GenAICHI 2025: Generative AI and HCI at CHI 2025

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This workshop applies human centered themes to a new and powerful technology, generative artificial intelligence (AI), and - among other approaches - particularly to Large Language Models (LLMs) and Foundation Models (FMs). Unlike AI systems that produce decisions or descriptions, generative AI systems can produce new and creative content that can include images, texts, music, video, code, and other forms of design. The results are often similar to results produced by humans. However, it is not yet clear how humans make sense of generative AI algorithms or their outcomes. It is also not yet clear how humans can control and more generally, interact with, these powerful capabilities in ethical ways. Finally, it is not clear what kinds of collaboration patterns will emerge when creative humans and creative technologies work together.

Following successful workshops in 2022–2024, we convene the interdisciplinary research domain of generative AI and HCI. Participation is open to seasoned scholars and early career researchers. We solicit descriptions of completed projects, works-in-progress, and provocations. Together we will develop theories and practices in this intriguing new domain.

CCS Concepts: • **Human-centered computing → Interaction design process and methods**; **Interaction design theory, concepts and paradigms**; **HCI design and evaluation methods**; **Interactive systems and tools**; • **Computing methodologies → Artificial intelligence**.

Additional Key Words and Phrases: HCI, HCAI, Generative AI, Design, Uncertainty, Large language models, Bias, Ethics.

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1 Motivation

In the past several years, we have seen or made powerful tools that can create images or sounds from textual descriptions [1, 51, 53, 64, 65, 70, 104] or conduct reasonably conherent conversations [10, 12, 59, 114], make writing suggestions for authors [14, 32, 60, 62] and other creative professionals [25], and providing diverse forms of support for programmers [83, 96, 133]. We have also seen claims of what an historical person "really looked like" [5], and of a "completed" version of a musical compositions left unfinished by their composer's untimely death [87]. What all of these examples have in common is that the AI does not simply categorize data and interpret text as determined by models, but instead creates something controversially claimed to be new—e.g., in images [66, 102], molecules [85, 119], or designs [86].

These developments move the potential of AI systems from decision-making to synthesis - and perhaps to co-creativity. They have the potential to change the "role" of the AI from searching for the correct answer to generating (or assisting in generating) content [6, 15, 20, 25, 31, 49, 74, 102, 103]. These developments also challenge us to think about AI design in new ways - from the design of reliable, classificatory/discriminative machine learning applications, to design of deliberately variable, uncertain generative outcomes [128]. Following successful CHI workshops in 2022, 2023, and 2024 [75, 76, 79][1], we focus on strategic aspects of generative AI and its interactions with humans, including

- transformative opportunities for people to instruct AI with intent-based specification of behavior and outcomes [84], which augmented earlier procedurally-based specifications of how to achieve specific outcomes;
- expanded access to AI platforms capable of generative outcomes, particularly in text and graphics[2];
- new sociotechnical opportunities for work and recreation, afforded by powerful new conversational capabilities;
- novel design challenges of systems that produce a different outcome after each invocation [128];
- ethical issues related to the training, design and use of AI;
- the transformation of design practice with the incorporation of generative AI; and
- patterns for collaboration between humans and generative AI that enhance rather than replace human creativity.

Generative AI can be defined as an AI system that uses existing media to create new, plausible media [85, 86, 102, 119]. This scope is broad, and the generative potential of AI systems varies greatly. Over the last decade, we have seen a shift in methodology moving from expert systems based on patterns and heavy human curating [37, 54, 89, e.g.,] towards stochastic and generative models such as Generative Adversarial Networks (GANs) that use big data to produce convincingly human-like results in various domains [31, 102], and Large Language Models (LLMs) that can generate text [114], source code [101], and images [1, 95] from simple instructions ("prompts") [40, 41, 59, 91].

1.1 HCI Challenges of Generative AI

In this workshop, we focus on the unique challenges that emerging generative AI methods pose to designers and researchers in various HCI and HCAI[3] fields. These include, for example, the limited ability that designers and users have in gaining an understanding of the inner workings of these models [71, 112, 115, 134]: In many cases, we cannot inspect the code or make sense of the latent vectors used in them, and the generated results may vary between system versions and even due to unclear contextual factors such as the time of the year [4]. In addition, the creative process is inherently fuzzy and involves elements of surprise and problem invention rather than achieving specific goals [42, 43, 45, 66].

