges and opportunities for creativity and design research, urging a careful exploration of its implications for the creative industry [2, 3].

2.2 GenAI & Design

Before the 2022 "AI Boom," the potential of AI for design was particularly recognized in the conceptual phases of design cycles [11]. However, an early review noted the scarcity of AI tools supporting the initial stages of creativity [37]. Since then, the emergence of GenAI tools has significantly influenced this landscape, enabling designers and researchers to employ these tools creatively across all phases of the design process. Recent developments show GenAI's broad application in design research, from conceptualization to prototyping. Examples include, but are not limited to, urban design [38], fashion [12, 27, 33], product design [13], graphic design [18], museum & exhibition design [47, 60], food design [1], game design [67], and general design practice such as prototyping [53]. As these examples illustrate, GenAI is expanding the boundaries of design research by enhancing creative work across various domains.

[1] An exhaustive list can be found at https://github.com/steven2358/awesome-generative-ai

However, it is crucial to acknowledge the double-edged impacts of GenAI: while it can enhance creativity, especially for less experienced creators, it can also disrupt established workflows for experts, depending on their level of expertise [36]. This dual nature underscores our workshop's aim to address how these technologies reshape design practices and research methodologies.

2.3 Challenges for AI & Design

Integrating AI into the design process presents a multifaceted challenge, encompassing the unpredictability of AI capabilities and outputs [20, 68], the intricacies of prompt engineering [24, 55], and the imperative for interdisciplinary collaboration [57]. These challenges necessitate a delicate balance between leveraging AI for creativity and innovation while ensuring control over design outcomes. Designers are thus urged to evolve their workflows to harmonize AI's transformative potential with ethical considerations and human-centered design principles [63].

Ethical considerations in GenAI design research must address concerns such as environmental sustainability [40] and design justice, including equity and potential discrimination [15]. From an environmental perspective, the computational cost and CO2 emissions associated with data generation and the automation of new tasks pose significant challenges. Furthermore, Generative AI technologies represent a design political space where discrimination and privilege are shaped through technological design [23, 41].

Moreover, GenAI introduces significant concerns regarding data use, labor exploitation, bias, and discrimination. Generative models risk displacing creators by using their work without consent for training datasets [39], while "ghost workers" are exploited for low-wage data labeling, masking the human effort behind AI [28, 31]. These practices perpetuate algorithmic biases, reinforcing discrimination across colonial, racial, gender, ability, and class lines [10, 32, 48], contributing to automation's dehumanizing effects [30, 61]. Addressing these issues is crucial for developing equitable and responsible GenAI applications.

2.4 Generative AI Workshops

The number of workshops on Generative AI at Human-Computer Interaction and Design conferences indicate immense community interest around GenAI and its human implications. For example, GenAICHI 2023 [49] explores generative AI's interactions with humans, ethical considerations, and collaboration possibilities. Another workshop at CHI2023 concentrates on AI's role in collaborative ideation between humans [58]. HAI-GEN focuses on the challenges and opportunities of using deep generative models to enhance human-AI co-creation [66] and lastly, a Computational Creativity Workshop discussed co-creativity through work-in-progress and position papers [42].

Our workshop builds on this previous body of work but also occupies a unique space between other initiatives. By integrating challenge-based research questions with active research projects, we aim to convert discussions into practical tools for design researchers and HCI practitioners. At the DIS2023 workshop [64], we adopted an exploratory approach towards GenAI in design research, focusing on themes such as practices, transparency, authorship, agency, and alignment through varied presentations. We seek to collect insights from researchers and designers on these topics. Moving beyond the exploration of future scenarios, our workshop prioritizes existing "weak signal"[4] design practices. Example include GenAI's use to mitigate design fixation in HRI design[35], emotional alignment with GPT-3, DALL-E, and Stable Diffusion [46], AI-generated 3D-printed sculptures [25], applying LLMs for storytelling in more-than-human futures [50], and rethinking innovation by addressing biases in LLMs [62].

3 TOPICS AND THEMES

In this workshop, we aim to synthesize both published and unpublished works to develop best practices, ethical considerations, and future research directions for using Generative Artificial Intelligence (GenAI) in design. To achieve this goal, we will explore the following topics and themes:

(1) **Impact of GenAI on Design Research**: What are examples of how GenAI is impacting design research, and in what ways is it reshaping the field, from enhancing creativity to altering the research landscape?
(2) **Best Practices in GenAI Integration**: What are the best practices for integrating GenAI in design research, how may research contribute to its useful adoption, what are methodologies for integration, and how may it enable new collaborations?
(3) **Knowledge Contribution and Impact**: Given design research's position as a scientific discipline, where processes like Research through Design (RtD) generate knowledge in unique ways, how might the incorporation of GenAI affect these processes? How may this contribute to the development of better human-AI interactions? And what implications do these contributions have for educational practices and curriculum development in design?
(4) **Authorship, Agency, and Trust**: What roles do authorship and agency play in the application of GenAI to design research, for example considering both the researcher's perspective on ownership of outcomes and the implications for copyright? And what is the role of trust in this context?
(5) **Justice and Ethics in GenAI Use**: What are the key components of a GenAI framework that can address challenges of sustainability, bias, and equity from both justice and integrity perspectives?
(6) **The Future of Alignment & AI Safety**: How does GenAI currently contribute to research alignment, and what is its potential for shaping future human-AI interactions? Furthermore, how can RtD be utilized to develop more effective ways of aligning GenAI with human needs and ethical standards?
(7) **Non-anthropocentric and Decolonizing Agendas in GenAI**: How can we think of GenAI as more-than-human and for more than just humans? How can design play a role in exposing the entangled relations of humans and nonhumans in AI? How can the knowledges GenAI generates be situated? Can design play a role in finding alternative relations between humans and GenAI that are not extractive?

We believe that this workshop will be a valuable opportunity to learn from one another and to push the boundaries of what is

possible in design research—we look forward to a productive and engaging discussion.

4 ANTICIPATED OUTCOMES

Our workshop aims to develop an online resource for GenAI design projects, which will serve as both an outreach and educational tool. This tool is a library that will include cases, and also principles in the form of actionable guidelines for designers and design researchers. Additionally, we intend to produce a collaborative publication that builds on our previous article which is currently under review, further contributing to the field's collective knowledge. In that way, the workshop consolidates and also expands the network of design researchers focused on GenAI.

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