

# The 5<sup>th</sup> International Conference on Extreme Learning Machines (ELM2014) Singapore, December 8 - 10, 2014



Organizer: Nanyang Technological University, Singapore  
Co-Organizers: National University of Singapore; Tsinghua University, China



## Honorary Chair

**Bernard Widrow**, Stanford University, USA

## International Advisory Committee Chair

**Yoon Soon Fatt**, Nanyang Technological University, Singapore

## General Chair

**Guang-Bin Huang**, Nanyang Technological University, Singapore

## Organizing Chairs

**Kay Chen Tan**, National University of Singapore, Singapore

**Fuchun Sun**, Tsinghua University, China

## Program Chairs

**Kezhi Mao**, Nanyang Technological University, Singapore

**Erik Cambria**, MIT Media Laboratory, USA

**Zhihong Man**, Swinburne University of Technology, Australia

**Kar-Ann Toh**, Yonsei University, Korea

## Panel Chair

**Jonathan Tapson**, University of Western Sydney, Australia

## Competition Chairs

**Jonathan Wu**, University of Windsor, Canada

**Stan Z. Li**, Chinese Academy of Science, China

**Chi Man Vong**, University of Macau, Macau

## International Advisory Committee

**Bir Bhanu**, University of California, Riverside, USA

**Stefano Fusi**, Columbia University, USA

**Amir Hussain**, University of Stirling, UK

**Yaochu Jin**, University of Surrey, UK

**Derong Liu**, University of Illinois at Chicago, USA

**Vincenzo Piuri**, Università degli Studi di Milano, Italy

**Marios M. Polycarpou**, University of Cyprus, Cyprus

**José Carlos Príncipe**, University of Florida, USA

**Eugene Santos Jr.**, Dartmouth College, USA

**Jennie Si**, Arizona State University, USA

**Michel Verleysen**, Université catholique de Louvain, Belgium

**Jun Wang**, Chinese University of Hong Kong, China

**Xi-Zhao Wang**, Hebei University, China

**Lihua Xie**, Nanyang Technological University, Singapore

**Zong-Ben Xu**, Xi'an Jiaotong University, China

**Xin Yao**, University of Birmingham, UK

**Zhengyou Zhang**, Microsoft Research, Redmond, USA

**Jacek M. Zurada**, University of Louisville, USA

## Area Chairs

**Jan Chorowski**, University of Wroclaw, Poland

**Zhao Yang Dong**, University of Sydney, Australia

**Manuel Graña**, Universidad del País Vasco, Spain

**Haibo He**, University of Rhode Island, USA

**Qing He**, Chinese Academy of Science, China

**Kang Li**, Queen's University Belfast, UK

**Huaping Liu**, Tsinghua University, China

**Bao-Liang Lu**, Shanghai Jiaotong University, China

**Dacheng Tao**, University of Technology Sydney, Australia

**Min Yao**, Zhejiang University, China

**Jianping Yin**, National University of Defense Technology, China

## Finance Chair

**Qi Cao**, Nanyang Technological University, Singapore

## Webmaster

**Yoan Miche**, Aalto University, Finland

## Call for Papers 1st

Extreme Learning Machines (ELM) aim to break the barriers between the conventional artificial learning techniques and biological learning mechanism. ELM represents a suite of machine learning techniques in which hidden neurons need not be tuned. ELM learning theories show that hidden neurons (with almost any nonlinear activation functions) can be randomly generated independent of training data and application environments, which has recently been confirmed with concrete biological evidences. ELM theories and algorithms argue that "random hidden neurons" capture the essence of some brain learning mechanism as well as the intuitive sense that the efficiency of brain learning need not rely on computing power of neurons. This may somehow hint at possible reasons why brain is more intelligent and effective than computers. ELM offers significant advantages such as fast learning speed, ease of implementation, and minimal human intervention. ELM has good potential as a viable alternative technique for large-scale computing and artificial intelligence.

The main theme of ELM2014 is: **Big Data Analytics and Machine Learning**

Organized by Nanyang Technological University, and co-organized by Tsinghua University and National University of Singapore, ELM2014 will be held in the beautiful island-country of Singapore. This conference will provide a forum for academics, researchers and engineers to share and exchange R&D experience on both theoretical studies and practical applications of the ELM technique and brain learning.

### Topics of interest:

All the submissions must be related to ELM technique. Topics of interest include but are not limited to:

#### Theories

- Universal approximation and convergence
- Robustness and stability analysis

#### Algorithms

- Real-time learning, reasoning and cognition
- Sequential/incremental learning and kernel learning
- Clustering and feature extraction/selection
- Random projection, dimensionality reduction, and matrix factorization
- Closed form and non-closed form solutions
- Multi hidden layers solutions and random networks
- Parallel and distributed computing / cloud computing

#### Applications

- Time series prediction
- Pattern recognition
- Web applications
- Biometrics and bioinformatics
- Power systems and control engineering
- Security and compression
- Human computer interface and brain computer interface
- Cognitive science/computation
- Sentic computing / natural language processing
- Data analytics, super / ultra large-scale data processing

### Paper submission:

All the submissions will go through rigorous peer review. Details on manuscript submission will be given online <http://elm2014.extreme-learning-machines.org> by April 1, 2014.

### Important dates:

Paper submission deadline:	July 1, 2014
Notification of acceptance:	August 1, 2014
Registration deadline:	September 15, 2014