Symposium Artificial Intelligence for Science, Industry and Society

Sunday 20 October 2019 - Friday 25 October 2019

Scientific Programme

We organize an international symposium that will address the following topics:
Reinforcement learning – from pattern recognition to experience-driven decision making;
Natural language processing, simultaneous translation;
The teaching of machine learning and quantum computing at different levels;
Computing resources requirement in different domains and scientific disciplines;
The future of large data analytics;
Collaborative systems and human-machine interactions;
Algorithmic game theory and computational social choice;
Quantum and classical algorithms for deep learning and AI;
Perspectives beyond the current horizon.

The symposium will devote special attention to the following ethical and societal issues:
Transparency: to which extent is it possible to explain and verify the algorithms;
Choice assistance: can AI provide appropriate support for user choice?
Governance and control: can AI powered systems still be controlled by humans?
Security, robustness and dependability of AI networks;
Safety: how to make sure that AI systems do not cause harm to humans or property;
Privacy: how to ensure data protection in the AI world;
Ethics and accountability: respect of human values and attribution of responsibility;
Policy-regulated access to data – what data is accessible to machines, and under what licencing arrangements (an important consideration given that data is a vital input to the process of machine learning);
New policies and regulatory tools to be developed in order to address new needs related to digitalisation, open science, and open innovation.

Artificial intelligence, data science, and machine learning

Techniques and algorithms in AI, data science, and machine learning. This track also covers the use of accelerators like GPUs, TPUs, or FPGAs. This track is aimed at the more theoretical side of such topics, while applications to specific areas should be submitted to the other tracks.

Data access and infrastructure

Issues providing access to data for the development and testing of algorithms and applications, as well as related infrastructure.

Machine vision and robotics

Machine vision, image classification and recognition, robotics, self-driving cars, and similar.

Societal challenges

AI application to resolving societal challenges such as climate change, biodiversity, aging society, decarbonated mobility, reducing poverty or others among the UN sustainable development goals. Social relevance and impact of machine learning. Applications in government. Public and business administration.

Physics and astronomy

Applications of machine learning in high energy physics, nuclear physics, astronomy, astro-physics, astro-particle physics, and other areas of physics.

Medicine, chemistry, pharmacology, and the life sciences

Medicine, biology, genetics, bioengineering, chemistry, pharmacology, and other areas of life sciences.

Earth sciences and humanities

Applications in geography, geology, oceanography, meteorology, linguistics and other areas of social science and humanities.

Quantum computing

Quantum computing in general and applied to artificial intelligence and machine learning.