Postdoc position in machine learning for robot movement control

ERC Starting Grant Project CONT-ACT
Control of contact interactions for robots acting in the world

Movement Generation and Control Group
Max-Planck Institute for Intelligent Systems (Tübingen)

RESEARCH PROJECT
Contact interaction during legged locomotion and manipulation creates extremely rich and high-dimensional, but structured sensory signals with complicated temporal patterns. The structure inherent to contact interaction can be exploited to learn sensory models of interaction that can be used 1) to automatically synthesize optimal controllers directly in sensor space and 2) to infer and predict the state of complex locomotion and manipulation tasks (i.e. robot+observable part of the world).

The successful applicant will conduct research to understand how high-dimensional sensory information (in particular touch and force sensing) during contact interaction can be optimally exploited to learn such models of interactions to achieve both goals using machine learning and time series analysis techniques.

This research position is part of the ERC Starting Grant Project CONT-ACT that aims at developing a consistent framework for motion generation and control centered around contact interactions, where an efficient use of sensory information drives the development of high-performance, adaptive and robust planning and control methods.

IDEAL CANDIDATE
The ideal candidate is passionate about the problem of creating “truly” autonomous machines capable of performing complex manipulation and locomotion tasks in unknown environments. He/she has a strong background in machine learning or a related field (data representation, time varying data, model learning, dimensionality reduction, etc) and understands the challenges specific to robot movement planning and control. We are looking for ambitious candidates with a strong research record, a demonstrated experience in leading independent research and excellent communication and writing skills. An excellent track record in machine learning research is required.

DETAILS
Duration: the initial appointment duration is 1 year (renewable up to 3 years)
Starting Date: June 1st or later
Evaluation of candidates starts on receipt of the applications and will continue until the position is filled (see http://www-amd.is.tuebingen.mpg.de/~righetti/website/#openpositions for update).
For questions please directly contact Ludovic Righetti (ludovic.righetti AT tuebingen.mpg.de).

HOW TO APPLY
Quoting reference number 20.15, please send your CV (highlighting your two most significant publications), a letter of motivation including a statement of research interests (limited to 2 pages), the name of 2 referees and a link to your PhD thesis to ludovic.righetti AT tuebingen.mpg.de. Please send all documents in PDF format.

WHAT WE OFFER
The Movement Generation and Control Group (http://www-amd.is.tuebingen.mpg.de/~righetti/website/) is part of the Autonomous Motion Department at the Max-Planck Institute for Intelligent Systems. We offer a unique and very stimulating international research environment, many collaboration opportunities within the institute with top researchers in robotics, machine learning and perception as well as close collaboration opportunities with laboratories around the world. The candidate will have access to excellent research facilities including state of the art robotic hardware (in particular a Sarcos Humanoid Robot and a KUKA-LWR bimanual manipulation platform). The postdoc position comes with an attractive salary and social benefits. The working language at MPI-IS is English.

The Max-Planck Society is committed to increasing the number of individuals with disabilities in its workforce and therefore encourages applications from such qualified individuals. The Max-Planck Society seeks to increase the number of women in those areas where they are underrepresented and therefore explicitly encourages women to apply.

The Max-Planck-Society is one of the world’s premier places to conduct visionary, high-risk, long term, and fundamental research. The Institute for Intelligent Systems (http://is.tuebingen.mpg.de/) has a strong interdisciplinary approach to understanding the principles of perception, action and learning in autonomous systems that successfully interact with complex environments.

Tübingen is a vibrant city located 30km south of Stuttgart, the capital of Baden-Württemberg and is often referred as one of the cities with the highest quality of life in Germany. It is home to one of the most famous and oldest universities in Germany. Its central location in Europe makes it easily accessible from most major European cities.