

Call for Papers

Issue #8

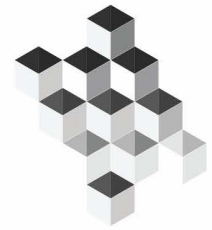
Design Computation

Searching for Innocence through the Synergies of Interactions | Scripting - Sensing - Interacting

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Currently, the role of design and its significance is being drowned in gimmicks, as digital technologies now play a significant role in shaping the behaviours, performances and standards of societies, communities, organisations and individuals (Liyanage 2012). Most are awed by how a product is designed instead of how the technology works. A trending design strategy is to produce complexity through coding. It usually must be clarified whether the design is scripted based on the idea or whether the narrative is post-rationalised from an uncontrolled script. In the latter situation, bridging cultural contexts is becoming more challenging due to digital tools. If these tools are not 'breakable' or open-sourced, the contents generated are usually the by-product of the tool's capacity. Some designers simply use trial and error to hope for something to be generated. Others generate scripts that support user-generated content or self-generated emergent content. In such cases, who are the designers, and where is the design? Is the product the generated content or the script generating the content?

Lucien Kroll, in his book *The Architecture of Complexity* (1987), suggested 'computer use in design' (CUD) instead of 'computer-aided design' (CAD). He claimed that the former allows more open-endedness and the integration of architectural, design and social relationships. He criticised CAD for being like artificial intelligence, leading to designs that are more 'self-contained, closed and repetitive' (Pak and Verbeke 2014). Though limited by the technology of his time, Kroll employed various algorithms to generate diversity and differentiation for his users. He emphasised that computers simply generate, evaluate and modify designs that still require designers' revision and that social interaction must not be lost to deal with the diversity of the real world. The use of computation becomes a means to better understand users. At present, there are affective computing and electroencephalogram (EEG) technologies that can



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be used to quantify design cognition. Can we utilise them to better connect users and designers? Can the sensors differentiate a 'designed' design from an 'emerged' design?

Everyone now has the capability to design and make changes to their surroundings. User involvement started out to fulfil user needs in urban planning and housing design. Then, it became a trend for personalised customisation of user-generated content (UGC). Designs can now be generated based on the collective feedback of the general public. However, information and data must interact on time and among all stakeholders to make collaborative design effective. Technologies such as virtual reality (VR) emerged to improve such communication. Augmented reality (AR) aimed to connect to the physical world, while mixed reality (MR) enhanced immersiveness. Extended reality (XR) became the umbrella term that encapsulates the three different realities and everything in between. Simple pen-and-pencil interactions instead of a keyboard and mouse can also be done immersively with technologies such as *Spatial*. The metaverse further expanded UGC. Digital art and design content labelled non-fungible tokens (NFT) can be generated by anyone for the possibility of selling each product at a high price through online markets, continuing to blur the designer's role.

Design environments are complex. Furthermore, the relationship between design and computation is difficult to define. No matter how carefully planned the process, the user-centred outcome using computation is unpredictable and emergent, potentially diverging from the initial design aim and intention. What if we assume Joseph Beuys's 'everyone is an artist' is true and that everyone can script 'Hello, World!' to interact through design? To better manage this 'intelligent form of sharing' (Wood 2007, 148), a design practice that differs from that of design done for 'performance' and 'efficacy' is necessary. This could be done by categorising the following four provisional orders of synergy to better identify and differentiate the quality and characteristics of design outcomes (Wood 2007, 151):

- First Order of Synergy: synergies that emerge from the sharing of data (facts and figures).
- Second Order of Synergy: synergies that emerge from the sharing of information (processed data that are meaningful and useful).
- Third Order of Synergy: synergies that emerge from the sharing of knowledge (information and skills acquired over time and experiences).

- Fourth Order of Synergy: synergies that emerge from the sharing of wisdom (synthesis of knowledge that provides deep insights).

The principle of synergy encompasses more than the exchange between individuals and the environment and includes that between individual parts and their separate relationships with the environment (Wood 2007, 149). Alexander (1975) acknowledged the capability of technology, but he also claimed that such technologies cost people their innocence and require attention. The digital era is forcing the communication of different disciplines, particularly for designers. Their creations and innovations depend not only on the data and information from other fields but also on the knowledge of the experts therein. How can design facilitate such sharing and communication? How can design serve design to generate positive synergies of synergy?

The Call for Papers for the Design Computation issue of *Cubic Journal* seeks diverse contributions concerning the whole chain of topics from planning to prototyping to fabrication, including Computational Design, Artificial Intelligent Design Systems, Virtual Reality, Human-XR Design Interactions, Affective Computing and Design Cognition, Gamification of Inclusive Design Processes, Wearable Technology, Internet of Things and Smart Fabrication Process. The Design Computation call encourages contributions that reposition design and design research to highlight Design + Computation as a significant design outcome that reacts to the challenging questions mentioned. It can be a partial product or an in-progress development as long as the output is sufficient to initiate discussion on the topic.

Various forms of contributions are possible:

[a] Academically positioned papers up to 6000 words that exemplify research-based exploration in the domain of Design Computation (clear diagrams strongly recommended).

[b] Made and built prototypes that use computation as design input, including parametric scripts, submitted in pictorials and videos + 1000 words describing the output dictated by the computational methods.

[c] Developed systems and frameworks that contain a detailed computational framework to conduct or aid the design process, submitted in pictorials of high-

res screenshots and demo videos + 1000 words describing the enhanced design process.

[d] Coordinated workshops on computational topics with distinct outputs, submitted in pictorials and videos of processes and outcomes with workshop members credited + 1000 words describing the topic content and its digital derivative nature to generate numerous results.

[e] Curated virtual or phygital exhibitions with distinctive outputs, submitted in pictorials of high-res screenshots and walkthrough videos + 1000 words describing the curatorial concept, theme or story and its choice of interactions.

All contributions will be double-blind and peer-reviewed.

No publication fee will be required. Published works will be open-accessed.

Authors must follow submission criteria for each contribution type described on the cubicjournal.org website. Final submissions must be made by 1st July 2024 at noon Hong Kong Time to tt2lo@polyu.edu.hk.

Call for Contributions:	1 st April 2024
Submission Deadline:	1 st July 2024
Acceptance Notification:	1 st September 2024
Final Publication:	31 st December 2024

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