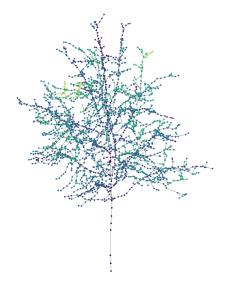## ↓ Workshop #05

DIGITAL TOOLS FOR CO-DESIGNING WITH LIVING SYSTEMS

↓ Organizers

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↓ Workshop Content

How can we co-design with living systems? What are the chances and challenges?

This workshop will foster a new discourse on the future of integrating an ecosystemic approach in digital design. It builds on recent insights of the research project ECOLOPES and TreeML and PrunML.

ECOLOPES (ECOlogical building enveLOPES) envisages a radically new integrated ecosystem approach to architecture that focuses equally on humans, plants, animals, and associated organisms such as microbiota. It develops the core digital technologies for designing ecolopes in a systematic way. And makes biological knowledge available for the architectural design process.

TreeML is a machine learning tree canopy geometry prediction model based on the local environment. It contains several models such as TreeML-SM, TreeML-Species, TreeML-Planter, and TreeML-Data. And PrunML is a pre-trained shout brunching pattern prediction model after tree pruning. These are building on long term research at GTLA with co-designing with living trees in the field of Baubotanik.

In the workshop key researches of the projects mentioned above present the current state of knowledge development in their innovative fields in an interactive format. Participants will work on a common whiteboard to discuss the chances and challenges of the approaches. The workshop will close with a conclusion session in which key learnings from the discussion are summarized in an online document.

Future of Construction 2023 Symposium

↓ About The Organizers

Prof. Dr. Ferdinand Ludwig is professor for Green Technologies in Landscape Architecture at the Technical University of Munich. His research focuses on architectural concepts in which plants play a central role. Their functional and conceptual integration not only provides answers to the pressing ecological questions of our time, such as adaptation to climate change. It also poses a methodological challenge as to how aspects of growth and decay, chance and probability can be dealt with in design.

Hadi Yazdi M.Sc. is PhD candidate and research associate at Technical University of Munich. His research is focused on using computational methods as well as machine learning in target-driven tree planning in cities. He is interested in data-driven approaches in Urban Green Infrastructure for tree growth prediction and developing DSS (decision support systems) for tree planting suggestions.

Dr.-Ing. Verena Vogler co-founded a research and development (R&D) department at McNeel Europe (2016) to participate in EU research projects that use Rhinoceros as a development platform for innovative technologies. She received her doctorate of engineering from the Chair of Computer Science in Architecture at the Bauhaus-University Weimar. In her dissertation, she developed a new Framework for Artificial Coral Reef Design with a focus on integrating computational modelling and high precision monitoring strategies for ecosystem regeneration.

Pre-expected Knowledge
None

Workshop Format
Interactive discussion

Workshop Tools and Materials
Laptop

Venue