Machine Learning, Decision-making and Stochastic Control

The Project

We are seeking applicants for a fully funded PhD in the areas of machine learning, decision-making, and stochastic control. Recent advancements in Artificial Intelligence have resolved challenges once deemed insurmountable just a decade ago. The integration of machine learning, decision-making, and stochastic control is central to this breakthrough.

This project will push the boundaries of Reinforcement Learning by investigating how agents can continuously learn and adapt over time; how they can autonomously develop and flexibly apply an ever-expanding repertoire of skills across various tasks; and what representations allow them to do this efficiently. Addressing these questions is crucial for creating AI systems that, despite limited computational resources, can sustain autonomous learning and adaptation in ever-changing environments.

The selected candidate will have the opportunity to master and contribute to the cutting-edge techniques in deep reinforcement learning, incorporating principles from probabilistic machine learning, such as information theory, intrinsic motivation, and open-ended learning frameworks. The project will employ computer games as benchmarking tools and/or apply its findings to robotic systems (in simulations or on real-world platforms), including manipulators, intelligent autonomous vehicles, and humanoid robots.

This PhD project offers a unique chance to explore some of the most profound and fascinating questions in artificial intelligence today, providing the opportunity to make a significant contribution to a field at the forefront of AI research.

Requirements

We are looking for a student who is motivated and passionate about Artificial Intelligence. A background in computer science or mathematics, together with strong programming skills, are essential requirements. Experience in reinforcement learning, deep learning or robotics are desirable and will be considered a plus during the selection process. The applicant will be expected to disseminate her/his work publishing scientific articles and/or participating at international conferences. To be fluent in English is mandatory.

Application

Interested applicants should contact Dr. Nicola Catenacci Volpi (n.catenacci-volpi@herts.ac.uk) to discuss the project, the PhD program at the University of Hertfordshire and details of the application process.