

Special Issue on Brain-Inspired Intelligent Systems for Daily Assistance

CALL FOR PAPERS

Ambient intelligence refers to a framework designed to augment the level of interaction between individuals and their environment. Typically sensors are positioned within an environment providing the acquisition of continuous real-time data. The data are typically consumed by an agent, which responds to the sensor input(s) according to some prescribed rule base. The ultimate goal is to provide a person/agent with information that enhances the ability of the person/agent to interact more effectively within a prescribed environment. Typical applications include remote healthcare monitoring, robot monitoring and interaction at home, complex decision making about emotions, and behaviour in humans and animals.

The confluence of the ambient intelligence, ubiquitous computing, and related domains on the one hand and various cognitive computing, neural-inspired algorithms (e.g., deep ANNs, deep RL), and brain-intelligent systems on the other hand will assist us in redefining person-interface cooperativity. More generally, we are interested in discovering how these frameworks, when imbued within a social neuroscience perspective, could enhance the quality of life either at home or in a clinical environment for all individuals. For example, in robotic assistance, better and faster algorithms for learning, self-organization, and decision making can shorten the critical time from detection to cognitive manipulation of the environment, while dependent people are at risk. These can be people with acquired brain injuries. In addition, accurate emotion recognition systems of distressed individuals either adults or children who cannot self-report information due to physical deformation, shyness, or anxiety could result in more reliable diagnostics in a clinical environment.

This special issue is expected to present original work on algorithms and neural-inspired systems that flexibly adapt to new learning tasks, learn from the environment using multimodal signals (e.g., neural, physiological, and kinematic), and produce autonomous adaptive agencies, which utilize cognitive and affective data, within a social neuroscientific framework. These agencies should be capable of acquiring data from a variety of inputs/sensors, generating models, which become mutually interactive and assistive to all members of a social construct (such as a classroom, hospital ward, encounter group, and a family at home).

Potential topics include but are not limited to the following:

- ▶ New biological neural network models and training algorithms
- ▶ Innovative deep learning algorithms and architectures
- ▶ Progressive learning algorithms
- ▶ Complex environments
- ▶ Neural networks social robotics
- ▶ Self-organization, unsupervised, and semisupervised learning
- ▶ Brain-computer interfaces and assistive technologies
- ▶ Ambient assistive living (AAL)
- ▶ Innovative brain-neural computer interfaces
- ▶ Emotion recognition models and systems

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/cin/eql/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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