[1] see also Van Der Maden et al. at DIS [118]
[2] e.g., https://chat.openai.com/, https://huggingface.co/spaces/HuggingFaceH4/falcon-chat, https://www.llama2.ai/, https://www.midjourney.com/, https://openai.com/dall-e-2, and many others
[3] Human-Centered AI - e.g., [106].
[4] https://arstechnica.com/information-technology/2023/12/is-chatgpt-becoming-lazier-because-its-december-people-run-tests-to-find-out/

Therefore we posit that generative AI proposes new challenges for human-centered design due to the serendipitous and uncertain nature of the design space and especially for use cases where users work with the AI [123, 128].

Drawing from the long tradition of computer supported collaborative work and creativity support systems, the idea of humans and AI agents working together to achieve creative results is becoming more and more commonplace, and a research paradigm of human-computer co-creativity and mixed-initiative creative interfaces is emerging. In human-computer co-creativity, creative partners accept, critique, combine, and innovate with each others' suggestions into the space of possible creative outcomes [109] and both the human and the computer are influenced by each others' contributions [23, 78, 123], culminating in sharing creative responsibility over the resulting outcome or outcomes [54, 66, 74]. The new paradigm is characterized by the mixing of computer and human initiative [132] and human–computer co-creativity can be seen to flourish along a continuum between human creativity and autonomous computational creativity [28]. Emerging generative AI methods offer opportunities for designing creative AI agents that can generate useful artifacts with which they can contribute to the creative process of humans. As generative applications become more powerful, they present new challenges of deskilling, displacement, communicative distortion, exploitation, and intellectual property issues [17, 44, 48, 57, 108, 130]. New issues also arise with integrating Generative AI systems with creative practice, calling for a development of company-level policies and collaborative practice among designers to support the adoption [111].

Historically, HCI researchers and designers have had a firm basis for designing UIs to AI-based systems that produce reliable and replicable outcomes [2]. By contrast, generative AI provokes us with questions of how to design good user experiences to deal with *generative variability* - i.e., systems whose purpose is *not* to produce the same outcome to invariant inputs - and which can sometimes provide incomplete or even incorrect outcomes [129]. Variable outcomes seem well-suited to the open-endedness of creative work (e.g., [28, 30, 107]), and yet even less is known about the long term effects of the new technology for the creative practice of artists, designers and laypersons; the role generative AI based interactive systems will eventually take in society; and what kind of regulations will eventually govern the space of design in this area. We propose this workshop to continue to unite a disparate community around generative AI to investigate questions related to the design, evaluation, deployment and ethics of interactive generative AI.

1.2 Previous Workshops

The general topic of AI has led to multiple workshops in the SIGCHI traditions [e.g., 4, 29, 58, 67, 73, 77]; however, the theme of *generative* AI and user experience [38, 82, 113] has only been addressed via a workshop at the past three years' CHI conferences [75, 76, 79] and one DIS conference [118]. Since these workshops, multiple lines of progress in generative AI technologies and applications have brought about exciting new opportunities with LLMs and Foundation Models (FMs) [13, 25, 36, 63, 88, 121], while also presenting new technical and ethical challenges [39, 50, 80, 136]. With this submission, we propose to build on the rich HCI possibilities of this emerging technology, and the equally rich critical tradition in HCI to consider risks, harms, governance, and limits to this technology.

2 Background

2.1 Generative AI

Researchers have applied generative AI methods to diverse media, such as images [35, 92, 92], text [90, 114], music [31, 49], physical products [68, 69], source code [6, 13, 101], and movement [8]. Whereas previous eras of generative AI were rule-based or built on relatively small models, new models are trained on massive Internet-scale data and have untold

abilities that we are only beginning to discover. Moreover, these models (or versions of them) are open to the public without having to retrain them yourself [1, 19, 26, 117]. This gives many more people the ability to access powerful models. For example, there are thriving internet communities of artists collectively discovering how text-to-image synthesis can be used in the artistic process [1, 20, 52, 93, 95, 116]. However, there are many unanswered questions about how and what AI can generate and how can and should people be involved in the process (e.g., [21, 34, 46, 47]).

2.2 Designing for Creativity

Novelty and utility or value, sometimes accompanied by surprise, form three basic criteria for evaluating creativity [33, 66, 97, 98]. The products of emerging generative AI methods can be said to be creative since they can be novel, valuable and surprising in a context of use (e.g., [94]). This means emerging generative AI methods have great potential for facilitating creative work in some form or another. We propose that creative work in various domains, such as music, art, writing, and design, offers important application areas for generative AI methods [7, 36, 72, 124, 131].

