



# ARTISTE2025

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*Special Session Title:*

## **Integrated Architectural and Structural Design through AI-Guided Generative Processes and Bio-Inspired Optimization**

### **Organizers**

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### **Abstract**

This special session explores innovative approaches at the intersection of architectural planning and structural design, facilitated by AI-driven generative processes and bio-inspired strategies. Emphasizing integration across disciplines, the session focuses on sustainable, adaptive, and materially efficient systems wherein structural performance and architectural intent co-evolve. Contributions utilizing AI, optimization algorithms, and computational tools to enhance collaboration between architects and engineers are welcome.

Topics of interest include (but are not limited to):

- Integrated design workflows linking architectural form-finding with structural performance;
- AI-guided generative systems for performance-informed architectural planning;
- Expert-guided or interactive computational design environments;
- Bio-inspired structural morphologies that support sustainable architectural solutions;
- Use of digital twins and parametric models to bridge architecture and engineering;
- Computational tools for cross-disciplinary design;
- Sustainable materials and performance-aware early-stage design strategies;
- Case studies of integrated design processes in adaptive or ecological structures.



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