

## SFB/TR 8 Spatial Cognition / IQN Video Conference

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### The Shape of Empty Space Human-Centred Foundations for Spatial Design Systems

Project DesignSpace develops methods for human-centred abstraction, modelling, and computing in function-driven architecture design. The foundational primitives of our spatial design conception and computation framework are driven by classic notions of “*structure, function, and affordance*” in design, and are directly based on the fundamental human perceptual modalities of visual and locomotive exploration of space.

In this talk, we revisit: (a) the inherent limitations of contemporary design systems; (b) our perception of the *spatial informatics of next-generation systems* for professional practice and education in architecture design; and (c) the computational design analysis system DSim, which is an ongoing prototype for the illustration of the core concepts. We report on the status quo of the project whilst focussing on the most primitive entity in the process of architecture design, namely, *empty space*. Architects shape —*structure, organize*— empty space under a range of constraints: physical, socio-economic, environmental, aesthetic etc. We will focus on visuo-locomotive and affordance based constructs & constraints, and the manner of their human-centred characterisation using demos of ongoing case-studies.

Whereas the emphasis in DesignSpace has so far been on iterative design refinement of preliminary master-plans by computational analyses, our immediate perspective is now geared toward design conception and requirement specification at the early conceptual modelling and sketching stages. In this relation, we will also briefly discuss ongoing collaborative initiatives being planned with the CogSketch project of the Qualitative Reasoning group at Northwestern University (USA). Time permitting, we also briefly present (very preliminary) DesignSpace offshoots pertaining to architecture systems interaction design and usability studies with augmented reality and brain-computer interface technology.

Project DesignSpace. <http://tinyurl.com/designspace-project>

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informelle Kaffeerunde: 15:15  
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