International Workshop on Computational Intelligence, Pattern Recognition, and Classifier Systems

Saturday 10th of April 2010
9:00 AM till 2:00PM

at

Computer Engineering Department,
Faculty of Engineering, Cairo University

Organised by
Egypt IEEE Computational Intelligence Chapter

Supported and Sponsored by

School of Computer Engineering and Communication and Information Technology Department

Cairo University **Nile University**

As a joint activity to the:

9th International Workshop on Multiple Classifier Systems (MCS 2010), April 7-9 2010
and
4th IAPR TC3 International Workshop on Artificial Neural Networks In Pattern recognition (ANNPR 2010), 10, April 11-13 2010

Organized by the Center for Informatics Science, Nile University, Egypt

Overview

The International Workshop on Computational Intelligence, Pattern Recognition, and Classifier Systems will take place in Cairo University, Faculty of Engineering, and Computer Engineering Department on the 10th of April 2010. The aim of this workshop is to present the latest developments in the field of Pattern Recognition and Classifier Systems. The workshop will feature several talks and tutorials which will introduce the theory, practical applications as well as future directions in the field of pattern recognition and classifier systems using Computational Intelligence techniques. The workshop will be of major benefit to researchers and engineers who want to explore the benefits of Computational Intelligence in Pattern Recognition and Classifier Systems, their potential applications and the future research directions and application domains in this area.

The workshop is organised by Egypt IEEE Computational Intelligence Chapter. It is supported by Computer Engineering Department, Faculty of Engineering, Cairo University and the Communication and Information Technology Department at Nile University.

Programme:

9:00	**-**	**9:30**	**:**	**Opening Session** **Prof. Samir Shaheen** (Computer Engineering Dept. Cairo University)
9:30	**-**	**10:45**	**:**	**Adversarial Pattern Classification** **Prof. Fabio Roli** (Dept. of Electrical and Electronic Engineering University of Cagliari - Italy)
11:00	**-**	**11:45**	**:**	**Semi-supervised learning with application to image retrieval** **Prof. Zhi-Hua Zhou** (Dept. of Computer Science & Technology Nanjing University China)
11:45	**–**	**12:15**	**:**	**Coffee Break**
12:15	**–**	**1:00**	**:**	**Neurocomputing and its Application to Pattern Recognition and Classifier Systems (Tentative title)** **Prof. Günther Palm** (Faculty of Computer Science University of Ulm Germany)
1:00	**–**	**1:45**	**:**	**Computational Intelligence and Computer Vision Applications (Tentative title)** **Prof. Terry Windeatt** (Electrical and Electronic Engineering Dept. University of Surrey UK)
1:45	**-**	**2:00**	**:**	**Closing Session**

Fees:

The attendance is free, but registration is required.

Speakers Biography:

Prof. Fabio Roli

Title: Adversarial Pattern Classification

Abstract: Pattern classifiers are currently used in several applications, like biometric recognition, spam filtering, and intrusion detection in computer networks, which are different from traditional pattern recognition tasks. The difference lies in the fact that in these applications an intelligent, adaptive adversary can actively manipulate patterns with the aim of making a classifier ineffective, namely, with the aim of evading it. This kind of problem has been recently named adversarial classification, and is the subject of an emerging research field in the machine learning and pattern recognition community.

In this talk, I introduce the fundamentals of adversarial classification from the perspective of a designer of a pattern recognition system. I briefly review the state of the art on this topic and illustrate the basic concepts of adversarial pattern classification with examples from security applications such as spam filtering. Finally, I present my recent work on the performance evaluation of pattern classifiers under attack and the implementation of defense strategies that make classifiers more robust against attacks.

Biography: Fabio Roli received his M.S. degree, with honors, and Ph.D. degree in Electronic Engineering from the University of Genoa, Italy. He was a member of the research group on Image Processing and Understanding of the Dept. of Biophysical and Electronic Engineering of the University of Genoa, Italy, from 1988 to 1994. He was adjunct professor at the University of Trento, Italy, in 1993 and 1994. In 1995, he joined the Dept. of Electrical and Electronic Engineering of the University of Cagliari, Italy, where he is now professor of computer engineering and head of the research group on pattern recognition and applications (http://prag.diee.unica.it). Prof. Roli's current research activity is focused on multiple classifier systems and their applications to biometric personal identification, multimedia document categorization, and computer security. On such topics, he has published more than one hundred papers at conferences and on journals and has given lectures and tutorials. He is Senior member of the IEEE and Fellow of the International Association for Pattern Recognition. Prof. Roli was the chairman of the IAPR Technical Committee on Statistical Techniques in Pattern Recognition from 2004 to 2008.

