

Special Session on Formal Modeling for Machine Learning Techniques

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Formal methods can simplify the tasks of creating and understanding complex systems, with concomitant improvements in quality and correctness. Formal methods have been proved to be useful in a number of computing sub-disciplines. Indeed, the methods and tools of relevance to modeling and verification of systems have been studied and developed in various areas; formal approaches have been recognized to handle the distributed as well as concurrent scenarios and they are well suited for modeling dynamic systems which have components working in parallel and in an asynchronous way.

This special session will play an important role in transferring knowledge between research areas like machine learning and intelligent techniques, data and information fusion, multiple classifiers and prediction systems, formal modeling, modelling and processing of uncertainty in pattern recognition and decision support systems. Formal approaches can be extended for building models of cognition for applications dealing with approximate reasoning, learning, refinement of knowledge, and control and co-ordination of tasks.

This special session invites submissions from researchers and practitioners working in areas of formal modeling and verification of machine learning algorithms, systems and applications. The topics of interests are related to the use of formal methods in the following areas:

- knowledge management,
- Petri nets for Machine Learning,
- brokering & directory services,
- relaxed transactions and workflows,
- concurrent O-O & actor programming,
- mobile computing,
- business process management,
- information retrieval,

- filtering, & browsing,
- resource discovery,
- predictive modeling and optimization,
- pattern recognition and classification,
- regression and forecasting,
- models of data and measurements,
- feature selection,
- soft computing,
- learning theory.

Special Session Organizers:

1. **Dr. Farooq Ahmad, Department of Computer Sciences, COMSATS Institute of Information Technology, Lahore, Pakistan.**
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Short Biography: Dr. Farooq Ahmad is currently an Associate Professor in the Department of Computer Science, COMSATS Institute of Information Technology, Lahore, Pakistan. He has numerous publications in reputed international journals. He is an Editor of VAWKUM Transaction on Computer Science and Software Engineering Journal and has been the vice-chair of IEEE Computer Society Lahore Section for 2011-12. He has been the conference co-chair as well as an invited speaker in several national and international conferences.

2. **Prof. Sher Afzal Khan, Faculty of Computing and Information Technology in Rabigh, King Abdul Aziz University Jeddah, KSA,**
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Short Biography: Dr. Sher Afzal Khan is currently working as a full Professor in the Faculty of Computing and Information Technology in Rabigh, King Abdul Aziz University Jeddah, KSA. He has been the Chairman of the Department of Computer Science, Abdul Wali Khan University Mardan, Pakistan. He is mentor, main organizer and a Conference Chair of International Conference on Computational and Social Sciences (ICCSS), for First ICCSS 2013, Second ICCSS 2014, and Third ICCSS 2015 [ICCSS 2015](#)
 Guest Editor: Abstract and Applied Analysis ; Leading Guest Editor: Journal of Applied Mathematics
 Chief Editor: VAWKUM Transactions on Computer Sciences; Chairman: Virtual Foundation for Advancement of Science and Technology (VFAST)

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