There are domain independent considerations for facilitating interaction design for creativity. The open-ended nature of creative work challenges expectations that designers have about designing software for traditional, productivity-centered domains; the requirements of creative work are vague, the measures of success unclear and the behaviors of users can be unorthodox [105]. This open-ended nature of creative work raises questions about the roles that Generative AI can play in the creative process [56] and how we evaluate and compare the human-AI systems that are emerging from the design for creativity [55]. Users of creative software are not necessarily even working towards a specific goal, but the process of creation itself can be the goal of autotelic creativity [24]. Combining powerful generative AI methods with users working and playing in creative domains opens up the design space to unforeseen dimensions.

2.3 Imperfection in AI Outcomes for Human Use

These human-oriented and human-directed systems are just now becoming usable and useful. Initial findings suggest that, while perfect operation and outcomes would be preferable, for human creativity support even imperfect results can be better than no support at all, as studied in humans' use of generated documentation from source code [125] and in translated source code from one programming language to another [129]. Software engineers both adopt and adapt (and occasionally replace) the outcomes of generative AI systems [81]. The principle of AI-imperfection has not yet been parameterized: How bad does a generated outcome have to be, for a human to abandon it and re-do the work from scratch? How would domain experts negotiate the trade-offs in quality vs. productive-cost of generated outputs?

Many generative systems have been *productive* of new instances and new combinations learned from a class of exemplars or other strategies that make use of known histories of work [66, 86, 102, 119]. However, systems that create novel instances that humans would consider to be *creative* (in terms of novelty, utility and surprise) are less understood. Spoto and Oleynik [107] created a *Library of Mixed Initiative Creative Interfaces* based on [28]. However, only a few of these experiments used specifically generative algorithms. Systems capable of producing novel instances are only recently documented (e.g., [11, 30]), and tooling that allows domain experts to control those outcomes is rare (e.g., [16, 22, 64, 65]). There are few human-centric, empirical evaluations of the quality of generated outcomes.

2.4 Responsible GenAI

HCI research has played an imperative role in developing AI technologies responsibly by producing design solutions, guidelines, and methods that align AI technology design with stakeholder values and mitigate potential harms [27, 110, 120, 122, 126]. Understanding and tackling the ethical issues and harms of generative AI now draws much interest in

the HCI and AI communities [9, 47, 80, 127]. Besides creating new challenges to the core ethical AI principles including fairness, transparency, accountability, privacy, and so on, generative AI can lead to other types of risk and potential harms due to the generative nature and unique characteristics of application domains, many of which are yet to be understood. For example, generative applications that result in texts, images, and music have been challenged for infringing on artists' copyright [61, 99, 100, 135]. Text generation models can produce unintended toxic content that harms certain groups and individuals or spreads misinformation [127].

Many genAI-powered productivity support tools, whether for programming, writing, or other creative work, can risk having over-reliance and can threaten user agency and ownership [60]. Large Language Models' societal harms including environmental and socioeconomic risks are also being actively researched [127]. Furthermore the developing legislative setting gives rise to many practical questions related to ethics. For example, the EU AI ACT [18] calls for transparency in AI systems interacting with humans as well as human oversight in high risk systems. Both propose practical design challenges with regards to Generative AI.

3 Topics and Themes

Our workshop is open to diverse interpretations of interactive generative AI, characterized by the AI systems' abilities to make new things, learn new things, and foster serendipity and emergence. We are interested in several dimensions of generative AI, including mixed initiative, human–computer collaboration, or human–computer competition, with the main focus on interaction between humans and generative AI agents. We welcome researchers from various disciplines, inviting researchers from different creative domains including – but not limited to – art, images, music, text, style transfer, text-to-image, programming, architecture, design, fashion and movement.

