Universität Bielefeld

CITEC
Cognitive Interaction Technology
Exzellenzcluster
Universität Bielefeld

The Biomechatronics Group & CITEC at Bielefeld University, Germany

Position as research assistant (PhD student or Post-Doc) in Biorobotics

Availability: a.s.a.p.

For the new large scale project EICCI (Embodied Interaction as a Core of Cognitive Interaction) the Biomechatronics Group and the Center of Excellence "Cognitive Interaction Technology" (CITEC) of Bielefeld University (Germany) invites applications for

a position as research assistant (PhD student or Post-Doc)

for the duration of up to three years

Research Environment:
The position on offer is embedded into an excellent interdisciplinary environment with intensive contacts to various facilities and workgroups of Bielefeld University and the Center of Excellence in Cognitive Interaction Technology, CITEC. The project consortium of the large scale project EICCI comprises four engineering labs and four neuroscience labs which bring together strong expertise in the field of Biomechatronics, Sensory Systems, Motor Control, and Optimisation.

What do we expect?
You will be working in a young and international team comprising physicists, engineers, computer scientists, neuroscientists and behavioural physiologists. Accordingly, your English communication skills should be very good.
For the project we look for a candidate with a Master degree in computer science, mechatronics or electronics/electrical engineering with strong mathematical skills and an inclination towards robotics and electronics design.
Experience/interest in low-level software development for physical hardware (e.g. C in the context of embedded systems) to maintain and advance the newly developed hexapod robot HECTOR is essential. In addition, the candidate should be able to familiarise him- or herself with the software framework of HECTOR's dynamics simulation (C++).

EICCI-Project background and task overview:
The project is devoted to investigate the foundation of intelligent, embodied interaction of a walking agent as a basis for autonomous behaviour. It is pursuing a bottom-up approach, equipping a dexterous, six-legged robot with smart body mechanics, sensory modalities of different spatial ranges (from proprioception to vision), and de-centralised control structures. Emphasis will be given to the integration of multimodal sensorisation and mechanical compliance. The common demonstrator platform of the project is the hexapod robot HECTOR, a unique Bielefeld-designed and –built platform. This platform is copied in a virtual dynamics simulation environment (based on the Open Dynamics Engine) which uses the same communication framework as the real robot. A parallel development of physical and virtual agent allows to tackle a broad variety of research questions.
The successful candidate will be member of CITEC (and CITEC graduate school, if applicable) and integrated into the Biomechatronics group. He or she will be introduced to the robot hardware as well as the simulation environment of the hexapod robot. The main field of work will focus on the further development and operation of the physical robot

platform HECTOR and the integration of new aspects into the dynamics simulation. Research questions contain topics like the control of compliant interactions, situation-dependent controller adaptation for walking (posture and gait adaptation) and sensor integration. The tasks will be conducted in tight cooperation with the project partners.

What do we offer?
We offer a position to do research in a stimulating environment with excellent facilities for soft- and hardware engineering in robotics as well as in embedded systems (e.g. different software development environments, CAD development tools for PCB-design and the design of mechanical parts, complete tool chain from CAD/CAM to production, access to an excellent mechanical workshop, and the biomimetic robot platform HECTOR). The Biomechatronics group is cooperating with other CITEC groups in Bielefeld. You will be a member of the CITEC graduate school and have the opportunity to interact there with researchers from a wide range of disciplines comprising computer science, engineering, biology, psychology, and robotics.

How to apply?
Information about the lab in general can be obtained from https://www.cit-ec.de/. For further inquiries about the project, please contact: Dr. Axel Schneider (axel.schneider@uni-bielefeld.de), Jan Paskarbeit (jan.paskarbeit@uni-bielefeld.de).
Your application should comprise a letter outlining your academic education and past research, your motivation for this position and your specific experience (max. 2 pages), CV and transcripts as well as contact details of 2-3 referees. Please submit your application in a single pdf file via e-mail to Dr. Axel Schneider (see above). Applications will be considered until the position is filled.

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

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