

Job:

University of Paderborn

GET Lab

One Doctoral/ Post-Doctoral Research Post – Computer Graphics and Computer Vision

Applications are invited for one doctoral/ post-doctoral researcher to work at GET Lab on a DFG funded project entitled "**Attentive Vision for Robotic Assistance Machines (AVRAM)** — early clustering approach towards artificial visual attention for increasing performance of active vision systems".

Project goal: Despite its short history modeling visual attention has found many useful applications in different areas such as visual search, perceptual grouping, object and gesture recognition, object tracking, image and video compression and scene rendering in 3D graphics. We intend to broaden the scope to areas such as driver assistance systems, rescue robotics, aid systems for the elderly or handicapped, and other areas where machine vision could play a helping role for people. In this project, we aim to demonstrate attention behaviors on real-time active vision systems integrated in mobile robots working in natural 3D environments with live sensor data so that this work may become a milestone towards the long-term target of biologically inspired human assistance machines. For this purpose, we are extending the modalities of our existing attention model by adding the necessary feature channels of motion and depth, and reformulating the rest of the attention model in accordance with the new changes. Moreover we plan to introduce a spatial memory infrastructure into the model to store locations and features of the learned objects and to allow the vision system to operate autonomously for long time spans. In order to quantitatively measure the performance of this project in particular and evaluate the output of attention models in general, we intend to build a sharable resource for performance assessment and benchmarking of visual attention models. The tool for attention evaluation will be developed in close interaction with leading experts in the field and made available for the research community in this area.

The main activities of the researcher at Paderborn will be to investigate how to evaluate different attention models. This research will involve generation of 3D testing scenarios, further development of our robot simulator, visualization of multimodal attention clues, development of metrics for the evaluation of attention models and the development of a web based system for the evaluation of different attention models.

Applicants for the post must have completed a master program in an appropriate area such as computer science, electrical engineering, or physics and should have experience with computer graphics, computer vision as well as the C, C++, and Matlab/Simulink programming languages. As the project is about 3D data simulation, we will be looking for applicants with experience with OpenSceneGraph, OpenGL and ODE.

The position is initially for two years with the possibility of extension. It is paid according to the German Public Service Scale (TV-L 13). The closing date for applications is November 28, 2008.

The University of Paderborn is an equal opportunity employer: Handicapped individuals are strongly encouraged to apply, and so are women in areas in which they are underrepresented.

Further particulars are available from, and electronic applications are sent to: Prof. Dr.-Ing. Bärbel Mertsching, GET Lab, Fakultät EIM-E, University of Paderborn, Pohlweg 47-49, 33098 Paderborn, Germany • Telefon +49 5251 605293 • Fax +49 5251 603238 • mertsching@upb.de • <http://getwww.upb.de>. A meaningful application should include a cover letter, a CV, a brief summary of research interests, a statement of interest in the position offered, and contact information for two references.