

Proposal for Special Session on
“Computational Intelligence in Scalable Machine
Learning Techniques for Genomics Data”
IEEE Symposium Series on Computational Intelligence
(IEEE SSCI 2018)
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Organized By

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Aims and Scope

Due to the advances in sequencing technology, the amount of the plant genomic and associated data is growing at an exponential rate. Whole genome sequencing projects have generated huge genomic data including soybean. Soybean is one of the most important oilseed crops in the world. Soybean contains 40 % protein and 20 % oil and is a most economic source of high quality protein. It generates income for the country by exporting soybean by-products and animal feed. There are major challenges and difficulties in analyzing huge data from plants with large and complex genomes such as soybean. Large-scale sequencing projects are generating the huge amount of protein and DNA sequence data. Data storage limitations are now eclipsed by problems that limit the curator’s ability to compile, analyze, and interpret data in a useful and timely manner. For the accurate analysis of huge genomics data, advanced technologies or methods are needed that solve the issues of computational time and extract valuable information, in a realistic and practical time frame, without compromising the quality of models. Thus, this arises the need to innovate scalable methodologies which address the important issues of data science involving data analysis and machine learning for handling huge genomics data through various soft computing techniques such as clustering, classification, and feature selection are applied in bioinformatics area. By adopting soft computing techniques intelligent scalable algorithms are designed, which will be able to effectively analyze the protein and soybean genome by performing classification, clustering, and feature

selection in an optimal sense after adjusting their parameters in an adaptive way to accomplish efficient learning and data analysis.

Topics:

The main topics of this special session include, but are not limited to, the following:

Machine learning methods to handle big data
Clustering and classification for bioinformatics problems
Pattern recognition for genomics
Big data analytics for bioinformatics applications
Genome Data Analysis tools
Cloud/fog computing in Genomics
Application of Genomics data based on health Internet of things

Special Session Organizers:

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Important Dates:

Paper submission due: June 15, 2018
Notification of acceptance: August 15, 2018
Author registration deadline: September 15, 2018

Paper Submission:

The papers should be submitted through IEEE SSCI's submission central. After logging into the submission system, you need to choose Special Session on "**Computational Intelligence in Scalable Machine Learning Techniques for Genomics Data**".

Information for Authors: <http://ieee-ssci2018.org/submission.html>

Information about IEEE SSCI 2018: <http://ieee-ssci2018.org/>

We look forward to receiving your high-quality submissions.

Dr. Aruna Tiwari is currently working as an Associate Professor in the Discipline of Computer Science & Engineering in Indian Institute of Technology Indore since 2012. Her research interests mainly are soft computing, machine learning, specifically with artificial neural networks, fuzzy clustering, evolutionary computation and their applications to bioinformatics, medical diagnosis. She also work in the area of scalable soft computing algorithm for

big data and Hardware realization of Soft computing models. Currently she is working with CSIR-Central Electronics Engineering Research Institute, Pilani for the problems related to hardware realization of Soft computing models. She is member of various research societies like Computer Society of India, IEEE Computational Intelligence Society, Soft Computing research Society.

She has published over 10 referred journals and 21 conference papers of international repute which are IIT Indore affiliated. Dr. Aruna is currently the Principal Investigator of a major research project funded by Council of Scientific & Industrial Research (CSIR).

Dr. Neha Bharill is currently working as an Assistant Professor in the Discipline of Computer Science & Engineering in Indian Institute of Information Technology Dharwad since 2017. Her current research interests include fuzzy sets and systems, Big Data, pattern recognition, data mining, machine learning, scalable machine learning approaches for Genome Identification. She is the member of various research societies like IEEE Computational Intelligence Society and Soft Computing research Society. She has published various refereed journals and conferences of International repute. She is the reviewer of the IEEE Transactions on Cybernetics, IEEE Transactions on Fuzzy Systems, IEEE Transactions on Big Data, Swarm and Evolutionary Computation of Elsevier and the Complex & Intelligent Systems of Springer.