Art in HCI: A View from the UAL Creative Computing Institute

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ABSTRACT
We are staff from the Creative Computing Institute (CCI) at University of the Arts London. In this pictorial submission, we outline key questions of interest at the intersection of art and HCI, and we illustrate how some of the staff and students at CCI are bringing together ideas and practices at this intersection. This pictorial shares some of our perspectives on opportunities and challenges in this space.

Authors Keywords
Arts, creative computing.

CSS Concepts
•Applied computing~Arts and humanities~Media arts
•Applied computing~Arts and humanities~Fine arts
• Applied computing~Arts and humanities~Performing arts

THE CREATIVE COMPUTING INSTITUTE
The Creative Computing Institute (CCI) was founded in 2018 to bring together research, teaching, and practice at the intersection of arts, technology, interaction, and society. We teach students from undergraduate to PhD level, and our staff comprise practicing artists and technology developers as well as researchers in HCI, computer science, science and technology studies, games, music, and beyond. HCI methods and perspectives are interwoven through all our teaching. Our work is also driven by a social mission of digital inclusion, diversity in technology, and digital entrepreneurship.

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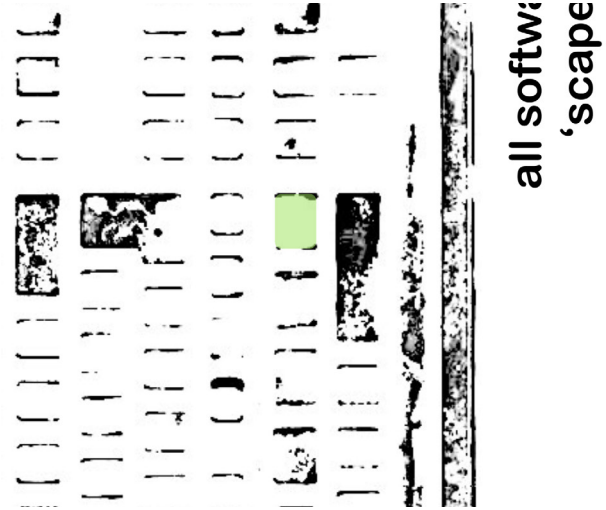
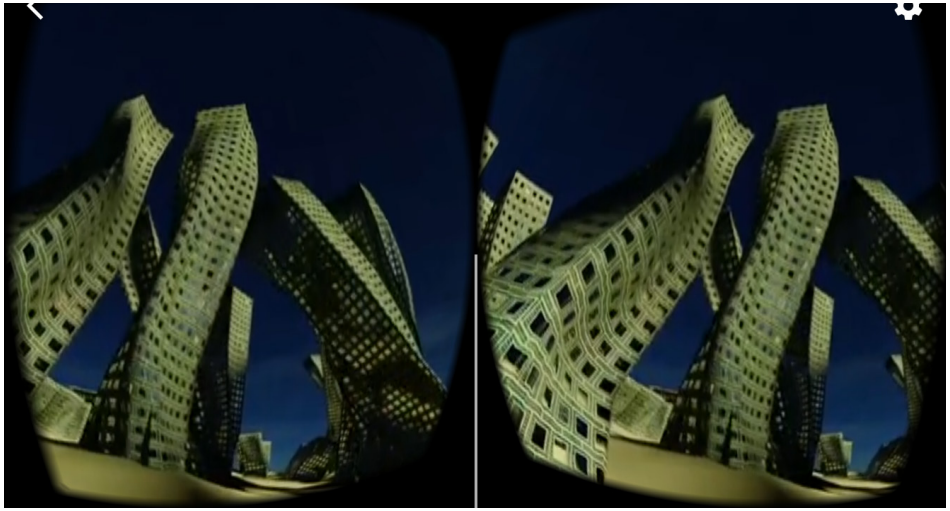
CONTRIBUTIONS TO A WORKSHOP ON ARTS @ CHI
Questions that we frequently explore through our own research and teaching, and with which we are eager to engage in this CHI workshop, include the following:
• How can knowledge of HCI approaches—e.g., ways of investigating and understanding interaction, techniques for prototyping and making, methodologies for making and researching interactions and experiences in technologically-mediated contexts—influence the creation of new works of art, including artwork that is nominally "interactive," as well as works that engage with audiences or participants in other ways?
• How can research methods and design practices from HCI be used to inform teaching in the arts and creative computing, from undergraduate through PhD levels?
• How can art practice function as a method of inquiry in HCI research, and how is it valuable in leading us to new ways of understanding and being?
• How can new interactive technologies transform traditional art practices such as painting and sculpture?
• What new research is needed to improve the accessibility and value of tools for artists working with digital practices such as VR, coding, and AI? How can teaching and practice inform this research?
• How can values and ethics—e.g., around social justice, climate change, the role of technology in society—inform how and why we bring together arts and HCI?
• What is the remit for more-than-rational and non-linear methodologies for computational research?
• To what extent can 'the Arts' be an open framework and catalyst for epistemic pluralism and social justice?
• How can we best evidence and communicate outwardly—to our institutions, to audiences, to funders, to the public—the value of arts-practice-driven research, and the value of creative artefacts themselves?
• How can we support students in interdisciplinary arts, computing, and interaction contexts to communicate effectively without judgement, and to grow as a community of people who take care of each other?
• How can we ensure our community grows to be more diverse and inclusive?
• How can we utilize making collective interactive art installations in public settings to enrich HCI practices?
• How can embodied, process-based arts education contribute to knowledge production in HCI?



