

## Extreme Learning Machine: Learning Without Iterative Tuning

Guang-Bin Huang, Nanyang Technological University, Singapore

2011年11月18日 上午 10:00-12:00, 三教 108

### Abstract:

Neural networks (NN) and support vector machines (SVM) play key roles in machine learning and data analysis. However, it is known that these popular learning techniques face some challenging issues such as: intensive human intervene, slow learning speed, poor learning scalability. This talk will introduce a new learning technique referred to as Extreme Learning Machine (ELM). ELM not only learns up to tens of thousands faster than NN and SVMs, but also provides unified implementation for regression, binary and multi-class applications. ELM is efficient to time series, online sequential, incremental applications. ELM not only produces good results for sparse datasets but also is efficient for large size of applications. From both theoretical and practical points of view, NN and SVM/LS-SVM only produce suboptimal solutions to ELM.

### Biography:



Guang-Bin Huang received the B.Sc degree in applied mathematics and M.Eng degree in computer engineering from Northeastern University, P. R. China, in 1991 and 1994, respectively, and Ph.D degree in electrical engineering from Nanyang Technological University, Singapore in 1999. During undergraduate period, he also concurrently studied in Applied Mathematics department and Wireless Communication department of Northeastern University, P. R. China.

From June 1998 to May 2001, he worked as Research Fellow in Singapore Institute of Manufacturing Technology (formerly known as Gintic Institute of Manufacturing Technology) where he has led/implemented several key industrial projects (e.g., Chief designer and technical leader of Singapore Changi Airport Cargo Terminal Upgrading Project, etc). From May 2001, he has been working as an Assistant Professor and Associate Professor (with tenure) in the School of Electrical and Electronic Engineering, Nanyang Technological University. His current research interests include machine learning, computational intelligence, extreme learning machine, pattern recognition, games, and remanufacturing. He has published 15 full lengths papers in IEEE Transactions and received 1300 SCI citations over his work. He serves as an Associate Editor of Neurocomputing and IEEE Transactions on Systems, Man and Cybernetics – Part B. He is a senior member of IEEE.

**Coordinator:** [Prof. Y. Tan, Phone: 010-62767611, Email: ytan@pku.edu.cn](mailto:ytan@pku.edu.cn)