THE FIFTH INTERNATIONAL CONFERENCE ON BRAIN INSPIRED COGNITIVE SYSTEMS (BICS 2012)

FINAL PROGRAM

July 11 – 14, 2012, Shenyang Hotel, Shenyang, China

http://bics2012.mae.cuhk.edu.hk/

Sponsors

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The Fifth International Conference on Brain Inspired Cognitive Systems (BICS 2012)

July 11 – 14, 2012
Shenyang Hotel, Shenyang, China
http://bics2012.mae.cuhk.edu.hk/

Greeting from the General Chair

Welcome to BICS 2012 – the Fifth International Conference on Brain Inspired Cognitive Systems, which will be held in Shenyang, China, as a sequel of BICS 2004 (Stirling, Scotland, UK), BICS 2006 (Island of Lesvos, Greece), BICS 2008 (Sao Luis, Brazil), and BICS 2010 (Madrid, Spain). BICS 2012 constsits of the Seventh International Symposium on Neural Computation (NC 2010), the Sixth International Symposium on Biologically Inspired Systems (BIS 2012), the Fifth International Symposium on Cognitive NeuroScience (CNS 2012), and the Fourth International Symposium on Models of Consciousness (MoC 2012). Shenyang is an important political, industrial, and cultural center, and serves as the transportation and commercial hub of Northeastern China. We hope that you have a technically rewarding experience as well as memorable experiences in this great city. BICS 2012 aims to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of brain inspired cognitive systems research and applications in diverse fields. The conference will feature plenary lectures given by world renowned scholars and regular sessions with broad coverage. BICS 2012 will be co-located with 2012 International Symposium on Neural Networks (ISNN 2012).

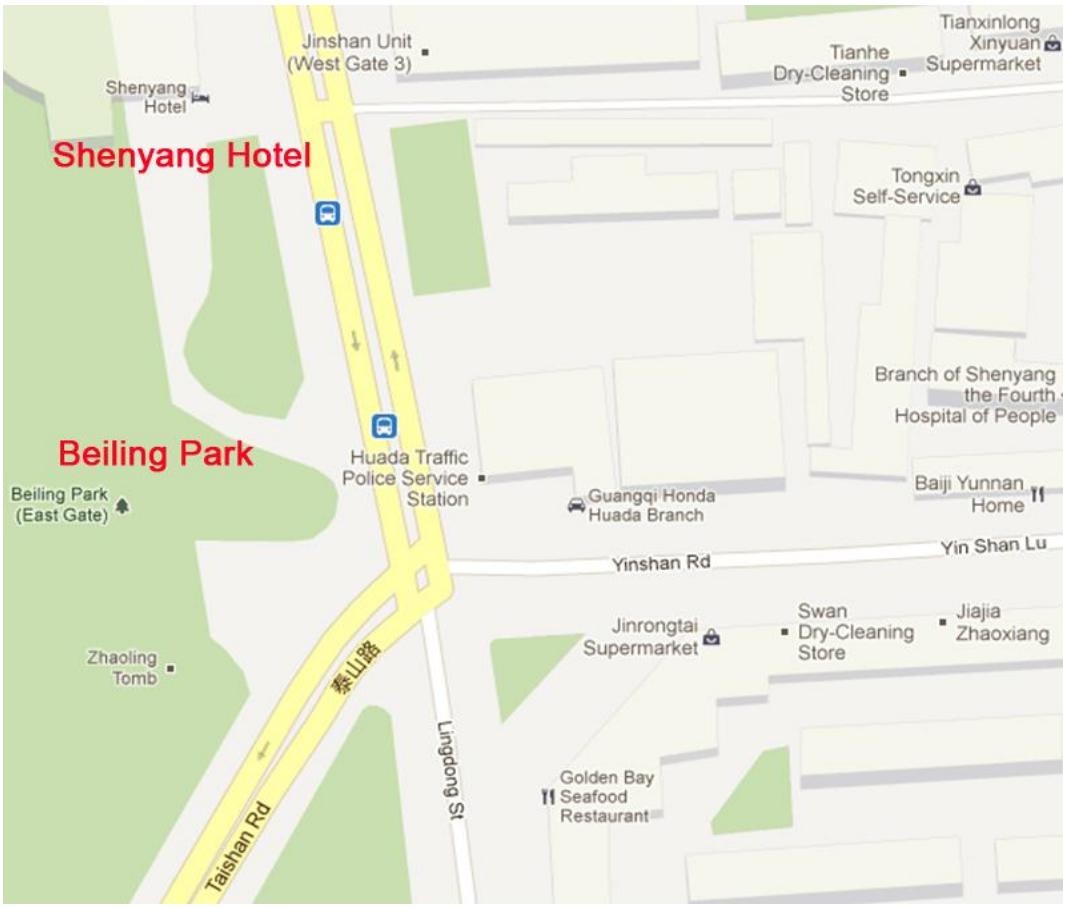
Participants of BICS 2012 will enjoy an extraordinary technical program thanks to the BICS 2012 International Program Committee chaired by Amir Hussain, Leslie Smith, Robert Kozma, and Liang Zhao. Great thanks go to Organizing Committee Chairs Bhaskar DasGupta and Jun Wang, Plenary Sessions Chair Marios Polycarpou, and Special Sessions Chairs Sanqing Hu and Stefano Squartini for their excellent work. Special thanks also go to other key conference organizing committee members including: Finance Chair Dongbin Zhao, Publicity Chairs Song Ci, Qinglai Wei, and Erik Cambria, European Liaisons John Taylor, Anna Esposito, Mohamed Chetouani, Giacomo Indiveri, and Stefan Wermter, Publications Chairs Jinhu Lu, El-Sayed El-Alfy, and David Gamez, Registration Chair Zeng-Guang Hou, Local Arrangements Chair Zhanshan Wang, Electronic Review Chair Tao Xiang, and Conference Secretariat Ding Wang. We would like to also express our sincere gratitude to all reviewers of BICS 2012 for the time and effort they have generously given to the conference.

