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Photo Camille Delcour, LOCI Louvain-la-Neuve (mai 2024).

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Architectural intelligence and generativity

Conversation with Molly Wright Steenson

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Abstract. *Alongside her visit to Louvain-la-Neuve for the awarding of her doctor honoris causa on the theme of Responsible Data Science for Human Development, Molly Wright Steenson honors us by answering a few questions about the relationship between fields of architecture and artificial intelligence from a historical point of view.*

Keywords. *design · generativity · interaction · cybernetics · AI · craft · slöjd*

Résumé. *Parallèlement à sa venue à Louvain-la-Neuve pour la remise de son titre de doctor honoris causa autour de la thématique d'une science des données responsable pour le développement humain, Molly Wright Steenson nous fait l'honneur de répondre à quelques questions sur les relations entre les domaines de l'architecture et de l'intelligence artificielle avec un point de vue historique.*

Mots-clés. *conception architecturale · générativité · interaction, cybernétique · IA · artisanat · slöjd*

Hello Molly,

We welcome you to Belgium on the occasion of the awarding of a doctor honoris causa by the LOCI faculty and the LAB institute, linked to the theme *Responsible Data Science for Human Development*, on 27/02/2025.

We thank you for playing along with the interview instead of being replaced by a hologram or a conversational agent.

Merci, bedankt, and thank you! I will not replace myself with a bot for this conversation. :)

To begin, we would like to ask how you came to study the theme of responsible AI. Is it a concern related to recent generative artificial intelligence (GenAI) tools—widely covered in the media—such as DALL-E in 2021, Midjourney, Stable Diffusion, and OpenAI's ChatGPT in 2022, or Meta's ImageBind and Google's Gemini in 2023? Or is it a deeper concern?

It's a longstanding concern for me. My interest in AI goes back 20 years and my interest in digital interactivity even longer than that, back to the early 1990s.
For my master's thesis at Yale that I began in 2005, I researched Cedric Price's Generator project, which many consider to be the first proposal for an intelligent building. I found my way to AI in 2008, I read *Notes on the Synthesis of Form* (1964) by Christopher Alexander and discovered a footnote, in which he referred to Marvin Minsky's "Steps toward Artificial Intelligence" (1961). It stood out for me because in 2003–2009 or so, there was a lot of discussion about cybernetics, but not AI. So I started following the papers that the footnotes referenced (Steenson, 2020), and soon I was in love with the history of AI.

AI advocates claim that it has no history, making any comparison with past historical periods illusory. The apparent novelty of the societal changes brought about by AI-equipped objects, they argue, makes critical distance unnecessary for analysis. As a historian, do you agree with this?

Wrong wrong wrong wrong! AI has history, and we always need criticality, distance, and analysis. So I won't let the AI advocates off easily, and I would argue you can be an advocate for AI and a historian of it, too.
The term "artificial intelligence" has been in use since 1955, and the practices behind it are older than that (McCarthy et al., 1955). Yet when we talk about AI, the rhetoric is always connected with newness. A research group I led at Carnegie Mellon University studied the keywords in context around AI on Medium.com and learned that it is always affiliated with "new."

How did you become particularly interested in Christopher Alexander (you mentioned a footnote in *Notes on the Synthesis of Form*, 1964)? And how did you become particularly interested with Richard Saul Wurman, Cedric Price, and Nicholas Negroponte (Steenson, 2014, 2017)? What did you learn by analyzing the work of these pioneers in the use of cybernetics, computing, and AI concepts and tools in architecture?

Christopher Alexander is polarizing in architecture, for reasons I don't entirely understand. Many architects and architectural scholars have disdain for him. But he's one of the most publicly recognized architects by everyday people and his books have had a wide influence on programming and the digital world. He is problematic, for reasons that I wrote about in Volume in 2020, not long before Alexander died. He is also important.
My book came out of my dissertation at Princeton (Steenson, 2014), titled "Architectures of Information." There, I continued my research on the role of information and information systems in Cedric Price's work. I delved into the history of defense funding at MIT and the collaborations between the MIT Architecture Machine Group (a lab of architects and engineers who partnered closely with the MIT AI Lab – it became part of the MIT Media Lab when it opened in 1984). And then when I turned my dissertation into a book (Steenson, 2017), I incorporated chapters on Richard Saul Wurman and on the field of information architecture. This research tied back to my early work with the web, starting in 1995. I was an early information architect (1997) and user experience designer in New York, San Francisco/Silicon Valley, Chicago, and Munich. Then in 2003, I became a professor of interaction design at the Interaction Design Institute Ivrea in Ivrea, Italy. My research was a way to understand this early work I'd done as a consultant and designer in the digital world from an architectural perspective.

