The Research Institute for Cognition and Robotics (CoR-Lab) offers a full-time research position in the project cluster CINEMENTAS, sub-project "Mental-model-guided interactive robot learning", starting as soon as possible (E13 TV-L, non-permanent position)

Your Tasks

For the newly started project cluster CINEMENTAS - Cooperative Interaction based on Mental Models for Assistive Systems we are looking for a post-doctoral researcher with project coordinator function. CINEMENTAS is located at the Institute for Cognition and Robotics (CoR-Lab) and embedded in the research environment of the Cluster of Excellence Cognitive Interaction Technology (CITEC), both at Bielefeld University, Germany. Project work will be in close cooperation with the Honda Research Institute Europe (Offenbach near Frankfurt/Main).

CINEMENTAS is focused on the research question how learning by a technical system in interaction with a human can be shaped to remain transparent for the human user.

To this end, the sub-project will investigate how learning changes can be structured along human mental models in order to remain readable for the human. The project will be carried out in close collaboration with four other CINEMENTAS PhD projects.

- Mental models for collaborative reinforcement learning (Prof. Dr. Kopp, AG Cognitive Systems and social Interaction)
- Mental models of the validity of adaptive systems (Prof. Dr. Hahnemann, AG Machine Learning)
- Collaborating on learning to classify (Prof. Dr. Schlagen, AG Applied Computer Linguistics)
- Learning of co-constructed interactive signals in joint tasks (Prof. Dr. Wrede, AG Applied Computer Science)

A project that offers a range of high-level primitives (navigation, basic vision, movement primitives, display functions, all accessible through a ROS interface) will be provided as a shared demonstrator scenario for connecting the research contributions of all five projects. For the present project position at the Pforzheim level we seek an applicant with a strong motivation and suitable team expertise to take an active role in the coordination of the above four PhD-projects, along with a strong background for contributing own original research results on mental-model-guided interactive robot learning.

Research activities (80 %)

- develop and investigate strategies to structure interactive robot learning in line with human mental models in order to become readable for the human user
- development and implementation of suitable algorithms
- technical realization of a prototype system within the chosen demonstrator scenario and environment
- design and conduct of empirical user studies for data acquisition and evaluation of the model/system

Other activities (20 %)

- coordination of the CINEMENTAS subprojects and their contributions towards a shared demonstrator platform
- reporting and collaboration with project partners, especially HRI
- preparation of scientific publications and presentations
- if necessary and theremically related to the project's research topic, supervision of Bachelor/Master theses and student projects

Research work in the sub-project will include temporary stays at the Honda Research Institute Europe located in Offenbach near Frankfurt/Main (about 4-7 train distances from Bielefeld).

Your Profile

We expect

- an excellent diploma or master degree in informatics/computer science or in a pertinent neighbor discipline, obtained at a research university
- a qualified PhD in a pertinent topic area within the fields of machine-learning or human-machine interaction
- solid practical and theoretical expertise in machine learning, particularly in the context of interactive settings
- a good publication record in pertinent international conferences and/or scientific journals
- excellent programming skills (C++, Python, Matlab, ROS)
- capability for interdisciplinary cooperation
- motivation and a strong motivation to integrate results in the form of implemented software components in a shared demonstrator system
- good command of English in writing and speaking

Preferable qualifications

- interest to learn across discipline borders
- background in cognitive science concepts about learning and mental representations

Remuneration

Salary will be paid according to Remuneration level 13 of the Wage Agreement for Public Service in the Federal States (TV-L). As stipulated in § 2 (1) sentence 2 of the WissZeitVG (fixed-term employment), the contract will end after three years. In accordance with the provisions of the WissZeitVG and the Agreement on Satisfactory Conditions of Employment, the length of contract may differ in individual cases. The employment is designed to encourage further academic qualification. The position is advertised as a full-time job. In individual cases, this percentage may be reduced on request, as long as this does not conflict with official needs.

Bielefeld University is particularly committed to equal opportunities and the career development of its employees. It offers attractive internal and external training and further training programmes. Employees have the opportunity to use a variety of health, counselling, and prevention programmes. Bielefeld University places great importance on a work–family balance for all its employees.

Application Procedure

For full consideration, your application should be received via either post or email (a single PDF) document sent to sstrunk@techfak.uni-bielefeld.de by the 3rd of June 2018. Please mark your application with the identification code: wiss18091. Please do not use application portfolios and send only photocopies of original documents because all application materials will be destroyed at the end of the selection procedure. Further information on Bielefeld University can be found on our homepage at www.uni-bielefeld.de.

Postal Address

Universität Bielefeld
Technische Fakultät
Postfach 10 01 31
33501 Bielefeld
Germany

Contact

Name: Prof. Dr. Hedge Ritter
Phone: (+49) 521-106-12123
Email: hrieger@techfak.uni-bielefeld.de

Bielefeld University has received a number of awards for its achievements in the project of equal opportunity and has been recognized as a family friendly university. The University welcomes applications from women. This is particularly true with regard to both academic and technical posts as well as positions in Information Technology and Trade and Craft. Applications are handled according to the provisions of the state equal opportunity statute.

Applications from suitably qualified handicapped and severely handicapped persons are explicitly encouraged.