

Curriculum Vitae

Lutz Frommberger

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Lutz Frommberger received his diploma in computer science from the University of Karlsruhe (TH), Germany (now KIT – Karlsruhe Institute of Technology) in 2002. In 2009 he received a Ph.D. from the University of Bremen Germany for his dissertation “Qualitative Spatial Abstraction in Reinforcement Learning” (reviewers: Prof. Christian Freksa and Prof. Ramon López de Mántaras). He was a member of the Collaborative Research Center “Spatial Cognition” from 2003 to 2010, where he worked in the project R3-[Q-Shape] “Reasoning about Paths, Shapes, and Configurations”. Since 2011, he is project manager of the “International Lab for Local Capacity Building” (Capacity Lab).

His main research interest is the representation of space in applications. He has been working extensively on spatial abstraction techniques for machine learning, in particular reinforcement learning in large state spaces and real-world systems such as robots. He is also interested in cognitive robotics in general and abstract robot mapping in particular. Recent research focuses on intelligent applications for mobile data acquisition in developing countries and ICT use for poverty reduction in general (ICT4D).

Lutz Frommberger acts as a reviewer for the IEEE Transactions on Neural Networks and Learning Systems (TNNLS), the Journal of Ambient Intelligence and Smart Environments (JAISE), the International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems (IJUFKS), Robotics and Autonomous Systems (RAS), and Intelligent Service Robotics (ISR), as well as for numerous conferences and workshops.

Selected Publications

Lutz Frommberger. *Qualitative Spatial Abstraction in Reinforcement Learning*. Cognitive Technologies. Springer, Berlin Heidelberg, November 2010.

Lutz Frommberger and Diedrich Wolter. Structural knowledge transfer by spatial abstraction for reinforcement learning agents. *Adaptive Behavior*, 18(6):507–525, 2010.

Lutz Frommberger. Learning to behave in space: A qualitative spatial representation for robot navigation with reinforcement learning. *International Journal on Artificial Intelligence Tools*, 17(3):465–482, June 2008.

Falko Schmid, Chunyuan Cai, and Lutz Frommberger, "A New Micro-Mapping Method for Rapid VGI-ing of Small Geographic Features", *Geographic Information Science: 7th International Conference (GIScience 2012)*, Columbus, Ohio, USA, September 2012.

Bernd Gaßmann, Lutz Frommberger, Rüdiger Dillmann, and Karsten Berns. Real-time 3D map building for local navigation of a walking robot in unstructured terrain. In *Proceedings of the IEEE International Conference on Intelligent Robots and Systems (IROS)*, pages 2185–2190, Las Vegas, Nevada, October/November 2003

