

Call 2013 Topics

Note: the short topic descriptions below are provided in view of the Conference. The full topic descriptions, to appear in the Call announcement, will result from the Conference.

1. Adaptive Machines in Complex Environments

Autonomous systems are set to play an ever-increasing role in society, for example, in service robotics, assistive technologies, advanced manufacturing and many other sectors. To perform effectively and safely, these autonomous systems must be adaptive and perceptive to human requirements. Research in this topic addresses this challenge by developing autonomous systems that are perceptive to human requirements and that have the ability to continuously learn, adapt and improve in 'real world' complex environments. These systems should be capable of continuous learning, such that they are able to work alongside humans in a reliable, safe and trust-worthy manner.

Keywords:

- Autonomous and semi-autonomous agents
- Artificial intelligence
- Machine learning
- Predicting, interpreting and responding to human emotions
- Human-machine interaction
- Learning by imitation, observation and reinforcement
- Reliability, safety and security
- Provenance and trust
- Ubiquitous computing

2. Heterogeneous Distributed Computing

Heterogeneous distributed systems have the potential to increase computational performance while reducing energy consumption. The increase in the number of devices per capita, and the challenge of processing ever-increasing amounts of data, require new approaches involving researchers working across system levels. For example, hardware and software researchers working together to develop new approaches leading to improved performance, optimisation, reliability, fault tolerance and energy efficiency of distributed systems.

Keywords:

- Parallel computing
- Distributed architectures
- Performance
- Optimisation
- Reliability
- Fault tolerance
- Energy efficiency

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