

**The Transregional Collaborative Research Center
SFB/TR 8 Spatial Cognition: Reasoning, Action, Interaction
at the Universities of Bremen and Freiburg, Germany**



pursues interdisciplinary long-term research in Spatial Cognition. Particular emphasis is given to:

- **Spatial Reasoning:** Knowledge representation, human spatial thinking, computational modeling, diagrammatic reasoning, cognitive and computational complexity, qualitative spatio-temporal calculi;
- **Action in Space:** Cognitive robotics, explorative localization and mapping, robot navigation, human navigation and wayfinding, sensorimotor representations of spatio-temporal structures, embodied cognition;
- **Communication and Interaction in Space:** Formal methods, spatial and linguistic ontologies, computational linguistics, environmental cognition, integration of spatial methods.

A description of the current research projects of the SFB/TR 8 can be found at www.sfbtr8.uni-bremen.de

The SFB/TR 8 is funded by the Deutsche Forschungsgemeinschaft (DFG).

The SFB/TR 8 advertises four researcher positions:

1 Postdoctoral Researcher / Doctoral Research Assistant

SFB/TR 8 project A5-[ActionSpace], Universität Bremen
(BAT IIa, approx. € 35,000 to € 50,000 p.a. gross)



The research project A5-[ActionSpace] is concerned with the development of a sensorimotor system for the exploration of natural scenes and spatial environments. The applicant should have a degree in computer science or in a related field (Ph.D. or diploma / master's). Interest in joining an interdisciplinary research team and experience in cognitive science research is expected.

Especially, the applicant should have qualification and/or interest in the following fields:

- Image processing and computer graphics
- Knowledge representation and reasoning
- AI and Cognitive Science
- Robotics
- C++, java, Linux, SGI-IRIX

We offer the opportunity for research experience in a modern and enthusiastic research environment with strong interdisciplinary and international links. Duties include project work and research, publication of research results, supervision of student researchers, participation in the activities of the SFB/TR 8, and contribution to research proposals.

The position is available immediately until the end of 2006. Extension is possible. Application deadline: 08 August 2004 (or until a suitable candidate is found). Universität Bremen is an equal opportunity employer. Women are especially encouraged to apply. Handicapped applicants with equal qualifications will be given preferential treatment.

More information about this project can be found at www.sfbtr8.uni-bremen.de/project?project=A5.

Please address questions about the position and send your application (preferably by email) to:
Prof. Kerstin Schill <kschill@sfbtr8.uni-bremen.de>
SFB/TR 8 - Spatial Cognition
Universität Bremen
P.O. Box 330 440
28334 Bremen / Germany

2 Postdoctoral Researchers / Doctoral Research Assistants

SFB/TR 8 project A6-[ReactiveSpace], Universität Bremen
(BAT IIa, approx. € 35,000 to € 50,000 p.a. gross)



The research activities in the project A6-[ReactiveSpace] concentrate on the consequences of complex kinematical abilities of robotic systems for acquiring cognitive abilities in natural environments. In the context of the area of autonomous intelligent robots, we develop, build, and program highly complex systems that range from classical wheeled robots and multipod (6- or 8-legged walking robots) to dynamic 4-legged robots and humanoids.

To the tasks of the applicants belong the cooperation in the teachings and, depending upon the specific interests and capabilities of the applicants, the design, realization and implementation of control architectures and algorithms for autonomous, kinematically highly complex robots.

Practical experience in the following areas is desired:

- Implementation of behavior-based architectures
- Implementation of on-line learning techniques (especially reinforcement learning) or
- biologically-inspired algorithms to drive kinematically complex robots.

Additional knowledge (possibly acquired through a master thesis / diploma or a Ph.D.) that would be appreciated:

- In the field of the predominantly subsymbolical learning techniques
- Hardware-related programming (assembler, FPGA)

Since the work with robot systems in real environments always entails damage or malfunction of mechanical or electronic components, motivation and good disposition of the applicants is expected for actively cooperating in system maintenance.

The requisites for the positions are a graduation in a relevant area or a master / diploma in computer science as well as interest in basic research and experience in a similar project field.

The positions are available immediately until the end of 2006. Extension is possible. Application deadline: 08 August 2004 (or until a suitable candidate is found). Universität Bremen is an equal opportunity employer. Women are especially encouraged to apply. Handicapped applicants with equal qualifications will be given preferential treatment.

More information about this project can be found at www.sfbtr8.uni-bremen.de/project?project=A6.

Please address questions about the positions and send your application (preferably by email) to:

Prof. Frank Kirchner <kirchner@sfbtr8.uni-bremen.de>

SFB/TR 8 - Spatial Cognition

Universität Bremen

P.O. Box 330 440

28334 Bremen / Germany

1 Ph.D. Student / Junior Researcher
SFB/TR 8 project A5-[ActionSpace], Universität Bremen
(BAT IIa/2, approx. € 20,000 to € 28,000 p.a. gross)



The research project A5-[ActionSpace] is concerned with the development of a sensorimotor system for the exploration of natural scenes and spatial environments. In this context, we perform experiments on human exploration strategies in virtual and physical environments. The applicant should have a degree in computer science, cognitive science, or in a related field. Interest in joining an interdisciplinary research team and experience in cognitive science research is expected.

Especially, the applicant should have qualification and/or interest in the following fields:

- Computer graphics / virtual reality
- Experimental / empirical investigations
- Statistical evaluation of experimental results
- C++, Java, Windows, Linux

We offer the opportunity for research experience in a modern and enthusiastic research environment with strong interdisciplinary and international links. Duties include project work and research, publication of research results, supervision of student researchers, participation in the activities of the SFB/TR 8, and contribution to research proposals.

The position is available immediately until the end of 2006. Extension is possible. Application deadline: 08 August 2004 (or until a suitable candidate is found). Universität Bremen is an equal opportunity employer. Women are especially encouraged to apply. Handicapped applicants with equal qualifications will be given preferential treatment.

More information about this project can be found at www.sfbtr8.uni-bremen.de/project?project=A5.

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