上海交通大学自动化系
Department of Automation
Shanghai Jiao Tong University

系统控制与信息处理教育部重点实验室
Key Laboratory of System Control and Information Processing, Ministry of Education

学术报告会

时间：2013年6月8日(周六)10:00

地点：电院群楼2-406会议室

Neurocomputation for Spatio/Spectro-Temporal Pattern Recognition in Bioinformatics and Ecological Modelling

Prof. Nikola Kasabov

Auckland University of Technology, New Zealand

Abstract:

The talk presents an overview of current methods of computational intelligence (CI) and more specifically – neurocomputation and how they can be used to create adaptive, computational intelligence systems. The methods presented include evolving connections systems (ECOS) and evolving neuro-fuzzy systems in particular demonstrated as a free software system NeuCom (www.theneucom.com). Novel methods of evolving spiking neural networks (eSNN), evolutionary and neurogenetic systems, quantum inspired evolutionary computation, rule extraction from eSNN are presented and demonstrated as a free system EvoSpike (http://ncs.ethz.ch/projects/evospike/). The methods above are suitable for incremental adaptive, on-line learning from spatio-temporal data and data mining. They are demonstrated on several applications in bioinformatics and ecological and environmental modeling, such as establishment and spread of invasive species. eSNN have proved superior for spatio-and spectro-temporal data analysis, modeling and pattern recognition Future directions are discussed.

Biography:

Prof. Nikola Kasabov, Fellow IEEE and Fellow of the Royal Society of New Zealand, is the Director of the Knowledge Engineering and Discovery Research Institute (KEDRI), Auckland. He holds a Chair of Knowledge Engineering at the School of Computing and Mathematical Sciences at Auckland University of Technology. Kasabov is a Past President and Governors Board member of the International Neural Network Society (INNS) and also of the Asia Pacific Neural Network Assembly (APNNA). He is a member of several technical committees of IEEE Computational Intelligence Society and a Distinguished Lecturer of the IEEE CIS. He is Editor-in-Chief of the Springer journal Evolving Systems. His main research interests are in the areas of neural networks, intelligent information systems, soft computing, bioinformatics, neuroinformatics. He has extensive academic experience at various academic and research organisations in Europe and Asia, including: TU Sofia, University of Essex, University of Otago, Shanghai Jiao Tong University (Honorary Guest Professor), ETH/University of Zurich (EU Marie Curie Fellowship). Prof. Kasabov has received the APNNA 'Outstanding Achievements Award', the INNS Gabor Award for 'Outstanding contributions to engineering applications of neural networks', the Bayer Science Innovation Award, the APNNA Excellent Service Award, and others.