We share your passion for Cedric Price's *Fun Palace* project. If we examine the historical contribution of cybernetics to architectural design in the 1960s (Claeys & Roobaert, 2022), the relational triangle between Joan Littlewood, Gordon Pask, and Cedric Price is complex. The project was co-design between: (1) staging socially engaged and participatory performances based on Bertolt Brecht's (1957) principles of "*dialectical theater*"; (2) Price's modular and ephemeral architecture, interactive and embracing obsolescence (Hardingham, 2016); and (3) self-learning and interactive cybernetic machines serving the "Conversational Learning Theory" (Pask, 1969, 1975).

Could you tell us about the importance of this project in history? About the utopia it pursued? About the fact that it was never built?

It was a way of thinking about leisure, interaction, and how a building might change us and interact with us. And that that could be considered as a form of theater – that presages the work that people like Brenda Laurel (1991) did, considering interaction design (IxD) as the writing of a *fiction* for multiple agents in conversation. It was an optimistic moment in time, thinking that technology might be making time for leisure and learning in a self-determined manner. That, of course, didn't really happen…

How do you understand the development of true *ecosystems* of designers, proposing a supposed hybridization between natural and artificial intelligence? What would be the advantages and disadvantages of such an association? What biases and risks are involved in the use of intelligent design tools in architecture?

This is what we call "symbiosis." The idea of symbiosis was popularized by J.C.R. Licklider (1960), in his paper "Man-Computer Symbiosis." This idea provided the foundation for all the decades since – that people and machines might collaborate and create something other than what either might produce on its own. The MIT Architecture Machine Group and Nicholas Negroponte (1970,1975) also explored what this might mean – that the resulting interactions would be different and new.
People use the term "symbiosis" without knowing where it came from – or what it means. *The Oxford English Dictionary* refers to it as "living together, social life," or "association of two different organisms." What do we think of when we consider human-AI symbiosis as a living together, or a social life? It could be interesting to think about it.

How do you think AI tools and their combinations could be made more accessible to non-expert architects? How can they be informed about what types of tools exist, what inputs and outputs they process? What are their contributions, and at what moments should they be integrated or excluded in an architectural design process? How can access to AI be democra-

1 Molly Wright Steenson during the award ceremony for doctor honoris causa with Rector Françoise Smets (a), and accompanied by her sponsors Émilie Gobbo and Damien Claeys (b), 27/02/2025.

tized for non-expert architects and prevent a "smart class" (Florida, 2002) of a select few from making all the decisions?

This sounds to me like the history of expert tools in architecture, throughout the history of architectural computing. I'm less focused on studio practice for architects, but I'd say that anything that encourages designers to consider what the tools do and how it influences creative practice is really important.

Why is the concept of *Generativity* so important to you? Is it linked to a different form of creativity?

I love this question – thank you for asking it! 20 years ago, I was trying to distill what my interest was in the connection of architecture and interactivity (fill in the blank). Whas it mobility? No, I wasn't really interested in portable, movable architecture. What I was interested in was the view that architecture could generate something new – through the design process, through human interaction, through challenges to creativity.
I had a sense that architecture played a role in the history of AI (which it did, as I write about in my book *Architectural Intelligence*). My original goal was to write a history of generativity in architecture (it's true, you can read my dissertation proposal in 2010 and see that!)
I'm also interested in other generative devices… poetry. Dadaism. Electronic music. Games. How are we sparked to creativity and creative acts? It's all about generativity.

Based on your experience, do you think there are differences in the role given to learning-by-doing in Europe (Sweden, Germany) compared to the United States?

