

# PhD Position at CoR-Lab in FP7-EU project AMARSi

The Research Institute for Cognition and Robotics (CoR-Lab) [1] at Bielefeld University, Germany has one open PhD position as a research-oriented software engineer for robotics, in particular in the domain of learning and control architectures for legged compliant robots. The position is part of AMARSi (Adaptive Modular Architectures for Rich Motor Skills), an interdisciplinary European robotics project that will start on March 2010 with ten partners across Europe. Starting in March 2010 and subject to final release of funds, the position is initially for two years, with the opportunity to be extended further two years until end of the project in 2014.

## BACKGROUND

The position will target the integration of state-of-the-art learning methods (e.g., recurrent neural networks) and motion control algorithms into a software architecture for rich motor skills. The successful candidate develops software engineering methodology and a software architecture that comprises proprioceptive sensing, learning and motion control as well as software engineering aspects. The work features a strong practical element, playing an important role in the theoretical and technological integration of project-wide results into experimental robotic systems using the developed architectural framework.

The position is integrated in the "Cognitive Systems Engineering" research group [2] within the CoR-Lab at Bielefeld University. The group is well connected to the Center of Excellence for Cognitive Interaction Technology [3] and shares the strong cooperation with the Honda Research Institute Europe with the CoR-Lab. Concerning this position, intense communication and collaboration with project partners within the CoR-Lab, in particular the Cognitive Robotics group led by Prof. Jochen Steil, as well as the international EU-partners is envisioned, e.g., the Italian Institute of Technology (Genoa, IT) or the Biologically Inspired Robotics Group at EPFL (Lausanne, CH).

## REQUIREMENTS

\* MA degree in Mechatronics, Computer Science or a Software Engineering discipline or equivalent combination of training and experience. Experience with learning methods, in particular neural networks is a plus.

\* "Hands-on" software and system engineering experience. In particular, we seek candidates with strong software design and development abilities, experience in software integration and debugging of instrumented control systems or similar robotics technology. For instance, the use of modeling languages, test-driven development methods, design reviews, simulators, debuggers, and software documentation tools is nothing new to you. Experience with domain-specific languages or event-based systems is a plus.

\* Strong programming skills in C/C++ are required as well as experience

in one of the following areas: Java, Python, .Net, LabView, Simulink, Distributed Systems Middleware, Shell scripting, CMake.

\* Strong analytical and problem solving skills, and independent decision-making abilities as well as strong communication skills. Working in a team and cooperating with external project partners will be important.

\* Enthusiasm for learning, and willingness to develop non-software skills (robot motion control, learning technology and algorithms, etc.) is needed.

#### CONTACT and APPLICATION

Information about the type of research carried out in the two CoR-Lab groups involved in this job offer can be found at [2] and [4].

Informal inquiries about the relevance of an application can be send to Dr. Sebastian Wrede ([swrede@cor-lab.uni-bielefeld.de](mailto:swrede@cor-lab.uni-bielefeld.de)) or to Prof. Jochen Steil ([jsteil@cor-lab.uni-bielefeld.de](mailto:jsteil@cor-lab.uni-bielefeld.de)). A full application shall consist of (i) detailed resume or CV and (ii) a concise statement why you are interested in this research project.

Please submit your application via email at:  
[sekretariat@cor-lab.uni-bielefeld.de](mailto:sekretariat@cor-lab.uni-bielefeld.de)

Closing date: 15th January 2010. Late applicants will be considered continuously until the position is filled. The ideal starting date is the \*1st of March 2010\* (or as soon as possible after that date).

[1] <http://www.cor-lab.eu/>

[2] <http://www.cor-lab.org/corlab/cms/content/cognitive-systems-engineering>

[3] <http://www.cit-ec.de>

[4] <http://www.cor-lab.de/corlab/cms/content/cognitive-robotics-and-learning>