

Call for Contributions

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Submission URL:

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Please select Track Preference as **FUCOMA**

Special track

FUCOMA: Fuzzy Cognitive Maps

Chair and Coordinator:

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along with

ICAS 2017, May 21 - 25, 2017 - Barcelona, Spain

The Thirteenth International Conference on Autonomic and Autonomous Systems

<http://www.iaia.org/conferences2017/ICAS17.html>

The information absorbed by humans, quite complex processes, are usually imprecise or approximate. The strategy adopted is usually imprecise in nature with no or partial knowledge of the problem, and generally possible to be expressed in linguistic terms. Thus, through concepts of fuzzy logic, it is possible to model this type of information. However, information can also be acquired from the operation data and / or operation of a system. This type of manipulation can be done through techniques of identification and modeling. Among these techniques, Artificial Neural Networks are distinguished by the ability to process massive data in a parallel way, and more recently, via Extreme Learning Machines.

In recent years, the Fuzzy Cognitive Maps (FCM) based on FCM Theory has become a proper tool for designing knowledge-based systems with interpretable features. Essentially, a FCM is an information network where graph nodes represent objects, states, concepts or entities of the investigated system and comprise a precise meaning for the problem domain. Such concepts are equivalent to neurons in connectionist models and are connected by causal relationships that normally take values in the range $[-1, 1]$. On the other hand, the Fuzzy Cognitive Map is a tool for modeling human knowledge, obtained through linguistic terms, inherent to Fuzzy systems, but with a graphical structure like that of Artificial Neural Networks (ANN), which facilitates data processing and has training and adaptation capacity. In this context, a FCM can be considered a hybrid model (fusion of two approaches in intelligent systems) with a strong degree of iteration, in which it is not possible to identify and separate the structures of the areas of origins, only the construction semantics. In this context, Fuzzy cognitive maps are gaining popularity and have been applied in a wide range of areas such as social studies, emotion modeling, artificial life, commerce temporal prediction, Multi-Agents Systems] autonomous robotics, and pedagogical area. As compared with many classic knowledge models, fuzzy cognitive map has several advantages. Due to the difficulty of the temporal treatment of the information in classic FCM (all the relations of cause and effect occur at the same time), there were evolutions of the FCM, such as in autonomous mobile robotics and process control, respectively ED-FCM (Event Driven-Fuzzy Cognitive Maps) and DCN (Dynamic Cognitive Networks). The rare some formal adaptation sof the original FCM is via a new tool called TAFCM (Timed Automata Fuzzy Cognitive Maps) that can be used in intelligent environments.

In addition to the research areas cited, there is a wealth of literature from the fields of cognitive science, psychology, and systems science that discusses the use of individuals' knowledge structures as representations or abstractions of real world phenomena. However, before one can begin a discussion of how Fuzzy Cognitive

Mapping (FCM) contributes to these fields, one must first reconcile the various definitions and approaches in the literature used to characterize internal cognitive representations of the external world.

In this special track, the objective of contributions is

- Understanding the theoretical foundations of concept mapping, cognitive mapping, mental models
- Understanding the notion of “expertise” in the elicitation of a subject’s knowledge on FCM construction
- Constructing, interpreting and envisioning new original evolutions or adaptations proposals of the classic FCM.

Important Datelines

- Inform the Chair: As soon as you decided to contribute
- Submission: ~~February 3~~ **April 13**
- Notification with comments for camera-ready: ~~March 3~~ **April 20**
- Registration: ~~March 18~~ **April 29**
- Camera ready: ~~April 9~~ **April 29**

Contribution Types

- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaria.org]
- Presentations: slide only [slide-deck posted on www.iaria.org]
- Demos: two pages [posted on www.iaria.org]

Paper Format

- See: <http://www.iaria.org/format.html>
- Before submission, please check and comply with the editorial rules: <http://www.iaria.org/editorialrules.html>

Publications

- Extended versions of selected papers will be published in IARIA Journals: <http://www.iariajournals.org>
- Print proceedings will be available via Curran Associates, Inc.: <http://www.proceedings.com/9769.html>
- Articles will be archived in the free access ThinkMind Digital Library: <http://www.thinkmind.org>

Paper Submission

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Registration

- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at <http://www.iaria.org/registration.html>

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