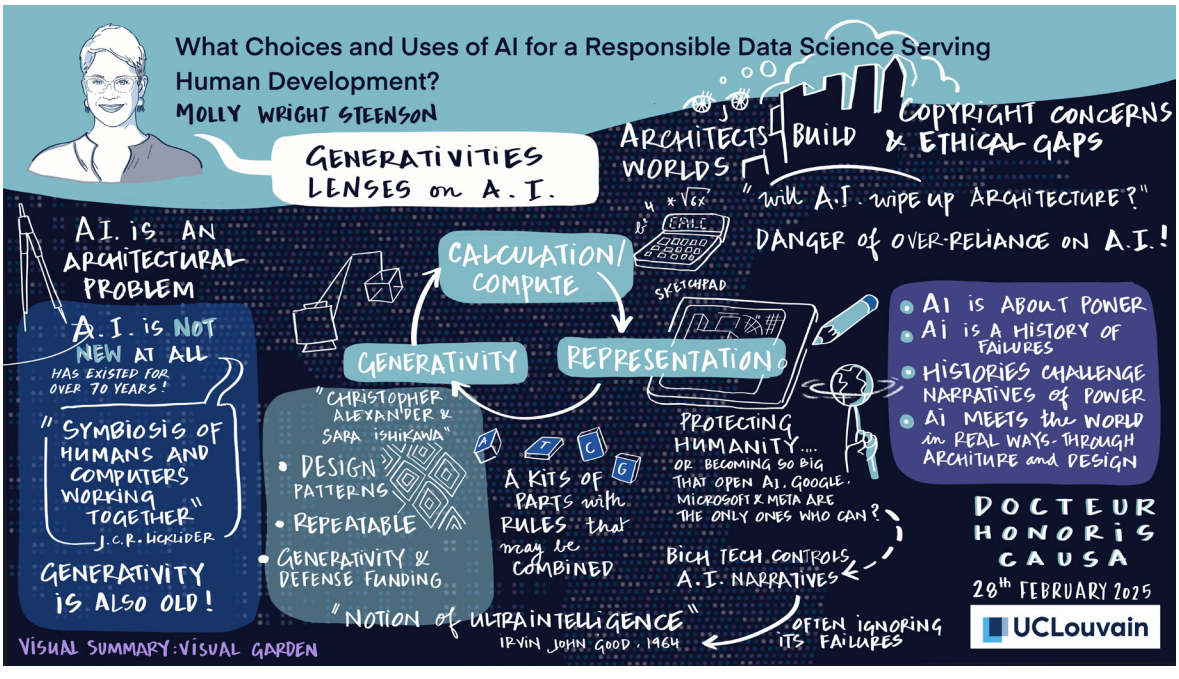
I'm interested in the Swedish and Finnish concept of "slöjd," or handcraft. There's something radical in slöjd pedagogy, as I see it. It was first conceived in 1878 and the idea is that students learn from their peers and become deft with tools and their use in context, understanding materials and at-hand craft. All students learn this kind of craft in the Nordic countries when they're 10–14 years old or so. Now, to be sure, many students don't appreciate it and the things they produce aren't all that exciting. But everybody learns how to think with hands and materials. And when I look at a world with increasing authoritarianism through technocracy, I wonder what lessons we all might take from the craft experiences we have. What kinds of people might we be if we think with our hands, and get critical with our technologies? We might produce better worlds.

Do you think a form of societal resistance to the power of data and the attention economy should be organized?

I hope that people speak up against the aims of massive AI companies that tell stories of existential risk and that AI is highly dangerous, and who also say that the only way that we will be safe is if those same companies come to save us. We need small resistances and brilliant acts of creativity.

What is your message for architecture students, teachers, researchers, and practitioners regarding the use of AI in architectural design?

It's an old story and a new story. Architects have always feared the influence of the computer on the profession (since 1964, from what I've traced). It's true that anything that can be automated, will be automated. But it's also true that you can't make a brilliant design with the initial output of an image generator. There's a lot to protect—such as the outputs of architectural production and the diffusion engines that siphon them to train models—but also a lot to explore. The key thing is riding the edge between protection and curiosity. ■



(2) Sketchnote created by Judith Du Faux during the thematic workshops on the Use and Societal Implications of AI, 28/02/2025.

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