



Open PhD Positions at the AASS Learning Systems Lab

Motion learning of human manipulation skills

Open PhD Position

A new 3-year PhD position is available at the AASS Learning Systems Lab, Örebro University, Sweden. This position is fully-funded within the EU project HANDLE.

Örebro University

The University of Örebro (<http://www.oru.se>) is a young university currently enrolling more than 14000 students. It is located in Örebro, a city with 100'000 inhabitants, which is situated in central Sweden at 59°16'N 15°13'E. More information about Örebro can be found, for example, at <http://en.wikipedia.org/wiki/Örebro>.



The AASS Learning Systems Lab

The Centre for Applied Autonomous Sensor Systems (AASS Research Centre, <http://aass.oru.se>) carries out multi-disciplinary research at the intersection of robotics, machine learning, artificial intelligence, computer vision, computer science, and measurement technology. The research and human environment at AASS is young and enthusiastic. Researchers come from different countries and have different scientific and cultural backgrounds. AASS also frequently hosts international researchers and is involved in several international projects. This means that, particularly in the HANDLE project, enrolled PhD students will have the opportunity to travel and to cooperate with people in other countries.



The Learning Systems Lab is one of three research groups within AASS. Our research is recognized world-wide with its focus generally on the development of algorithms and robotic/sensor systems for real-world tasks. Some of the main directions are: Teaching-by-Demonstration, Dexterous manipulation, Robotic Map Learning and Safe Operation in Dynamic Shared Environments. Further information can be found at <http://www.aass.oru.se/Research/Learning>. Currently, the staff of the Learning Systems Lab includes 6 PhD students, 5 postdocs and 3 professors.

PhD Studies

The major part of the PhD studies will be dedicated to research in the area of Dexterous manipulation. The aim is to investigate how human strategies for dexterous manipulation can be modelled and transformed into motion primitives for robotic grasping and in-hand manipulation for a 5-fingered dexterous robot hand. Thus, the following related problems will be addressed: motion capturing of manipulation skills from human demonstrations, modelling and generalization of hand motion patterns and development of motion primitives for a dexterous robotic hand.

The enrolled PhD student will be involved in the EU project HANDLE (www.handle-project.eu) and in other relevant projects at the Learning systems lab. Apart from working towards the PhD thesis, the enrolled PhD student will be involved in the project work of the mentioned projects, which is expected to include occasional research visits of our European partners.

Prerequisites and Application Process

Apart from interest in the topic and solid programming skills, applicants should have the equivalent of a Masters degree in an appropriate field (for example: Robotics, Control Engineering and Computer Science). Previous experience with robot manipulators is a plus. It is not necessary to be familiar with the Swedish language but proficiency in written/spoken English is mandatory.

To apply for the position, please send a motivation letter along with an updated CV (including at least two academic references) by e-mail to Boyko Iliev (boyko.iliev@oru.se). Applications can be sent immediately and will be considered until the position is fixed.

We are looking forward to *your* application!



The HANDLE Project

The HANDLE project aims at understanding how humans perform the manipulation of objects in order to replicate grasping and skilled in-hand movements with an anthropomorphic artificial hand, and thereby move robot grippers from current best practice towards more autonomous, natural and effective articulated hands.

This project will focus on technological developments and, in addition, research fundamental multidisciplinary research aspects in order to endow the proposed robotic hand with advanced perception capabilities, high level feedback control and elements of intelligence that allow recognition of objects and context, reasoning about actions and a high degree of recovery from failure during the execution of dexterous tasks.

More information: <http://www.handle-project.eu>

Practical Information – PhD Studies in Sweden

PhD students in Sweden are University employees and they have all the social and financial rights of other employees. Among these: a fixed monthly salary adequate to the cost of living in Sweden, inclusion in the Swedish social security system, and at least 28 days of paid vacation each year. These conditions are guaranteed for three years as long as the requirements for the PhD studies are fulfilled.

PhD students in Sweden have to take advanced courses during their study program. These are typically technical courses relevant to their research project, but may also be courses about other related disciplines, including scientific methodology and project management. Courses at AASS are meant to provide students with a unique educational background in autonomous sensor systems.

PhD candidates in Sweden must devote up to 20% of their time to institutional work. This work typically consists in helping with the undergraduate education. The percentage of time spent with institutional work is added to the total duration of the PhD studies.

In summary, the PhD students at AASS will be doing four sorts of things during their PhD: work on their research project; take graduate courses; contribute to undergraduate education; and participate in the scientific life of AASS and of the international community.

More information about the PhD studies at AASS can be found under

<http://www.aass.oru.se/Research/Learning/openphdposfaq.html>.

More Information

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HANDLE Project:	http://www.handle-project.eu
Learning Systems Lab:	http://www.aass.oru.se/Research/Learning/index.html
AASS:	http://www.aass.oru.se
PhD studies at AASS:	http://www.aass.oru.se/Research/Learning/openphdposfaq.html
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