The Research Institute for Cognition and Robotics (CoR-Lab) offers a full-time Research position 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 addit several research positions for the duration of the project. CINEMENTAS is focused on the research question how the learning of a technical system in interaction with a human can be shaped to remain transparent for the human user. To achieve this goal CINEMENTAS connects machine learning approaches with concepts from cognitive science, such as mental models.

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 (OITEC), both at Bielefeld University. Moreover, project work will be in close cooperation with the Honda Research Institute Europe (HRI; Offenbach near Frankfurt/Main), which also provides the financial funding of the project. The project cluster comprises five subprojects affiliated with five research groups at the Faculty of Technology and at the Faculty of Linguistics and Literary Science at Bielefeld University. The present PhD position will be working in the project "CoReLearn - Collaborative Interactive Reinforcement Learning" situated in the Social Cognitive Systems Group (Prof. Dr. Stefan Kopp).

The aim of CoReLearn is the development of innovative approaches and techniques to connect system-driven reinforcement learning with guidance from a human user through collaborative human-system interaction. The underlying idea is to integrate cognitive science concepts such as mental models into a new model for RL exploration and exploitation that ensures transparency and human understandability. This includes basing RL on human-understandable domain models of causality and linking learning to a human-system dialogue module that enables more differentiated feedback and policy shaping through informative communication and explanation.

Scope of functions:
Research activities (85 %):
- development and implementation of interactive reinforcement learning approaches and their integration with collaborative, dialogue-based human-machine interfaces
- 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 (15 %):
- reporting and collaboration with project partners, especially HRI
- preparation of scientific publications and presentations
- supervision of Bachelor/Master theses and student projects

Applicant’s profile
We expect
- an excellent diploma or master degree in informatics/computer science or in a pertinent neighbor discipline, obtained at a research university
- practical and theoretical expertise in machine learning, particularly in the context of interactive settings
- solid expertise in human-machine interaction, preferably in multimodal dialogue-based interaction
- excellent programming skills (C++, Python, Java)
- capability for interdisciplinary cooperation
- team orientation 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
- background in cognitive science, in particular about learning and mental representation

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) paragraph 2 of the WissZeitVG (fixed-term employment), the contract ends after a period of 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. In individual cases, this percentage may be reduced on request, as long as this does not conflict with official requirements.

Bielefeld University is particularly committed to the career development of its employees. It offers attractive internal and external postgraduate training. Employees have the opportunity to use a variety of health, counselling, and prevention programs. Bielefeld University aims at a good work-family balance.

Application Procedure
For full consideration, your application should be received preferably via email (a single PDF document) sent to dphilpp@techfak.uni-bielefeld.de by 26th of October 2017. Please mark your application with the identification code wiss17258. 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 about Bielefeld University can be found on our homepage at www.uni-bielefeld.de.