

-Keynote Speech I-

Machine Learning for Data Classification, Forecasting and Image Retrieval

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Abstract

In recent years, machine learning has been enjoying many successful applications in the entire spectrum of technology. This talk highlights some of our recent research results in machine learning for data classification, forecasting and image retrieval. Our algorithms include convolutional neural networks with thresholding, the compact radial-basis-function (RBF) neural networks, the incrementally-generated fuzzy neural network, the support vector machines with graded resolution, semi-exhaustive feature search and class-dependent feature selection algorithms. We demonstrate our algorithms in various challenging data analytics problems, such as brain trauma diagnosis, electronic chip fault detection, glaucoma diagnosis, EEG signal classification, stock trading and time series prediction, fighter jet response tactics, scanning acoustic microscope image analysis, action recognition in videos, content-based image retrieval, gene selection in microarray data, and face recognition.

Dr. Lipo Wang received the Bachelor degree from National University of Defense Technology (China) and PhD from Louisiana State University (USA). He is presently on the faculty of the School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore. His research interest is artificial intelligent with applications to optimization, communications, image/video processing, biomedical engineering, and data mining. He has 300+ publications, of which 100 are in journals. He holds a U.S. patent in neural networks and a patent in systems. He has co-authored 2 monographs and (co-)edited 15 books. He has 8,000+ Google Scholar citations, with H-index 43. He was keynote speaker for 35 international conferences. He is/was Associate Editor/Editorial Board Member of 30 international journals, including 4 IEEE Transactions, and guest editor for 10 journal special issues. He was a member of the

Board of Governors of the International Neural Network Society, IEEE Computational Intelligence Society (CIS), and the IEEE Biometrics Council. He served as CIS Vice President for Technical Activities and Chair of Emergent Technologies Technical Committee, as well as Chair of Education Committee of the IEEE Engineering in Medicine and Biology Society (EMBS). He was President of the Asia-Pacific Neural Network Assembly (APNNA) and received the APNNA Excellent Service Award. He was founding Chair of both the EMBS Singapore Chapter and CIS Singapore Chapter. He serves/served as chair/committee members of over 200 international conferences. Selected publications can be downloaded at his website:
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