Capturing the Ephemeral Nature of “Touch” in Human-Computer-Interactions [1]

Teratome (2020) [2]

Teratome (2020) [3]



Wavy City Prototype v2 [4]

Web Choreographies [5]

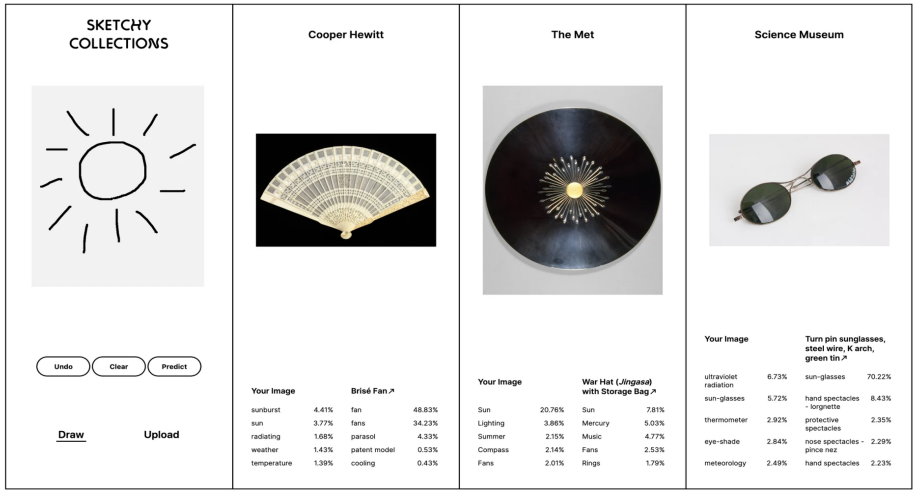
Rejected By My Own Robot [6]

Wetmixer [8]

Cave Painting (12/07/2021 Breathe) [11]

Bot Party [9]

Forest Daydream [10]



Sketchy Collections [13]

Up Percent [15]

CCI ART IN THE HCI CONTEXT

The preceding pages show recent examples of work by staff and students that raises, engages with, answers, and complicates the questions enumerated on the first page.

• *Teratome* [2,3] is a series of works created using "network bending techniques" to disrupt, invert, and twist GAN-based image formation. As the distorted formations cascade down through the GAN, it produces highly detailed imagery from the corrupted formations, resulting in images that have the photo-realistic qualities of portraits, but with impossible distortions and formations. This work investigates how interactivity can be better integrated to AI-based image generation, and how this enables new creative visual practices.

• *Wavy City Prototype v2* [4] is a Virtual Reality prototype to see steel and concrete bend and sway and rise and fall like silk in wind, see homes and churches and skyscrapers and cities dance. This work thus exploits creative VR to enable experiences of phenomena that are impossible in the physical world.

• *Web Choreographies* [5] explores algorithmic visual re-composition of a webpage by writing JavaScript commands in the web console of the web browser. The creator, Joana Chicao, is developing a research-led and practice-driven set of methodologies to facilitate user engagement and well-being in the interaction with web-based user-interfaces, with a focus on transparency and legibility of algorithmic processes within interfaces.

• *Rejected By My Own Robot* [6] is a disobedient kissing machine with mechanical lips that extend towards the approaching person, but that will always reject the user at the last moment before the kiss can be consummated. This project exemplifies how the arts can encompass more expansive and challenging definitions of "human-computer interaction" than more conventional contexts of technology use.

• *Wetmixer* [8] employs water as an interface, where the conductivity of both water and skin are used to produce visual and audio outputs. This work is one of many student projects that employ input and interaction techniques from HCI research (here, [10]), exploring new applications and contexts.

