

DIGITAL TWIN SYSTEMS IN THE BUILT ENVIRONMENT

Speaker

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Abstract

The emerging concept of digital twins is transforming the built environment by enabling data-driven decision-making through precise, virtual replicas of physical assets. In this seminar, Dr. Erika Pärn will delve into the lifecycle of digital twin systems, discussing their current and future role in sustainable urban development and infrastructure. Drawing from her upcoming book, 'Twin Systems: Digital Twins of the Built Environment,' Dr. Pärn will present a comprehensive view of how digital twin systems can reshape both product and process management within the built environment.

Additionally, this presentation will cover ongoing research from the RESTOR project, which focuses on the application of generative design and artificial intelligence to optimize steel frame reuse in construction. Also highlighted will be the work of Dr. Pärn's PhD student, Hank Luo, whose tool, 'ChatTwin,' utilises large language models to facilitate natural language interactions with digital twins, paving the way for innovative interface designs for road asset management. Together, these insights offer a glimpse into the transformative potential of digital twin systems for sustainable, data-centric urban ecosystems.

Biography

Dr. Erika A. Pärn is a Senior Research Associate at the University of Cambridge, within the Construction Information Technology Lab of the Department of Engineering. Her research spans digital construction, Building Information Modeling (BIM), and digital twins. Dr. Pärn leads the EPSRC-funded project RESTOR, which focuses on generative design and AI-driven steel reuse in construction and has recently collaborated with global leaders in digital transformation. Her innovative approach bridges academia and industry, evidenced by her role in the upcoming book, 'Twin Systems' co-authored with esteemed academics Prof. Ioannis Brilakis, Prof. Rafael Sacks, Prof. Lucio Soibelman, Prof. Mark Enzer. Dr. Pärn's current research includes the development of advanced digital twin interfaces, such as 'ChatTwin,' designed to enable natural language interactions with infrastructure digital twins, particularly in the realm of road asset management. An influential voice in her field, Dr. Pärn is committed to advancing sustainable practices in digital construction and the built environment.



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Civil Engineering
Conference Room
Room 3574 (Lift 27/28)

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