

Ph.D. Studentship:

Deep Reinforcement Learning for Robot Perception, Reasoning and Interaction

Applications are invited for a three year Postgraduate Research Studentships, supported by the School of Engineering and Applied Science to be undertaken within the Computer Science Research Group at Aston University, Birmingham, UK. The successful applicant will join an established experimental group working on artificial perception and machine learning towards human-robot interaction. The position is available to start in October 2018 (subject to negotiation).

Background of the Project: The primary goal of this project is to investigate and develop techniques to endow a robot with cognitive and social skills, such that the robot is able to interact with human beings and objects in human environments in a fluid and socially acceptable manner. With that in mind, it is expected that the Ph.D. candidate will design and develop an approach based on reinforcement learning in which a robot can autonomously learn to adapt its strategy to interact with humans and objects. In this context, the robot with its perception and learning capabilities will focus on how to interact to humans or objects in a given context, learning from its own experiences and, to do so, techniques such as recurrent neural networks, long-short term memory and Q-learning can be alternatives to find an optimal action-selection policy. As an important aspect of the learning to be carried out, it is to learn from a synthetic environment simulating human behaviours and/or objects, and through transfer learning, the knowledge acquired from that interaction can be applied to a real-world context, thus avoiding long periods of interaction with humans and objects in a real environment. The possible applications/contexts that can be considered, but not limited to, are: robot learning by imitation in manipulation tasks, robot (re-)actions based on human behaviour and emotional expressions; etc.

Financial Support: This is a full studentship for home/EU students, which includes a fee bursary to cover the home/EU fees rate plus a maintenance allowance. Applicants from outside the EU may apply for this studentship, however will need to pay the difference between the 'Home/EU' and the 'Overseas' tuition fees.

Person Specification: The successful applicant should have a first class or upper second class honours degree or equivalent qualification in Computer Science or Electrical Engineering or related degrees. Preferred skill requirements include knowledge of machine learning, artificial perception or robotics. We would particularly like to encourage application from women seeking to progress their academic careers. Aston University is committed to the principles of the Athena SWAN Charter, recently recognised by a prestigious Silver Award to EAS, and we pride ourselves on our vibrant, friendly and supportive environment and family atmosphere.

Contact: For informal enquiries about this project contact Dr Diego Faria d.faria@aston.ac.uk or Dr George Vogiatzis g.vogiatzis@aston.ac.uk

How to Apply: Please access <https://jobs.aston.ac.uk/Vacancy.aspx?ref=R180168> and go through the online application form. If you require further information about the application process (online form), please contact the Postgraduate Admissions team at seasres@aston.ac.uk