

PerAda Special Session

Adaptation Strategies for Pervasive Adaptation

Call for Papers

The field of Pervasive Adaptation - PerAda – is concerned with researching novel design paradigms for massive-scale pervasive information and communication systems which will enable a technology rich-future in which computing is truly ubiquitous. Such systems will operate in an ever-changing networked environment and will have to continuously and autonomously organise and adapt to highly dynamic and open technological and user contexts.

This Special Session addresses the use of *adaptation strategies* in pervasive systems. Adaptation strategies, which may be bio-inspired, stochastic or otherwise, will need to operate over different time scales and speeds, ranging from short term adaptation to long-term evolution. This impacts the entire spectrum of research in Pervasive Systems in that it will imply changes in software, hardware, protocols and/or architecture at different levels of granularity and abstraction. Adaptation must occur at the level of individual devices as well as in “tribes” of artefacts which are formed on an ad-hoc basis; this is compounded by that fact that the composition and location of systems is dynamic and continuously subject to change. Evolution and adaptation in such environments poses a number of challenges. Evolution must occur within the boundaries imposed by ensuring trust and security in the networks, and further more, the potential for “runaway evolution” must be addressed: any decentralised self-organising system which enables information or ideas to be propagated is vulnerable to being overcome by memes that are prevalent because of their ability or tendency to reproduce rather than because they are useful. A meme might be a piece of information, some code, a grouping or structure of entities etc. The high prevalence of some less useful applications and groupings in *Facebook* is an example of this. This behaviour in the system may result in an undesirable signal/noise ratio or ultimately to bandwidth saturation. New decentralised mechanisms need to be developed to prevent, monitor, evaluate and control these memes with a viral (but not necessarily malicious) nature.

Papers are welcomed which includes any aspect of adaptation in a Pervasive Environment. We welcome both technical and position papers. Examples of topics include, but are not limited to:

- a) Evolution/Adaptation of hardware in pervasive systems
- b) Evolution/Adaptation of software
- c) Evolution of societies of artefacts
- d) Runway evolution
- e) Adaptation on multiple time-scales
- f) Novel paradigms for continuous adaptation of devices
- g) Exploitation of memory mechanisms for efficient adaptation
- h) Human-intervention in adaptation and evolution of devices
- i) Enabling self-* properties in pervasive systems.

Submission Details:

Please see instructions at www.cec-2009.org

Important Dates:

Submission of Papers: November 1st 2008

Notification of Acceptance: January 16th 2009

Final copy: February 16th 2009

Special Session Chairs:

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