• Images in Plummer-Fernandez's *Cave Painting* series [11] are created using a text-to-image GAN based on OpenAI's CLIP and DALL-E frameworks. Such work illustrates one approach to working creatively with new mixed-initiative systems (see e.g., [7]), demonstrating compelling and heretofore impossible creative interactions while raising new research questions about usability, authorship, agency, intellectual property, and more in creative work.

• *Bot Party* [9] explores intimacy through physical play using sound, vibration, light, and touch. The work is an ongoing game in development which uses exhibition as part of an iterative HCI process. Additionally, it challenges the creator to explore the somatic reality of allowing thousands of players to touch their body as part of game play. This embodied practice becomes part of the body of knowledge generated around the artwork through a non-linear written reflection process.

• *Forest Daydream* is a is a large scale (7m x 9m) interactive, immersive installation which creates a dynamic videogame woodland atmosphere allowing players to explore the soundscape of the endangered ecology of an Amazonian rainforest. [10] It was created as a group work for Wellcome Collection. Students worked in concert to create the installation. During the exhibit, they observed user play styles, and back in the classroom reflected on HCI changes which could be made to support player behaviour.

• *Sketchy Collections* [13] is a visual search tool that invites casual users to playfully explore digital museum collections and actively engage with AI – by drawing and uploading images and comparing the matching museum objects against the predicted tags they are based on. This work explores new research questions around how AI might facilitate new experiences and understandings of art collections.

• *Up Percent* [15] is a sound installation that is sensitive to changes in the electrostatic field, which can be triggered by a touch from human, wind, moisturisation, or the invisible turbulence inside the vessels. Like *Wetmixer* [8], this piece builds on innovations from HCI research [12]—in this case inviting audience members to engage in tactile and embodied experiences.

REFERENCES

[1] MJ Hunter Brueggemann. 2016. *Capturing the Ephemeral Nature of "Touch" in Human-Computer Interactions*. (May 2016).

[2] Terence Broad. 2021. *Teratome*. London.

[3] Terence Broad, Frederic Fol Leymarie, and Mick Grierson. 2021. Network Bending: Expressive Manipulation of Generative Models in Multiple Domains. *Entropy*. 24. 28. 10.3390/e24010028.

[4] Monty Chaudoirr, M. 2022. *Wavy City Prototype v2*. Available at: https://www.youtube.com/watch?v=AoTKFulzJVU [Accessed 1 February 2022]

[5] Joana Chicau, J. 2022. *Web Choreographies*. Available at https://www.are.na/joana-chicau/web-choreographies-other-stories [Accessed 22nd February 2022]

[6] Adam Cole, A. 2021, *Rejected By My Own Robot*. Available at: https://vimeo.com/651633372 [Accessed 15 February 2022].

[7] Sebastian Deterding, Jonathan Hook, Rebecca Fiebrink, Marco Gillies, Jeremy Gow, Memo Akten, Gillian Smith, Antonios Liapis, and Kate Compton. 2017. Mixed-initiative creative interfaces. In *CHI'17 Extended Abstracts on Human Factors* in Computing Systems.

[8] Zeynep Melis Meriç. 2022. *Wetmixer*. London.

[9] Phoenix Perry, Charlie Ann Page, and Brian Jack-

son. 2018. *Bot Party*. We Throw Switches, Bar Loading. London, UK.

[10] Phoenix Perry, Federico Fasce, Ben Kelly, Robin Baumgarten, Matt Jarvis, Lin Adelle, Creative Computing Institute, University of the Arts London 2016 MSc Graduating cohort. 2020. *Forest Daydream*. Permission to Play, Wellcome Collection. London, UK.

[11] Matthew Plummer-Fernandez. 2021. *Cave Painting (12/07/2021 Breathe)*. Available at: https://teia.art/objkt/166226 [Accessed 21 February, 2022].

[12] Munehiko Sato, Ivan Poupyrev, and Chris Harrison. 2012. Touché: enhancing touch interaction on humans, screens, liquids, and everyday objects. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 483-492).

[13] Polo Sologub. P. 2022. *Sketchy Collections*. Available at: https://github.com/polosologub/sketchy-collections/ [Accessed 23 February 2022].

[14] Anna Troisi. 2021. *Teaching Peace: place-making for digital curricula. In: UNESCO Inclusive Policy Lab Education and Digital Skills: A Conversation Event*, 8 December 2021, Online.

[15] Jasper Zheng, J. 2021. *Up Percent* (Algorithmic Sound Installation). Available at: https://alaskawinter.cc/works/up-percent [Accessed 17 February 2022].