Because of the far-reaching implications of Generative AI, we propose the following list of non-exhaustive, thematic questions to guide our discussions at the workshop:

- What are the emerging definitions, characteristics, and taxonomies of Gen AI? How can the study of HCI and Gen AI leverage diverse interpretations of of Gen AI? How does generative AI go beyond intelligent interaction? What distinguishes the various algorithms and applications of generative AI for human-AI interation?
- How do you design in this characteristically uncertain space? What design patterns do we need to think about? How does uncertainty play into this and how to we help designers set expectations to designing *with* AI? How do we help users to understand the inherent limitations of generative AI *in practice*?
- Do generative AI applications constitute one or more forms of non-human intelligence? If yes, which forms, and with which characteristics? And how should we relate to these non-human intelligences?
- Is generative AI ready to be considered as a "production system?" If yes, in which domains and with what limitations and safeguards? Or why should generative AI *not* be considered as a production system? And should there be limits on what generative AI is intended to produce?
- What are the social implications of powerful technologies that can be used by non-AI-expert people?
- Transformer models simulate conversations. Are we conversing with the AI? Are we conversing with the past (i.e., the human sources that have been input to the AI)? Are we conversing with the designers of the particular generative AI infrastructure and/or application?
- Is AI anthropomorphism desirable? If yes, under which conditions (if any) should this be done? With what safeguards? Or why should it not be done?
- What are the benefits and risks of using generative AI to create "synthetic users?"

- What protections and guardrails are needed to prevent abusive applications of generative AI?
- Do generative AI algorithms contribute serendipity to the design process—or simply randomness—or chaos?
- Machine learning has controversially been presented by some parties as a desirable and "objective" method for governmental and commercial applications. Is the same characterization appropriate for generative AI?
- How should we integrate Generative AI into design practices in the work force with efficiency, effect and while minding ethical practice and human well-being?
- What are the implications of Generative AI in teaching design? How do we ensure our students learn fundamental skills and continue to develop them while offering them the competitive edge of Generative AI practices?

We encourage people to write and answer their own questions as well. We hope that the workshop leads to new ways-of-thinking.

These themes can be addressed within the following topics:

- The emerging capabilities of generative AI.
- Generative AI applications in domains including (but not limited to) images, music, text, design, and motion.
- The risks and roles of generative AI in assisting, augmenting, deskilling, replacing, and/or regimenting human work. More broadly, what are the implications of generative AI for the future of work?
- Human-AI collaboration and co-creative systems; and conversely, Human-*versus*-AI systems if appropriate.
- Ethical issues including misuses and abuses, toxicity, provenance, copyright, bias, and threats to diversity.
- The uncanny valley in Human-AI interactions.
- Speculative futures of generative AI and its implications for human-AI utopias and dystopias, and for the future of work, play, education, government, migration, and warfare.

As above, we encourage people to add new topics and domains.

4 Organizers (listed alphabetically)

Lydia B. Chilton is an Assistant Professor in the Computer Science Department at Columbia University. Her research shows how AI can augment human problem-solving, innovation, and creativity. She has co-organized 8 workshops on Human-centered AI at CHI, UIST, and IUI.

Minsik Choi is a PhD researcher in computing at the Australian National University at the intersections of sound, music, and HCI. He studies how sound design tools can be enhanced with generative AI to incorporate musical knowledge.

Anna Kantosalo holds the title of Docent at the University of Helsinki and is a Service Designer at Siili Solutions. Anna focuses on the design and evaluation of AI solutions with a creativity twist. Anna has co-chaired the PC committee for the 13th International Conference on Computational Creativity and organized several workshops related to interactions with creative systems.

Mary Lou Maher leads the computing research community visioning activities as the Director of the Computing Community Consortium at CRA. She is currently on leave from her position as Professor in the Software and Information Systems Department at the University of North Carolina at Charlotte. Her research in AI-based generative design has led to a human centered approach to computational creativity and co-creative systems. She has Chaired the Creativity and Cognition Conference (2019) and the International Conference on Computational Creativity (2019) as well as organized several workshops on AI-based design and creativity.

Charles Martin is a Senior Lecturer in Computing at the Australian National University. He works at the intersection of music, AI/ML and HCI and studies how humans can interact creatively with intelligent computing systems. Charles has organized multiple generative-AI-focused workshops at the New Interfaces for Musical Expression conference.

Michael Muller works as a Senior Research Scientist at IBM Research in Cambridge MA USA, and is co-author of *Human Centered Data Science: An Introduction*. He has analyzed how domain experts make use of generative AI outcomes, and how humans intervene between "the data" and "the model" in responsible and accountable data science work. He has co-organized workshops on human centered data science at CHI, CSCW, GROUP, and NeurIPS.