Prof. Zhi-Hua Zhou

Title: Semi-supervised learning with application to image retrieval

Abstract: In many practical machine learning and data mining applications, unlabeled training data are readily available but labeled ones are fairly expensive to obtain because labeling the examples requires human effort. This talk will present some recent research on how to exploit unlabeled examples to help improve learning performance. In particular, this talk will introduce some recent advances on disagreement-based semi-supervised learning, and show that how such techniques can be useful in a difficult task, image retrieval, for improving the retrieval performance through utilizing the images existing in the database.

Biography: Zhi-Hua Zhou is a Cheung Kong professor at the Department of Computer Science and Technology, Nanjing University, China. His research interests are mainly in artificial intelligence, machine learning, data mining, pattern recognition, information retrieval and evolutionary computation. In these areas he has published over 80 papers in leading international journals

or conferences, and holds 11 patents. He is an Associate Editor-in-Chief of "Chinese Science Bulletin", Associate Editor of "IEEE Transactions on Knowledge and Data Engineering" and "ACM Transactions on Intelligent Systems and Technology", and on the editorial boards of over ten other journals. He is the Founding Steering Committee Co-Chair of ACML (Asian Conference on Machine Learning), Steering Committee member of PAKDD (Pacific-Asia Conference on Knowledge Discovery and Data Mining) and PRICAI (Pacific-Rim International Conference on Artificial Intelligence), Program Committee Chair/Co-Chair of PAKDD'07, PRICAI'08 and ACML'09, Vice Chair or Area Chair or Senior PC of many conferences such as IEEE ICDM, ACM KDD, ECMLPKDD, ICPR, etc., and Chair of a dozen of native conferences in China.

He has won various awards/honors including the National Science & Technology Award for Young Scholars of China, the Award of National Science Fund for Distinguished Young Scholars of China, the Microsoft Young Professorship Award, the ISIBM Outstanding Contribution Award, and a number of paper awards. He has also coached the Grand Champion team for the PAKDD2006 Data Mining Competition. He has given Keynote or Invited speeches at a dozen of international conferences. He is the Chair of the Machine Learning Society of CAAI (China Association of Artificial Intelligence), the Vice Chair of the Artificial Intelligence and Pattern Recognition Society of CCF (China Computer Federation), and the Chair of the IEEE Computer Society Nanjing Chapter.

Prof. Dr. Günther Palm

Title: Neurocomputing and its Application to Pattern Recognition and Classifier Systems

Biography: Günther Palm studied mathematics at the Universities of Hamburg and Tübingen. After graduation in mathematics he worked at the Max-Planck-Institute for Biological Cybernetics in Tübingen on the topics of nonlinear systems, associative memory and brain theory. In 1983/84 Prof. Palm was a fellow at the Wissenschaftskolleg in Berlin and from 1988 to 1991 a professor for theoretical brain research at the University of Düsseldorf. Since then, Prof. Palm has been a professor for computer science and head of the Department of Neural Information Processing at the University of Ulm. His research interests include information theory, neural networks, associative memory and Hebbian cell assemblies.

Prof. Terry Windeatt:

Title: Computational Intelligence and Computer Vision Applications

Biography: Terry Windeatt received the BSc degree in Applied Science from University of Sussex, followed by M.Sc. in Electronic Engineering from University of California, B.A. in theology and PhD degree from University of Surrey, U.K.. After lecturing in Control Engineering at Kingston University, UK, he went to live and work in the USA for eight years. He worked on Intelligent Systems in the Research and Development Departments of General Motors and Xerox Corporation in Rochester, NY. His industrial R&D experience is in modelling/simulation for intelligent automotive and office-copying applications. He returned from the United States in 1984 to join the Department of Electrical and Electronic Engineering at the University of Surrey, where he now lectures in Machine Intelligence. He has worked on various research projects in the Centre for Vision, Speech and Signal Processing, and his current research interests include Neural Nets, Pattern Recognition, and Computer Vision.