**Computational Intelligence in/for Knowledge and Skills Transfer: Theories, Algorithms and Applications**

**Organizer:**

Dr. Min Jiang, Xiamen University, China

Prof. Changle ZHOU, Xiamen University, China

Dr. Xiangxiang Zeng, Xiamen University, China

Dr. Fei Chao, Xiamen University, China

**Synopsis:**

Effective transfer of knowledge would have significant theoretical and practical values. For example, it could enable robots to rapidly gain skills and adapt to new surroundings with relatively low computational cost. However, the path to achieving this goal is obstructed by a number of difficulties related to: computational resource limitations, uncertainties of information acquisition, and omnipresence of ambient noise. This special session aims at the presentations of the latest research activities related to all facets of knowledge and skills transfer, particularly from perspective of computational intelligence and to applications for robots. The special session is open to contributions on any topic directly or indirectly related to computational intelligence in/for knowledge transfer and skill transfer, touching on at least one of the issues mentioned above. Submissions presenting empirical or mathematical results are especially welcomed; but conceptually rigorous and innovative contributions of any kind will be seriously considered, if relevant.

**Topics:**

Specific topics include, but are not limited to, the following:

* Theories or Applications of Lifelong Learning, Transfer Learning, Meta-Learning Multitasking;
* Symbolic Knowledge Extraction form Deep Networks;
* Learning from Partial Observations for complex learning environments;
* Multi/Many Objective Optimization;
* Cognitive Robotics, Developmental Robotics, Epigenetic Robotics, Bio-inspired and Cognitive Robotics, and their Applications;
* Theories or Applications of Spiking Neural Models;
* Theory or Application of Structured Learning and Structured Intelligent Systems;
* Knowledge Representation in Human-Level Intelligent Systems;
* Machine Consciousness; Human-robot Interactions;
* Human-like Intelligent Systems in Manufacturing, Game Playing and Scheduling;

**Dr. Min JIANG, Xiamen University, China**

Dr. Min JIANG has received the BA and PhD degrees in computer science from Wuhan University, China in 2001 and 2007, respectively. From 2005-2007, he was an exchange student in City University of Hong Kong. Subsequently as a postdoc of Department of Mathematics of Xiamen University, he studied Computational Logic, Artificial Intelligence and its applications on cognitive robot. He currently is an Associate Professor at Department of Cognitive Science, Xiamen University. His main research interests are Transfer Learning, Multi/Many-Objective Optimization, and Deep Neural-Symbolic Integration. A special focus is software development and basic theories in Cognitive Robotics.

Dr. Jiang published over thirty journal and conference papers. He served as Program Committee Member for over 20 international conferences, and was Program Co-Chair of the International Conference on Automatic Control and Artificial Intelligence. He is guest editor of a Special Issue of IEEE Systems Journal in Human-like Intelligence and Robotics and was International Journal of Computers in Biology and Medicine. Dr. Jiang is editorial board member of International Journal of Computer Science and Artificial Intelligence and acts as a reviewer for several scientific journals devoted to Computational or Artificial Intelligence and Theoretical Computer Science, such as IEEE Transactions of Neural Networks and Learning Systems, Computational Intelligence Magazine, IEEE Transaction on Cybernetics, IEEE Transaction on SMC Part B, Neurocomputing, Theoretical Computer Science, Algorithmica. His research is supported by National Natural Science Foundation of China, Ministry of Education of China and Fujian Province of China.

Dr. JIANG is an IEEE senior member (M’2011, SM’2012) and an ACM member. He is Chair of IEEE Computational Intelligence Society Xiamen Chapter and Vice Chair of IEEE Computational Intelligence Society Social Media Subcommittee. He is Board Member of the Emergent Technologies Technical Committee and Chapter committee of the Computational Intelligence Society of the IEEE, Board Member of the Theoretical Computer Science Technical Committee of China Computer Federation.

**Prof. Changle ZHOU, Xiamen University, China**

Changle Zhou received the Ph.D. degree from Beijing University, Beijing, China, in 1990. He is currently a Professor with the Cognitive Science Department, Xiamen University, Xiamen, China. His research interests include computational linguistics, brain theory, and computational musicology with an emphasis on computational models for metaphor, awareness and creativity, and intelligent techniques for traditional Chinese medicine information processing.

**Dr. Xiangxiang Zeng, Xiamen University, China**

Xiangxiang Zeng is an associate professor in the Department of Computer Science, Xiamen University. He received the B.S. degree in automation from Hunan University, China, in 2005, the Ph.D. degree in system engineering from Huazhong University of Science and Technology, China, in 2011. From 2010 to 2011 he spent one year working in the group of natural computing in Seville University, Spain. He has published over 40 papers and his google scholar citation is more than 600. His main research interests include neural computing and evolutionary computing.

**Dr. Fei CHAO, Xiamen University, China**

Fei Chao (M’2011-) received the B.Sc. degree in Mechanical Engineering from the Fuzhou University, P. R. China, and the M.Sc. Degree with distinction in computer science from the University of Wales, U.K., in 2004 and 2005, respectively, and the Ph.D. degree in robotics from the Aberystwyty University, Wales, U.K. in 2009. He was a research associate under the supervision of Professor Mark H. Lee at the Aberystwyth University from 2009 to 2010. He is currently an Assistant Professor with the Cognitive Science Department, at the Xiamen University, P. R. China. He has published more than 20 peer-reviewed journal and conference papers. His research interests include developmental robotics, machine learning, and optimization algorithms. He is the vice chair of the IEEE Computer Intelligence Society Xiamen Chapter. Also, he is a member of ACM and CCF.