Greg Walsh is an associate professor at the University of Baltimore where he teaches courses in Design. He is an interaction design researcher who focuses on user-centered, inclusive design for children and adults. His work seeks to include more voices in the design process and has been a recipient of a prestigious Google Faculty Research Award. His work has included participatory design sessions in Baltimore City libraries and is now exploring the use of generative AI as a co-design partner.

5 Website

Our workshop website is: https://generativeaiandhci.github.io/.

6 Pre-Workshop Plans

We will publicize the workshop via ACM, HCI, and AI distribution lists, plus social media (i.e., similarly to [4, 29, 58, 67, 73, 77]). We will also reach out to selected scholars to encourage them to submit their work.

We will request participants to submit completed work, works-in-progress, and provocations of up to four pages in single-column ACM small format (exclusive of references) The submissions may take the form of reports, essays, or pictorials[5]. Submissions will be (single-blind) reviewed by two reviewers from a program committee of experts at the intersection of HCI and generative AI. The co-organizers will select submissions for inclusion. Because of publications and coverage of generative AI in academic, industry, and popular press, we anticipate a large workshop. Selection will be based on uniqueness and/or provocativeness of content, engagement with the themes and topics in the workshop call, and potential for contribution to this evolving community.

7 Workshop Activities

The goals of the workshop are to build community, exchange knowledge and co-create new understandings in this emerging field. Our workshop will be hybrid including remote synchronous participants with the scheduled workshop. We will publish the workshop schedule after we know the number of accepted submissions and the topics/thematic session-structure of those submissions. In general, our plans are as follows:

(1) We will reserve time for participants' and organizers' self-introductions and descriptions of research interests.
(2) We will invite a subset of the participants to present the most influential or promising work submitted to the workshop as individual talks.
(3) Depending on the number of participants, we will preserve time for small-group discussions around themes of mutual interest, or generative HCI design challenges.

[5]For more information about pictorials, please see the section "Pictorials?" at https://dis.acm.org/2023/call-for-papers-and-pictorials/)

Participants' submissions will be made available in advance on our website, and communications platforms will be arranged for asynchronous engagement before, during, and after our sessions. Depending on the number of participants, online tools (e.g., Padlet, Miro) may be used to engage our community in collaborative ideation and critical discussion.

8 Post-Workshop Plans

We hope to build a persistent hybrid research area among HCI and generative AI. Toward that goal, we plan to submit an *Interactions* article or post for the general HCI audience. In addition, we want to create resources for teaching and researching in this emergent domain. Therefore, we hope to publish selected papers from the workshop, as an invitational journal issue or a book of readings.

9 Remote/Onsite Plans

We assume that this workshop will be hybrid, so as to include people from around the world, and so as to avoid visa issues at international borders. We will conduct the workshop during the designated workshop time according to the conference schedule. We will need to work adaptively and inclusively, depending on the submissions. Presentations will be followed by discussion.

10 Accessibility

For a hybrid workshop, we will use online meeting software (e.g., Zoom, with Zoom-provided captions). Further, we will use the sociotechnical protocols described by Ansah et al. [3] - e.g., one facilitator in the room and one facilitator online. If participants have additional needs, we will discuss these needs with the workshops-program co-chairs.

11 Workshop Size

Based on previous years, we anticipate a large workshop. We will limit in-person acceptances according to the room size as specified by the workshops program co-chairs.

12 Call for Participation (250 words)

This workshop applies human centered themes to a new and powerful technology, generative artificial intelligence (AI). Unlike AI systems that produce decisions or descriptions, generative AI produces new instances of types of data that can include images, texts, music, design, and motion.

However, it is not yet clear how humans can make sense of generative algorithms and outcomes. We have yet to understand what user interface technologies will enable humans to control, and more generally to interact with these powerful, variable capabilities. These human-like capabilities put into question our current paradigms for mixed initiative user interfaces. Further, the unpredictability of "creative" algorithms raises new questions about how, when, and how much control humans may wish to share with these algorithms, and what types of societal governance may be needed for such powerful capabilities. Finally, it is not clear what kinds of collaboration patterns will emerge when creative humans and creative technologies work together.

In this one-day workshop, we will convene the interdisciplinary research domain of generative AI and HCI. Participation in this invitational workshop is open to seasoned scholars and early career researchers from diverse disciplines. We solicit descriptions of completed projects, works-in-progress, and provocations. Together we will develop theories and practices in this intriguing new domain. Please visit https://generativeaiandhci.github.io/ to learn more about the workshop, and to find participation and contact details.

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