Deutsches Zentrum
für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft

Linder Höhe
D-51147 Köln
Telephone: +49 (0)2203 601-0
Internet: www.dlr.de

DAAD

**Deutscher Akademischer
Austausch Dienst
German Academic Exchange Service**

Kennedyallee 50 – D-53175 Bonn
Telephone: +49 (0)228 882-0
Telefax: +49 (0)228 882 555
E-mail: postmaster@daad.de
Internet: www.daad.de

DLR – DAAD – Fellowships

Fellowship - No. 50

Research Area : Space

Research Topic: Multi-Sensor based Activity recognition for humans

DLR Institute: Institute of Communications and Navigation; Oberpfaffenhofen

Position: Doctoral Fellow

Openings: 1

Job Specification: In today's environments for Ubiquitous Computing, context information is crucial to supply users with personalized and individualized services. This information usually comes from sensors that can be worn or are close to the human subject. Sensor information and any other low level context sources can be combined and fused, in order to gain "higher level" knowledge, e.g. about the current situation, tasks or activity of the sensor wearer. This task, called Context Inference or Reasoning infers this higher level context information from available raw sensor input, e.g. we might want to find out if a person is standing, sitting, lying, walking, running or even falling. We might even be able to infer whether two people are in fact talking to each other or whether a group of five is involved in the same meeting.
We use a number of sensors that can provide such information. Some of the questions to be answered in this work are:

- What activity information can be inferred using which combinations of sensors, and with which reliability?
- Which algorithms are suitable for the measurement processing and what is their computational complexity?
- What kinds of models are most suited (e.g. temporal dynamic processes or static representations)?
- Can different individuals be reliably identified from sensor signatures?

- What model identification and learning is required to adapt to a certain user and his/her sensors?

This work should also encompass the collection of various reliable data sets which can be shared with the scientific community. The work is relevant within the context of a number of European research projects, where the goal is a real-time demonstration prototype.

Required Qualification: MSc. Or Diploma in Electrical Engineering or Computer Science or equivalent

Advantageous Skills: Signal processing skills and understanding, Matlab and Java programming skills, mathematical ability

English competence: English fluent, (German at least basic with willingness of improvement)

Earliest Start Date: September / October 2009

Application Deadline: until position filled

Further Information: www.dlr.de
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