SFB/TR 8 SPATIAL COGNITION

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Video Conference

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Modeling Visual Problem-Solving and Spatial Reasoning

Visual problem-solving tasks offer important insights into how people represent and reason about space. For example, in the Visual Oddity Task participants select the image that lacks a key spatial feature. It is critical that we understand these tasks, so we can train students to be better spatial thinkers and improve achievement in science and engineering. I use computational models as tools for studying these tasks. Each model is an autonomous agent which constructs representations from 2D drawings and reasons over them to solve a problem. The models are developed based on the current understanding of human spatial reasoning. By manipulating the models' parameters and comparing their performance to humans, one can evaluate psychological theories and derive new hypotheses. In addition, the models can be integrated into future intelligent tutoring systems to improve spatial ability.

- Freitag, 04. April 2014
  informelle Kaffeerunde: 15:15
  Vortragsbeginn:15:30

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