

Intelligence in the Cyber-Physical Revolution

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ABSTRACT

The emergence of non-trivial embedded sensor units and cyber-physical systems has made possible the design and implementation of sophisticated applications where large amounts of real-time data are collected, possibly to constitute a big data picture as time passes. Within this framework, intelligence mechanisms play a key role to provide systems with advanced functionalities. Intelligent mechanisms are needed to guarantee appropriate performances within an evolving, time invariant environment, optimally harvest and manage the residual energy, identify faults within a model-free framework, solve the compromise between output accuracy and computational complexity.

The talk will show how the above aspects of intelligence are needed to boost the next generation of cyber-physical-based and Internet of Things applications, generation whose footprint is already around us.



Cesare Alippi received the degree in electronic engineering cum laude in 1990 and the PhD in 1995 from Politecnico di Milano, Italy. Currently, he is a Full Professor of information processing systems with the Politecnico di Milano. He has been a visiting researcher at UCL (UK), MIT (USA), ESPCI (F), CASIA (RC), USI(CH), A*STAR (SIN).

Alippi is an IEEE Fellow, Vice-President education of the IEEE Computational Intelligence Society, member of the Board of Governors of the International Neural Networks Society, Associate editor (AE) of the IEEE Computational Intelligence Magazine, past AE of the IEEE-Trans Instrumentation and Measurements, IEEE-Trans. Neural Networks, and member and chair of other IEEE committees.

In 2016 he received the INNS Gabor award and the IEEE Transactions on Neural Networks and Learning Systems outstanding paper award; in 2004 the IEEE Instrumentation and Measurement Society Young Engineer Award; in

2011 has been awarded Knight of the Order of Merit of the Italian Republic; in 2013 he received the IBM Faculty Award.

Among the others, Alippi was General chair of the International Joint Conference on Neural Networks (IJCNN) in 2012, Program chair in 2014, Co-Chair in 2011 and General chair of the IEEE Symposium Series on Computational Intelligence 2014. Current research activity addresses adaptation and learning in non-stationary environments and Intelligent embedded systems. Alippi holds 5 patents, has published in 2014 a monograph with Springer on “Intelligence for embedded systems” and (co)-authored about 200 papers in international journals and conference proceedings.