We are very grateful to the Institute of Automation of the Chinese Academy of Sciences, the University of Stirling, the Chinese University of Hong Kong, the University of Illinois at Chicago, and the National Natural Science Foundation of China for their financial support. We are also grateful to IEEE Computational Intelligence Society, International Neural Network Society, Society for the Study of Artificial Intelligence and the Simulation of Behavior, and ICSC Interdisciplinary Research for their technical co-sponsorship. We would like to thank the members of the advisory committee and the steering committee for their support. We would also like to thank the publisher, Springer, for cooperation in publishing the proceedings in the prestigious series of Lecture Notes in Artificial Intelligence. Enjoy the conference!

BICS 2012 General Chair
Derong Liu
Derong Liu

Conference Venue

The Fifth International Conference on Brain Inspired Cognitive Systems will be held from July 11 to 14, 2012, at Shenyang Hotel in Shenyang, China. The hotel is located at 2 Taishan Road, near the East Gate of Beiling Park.



BICS 2012 Organization

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6th International Symposium on Biologically Inspired Systems (BIS 2012)
Leslie Smith, Lancaster University, UK
5th International Symposium on Cognitive NeuroScience (CNS 2012)
Robert Kozma, University of Memphis, USA
4th International Symposium on Models of Consciousness (MoC 2012)
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I. Conference Highlights

We received a total of 116 submissions from more than 200 authors in 19 countries and regions across four continents. In selecting papers, members of the International Program Committee worked very hard to have all papers reviewed before the review deadline. It is tempting to draw the conclusion that if a paper was not accepted, it must have been judged as a poor or unqualified paper. Although there were such papers submitted to BICS 2012, many of the papers that we could not fit into the technical program were fine papers. The final technical program consists of 54 papers among which 15 are recommended as journal special issue papers. There will be three BICS plenary lectures delivered by Zongben Xu, Erkki Oja, and Paul Werbos, and a plenary panel session chaired by Frank Lewis.

II. Conference Registration

The BICS 2012 registration desk, located in the reception area of the Shenyang Hotel, will be open during the following hours:

- July 11, 2012 (Wednesday) 12:00 – 20:00
- July 12, 2012 (Thursday) 08:00 – 17:00
- July 13, 2012 (Friday) 08:00 – 14:00.

Full registration includes a welcome reception ticket, conference attendance, a banquet ticket, local city tour, and the conference CD-ROM proceedings.

Additional sets of CD-ROM proceedings and hardcopy proceedings may be purchased at the registration desk (50 US dollars for CD-ROM proceedings and 75 US dollars for one volume of hardcopy proceedings). In addition, each additional banquet ticket is 50 US dollars. After the conference, proceedings may be purchased by directly contacting Springer LNCS online at http://www.springer.com/lncs.

III. Social Events

The social events of BICS 2012 are scheduled as follows.

- Welcome Reception: 18:00 – 20:30, July 11, 2012 (Wednesday), Cafeteria, 1st floor
- Banquet: 18:00 – 21:00, July 13, 2012 (Friday), Shenyang Banquet Hall, 2nd floor
- Local City Tour: 08:00 – 17:00, July 14, 2012 (Saturday).

IV. Hotel Reservations

Information about the conference hotel, Shenyang Hotel, Shenyang, China, is available by calling the hotel directly at: +86-24-86688888 or +86-24-86688668. To make hotel room reservation, please go to the conference website http://bics2012.mae.cuhk.edu.hk/.

V. Transportation

The Shenyang Hotel is 30km from Shenyang Taoxian International Airport, 4km from Shenyang North Railway Station, and 8km from Shenyang Railway Station.

By Air: There are direct flights from Beijing, Shanghai, Guangzhou, and other big cities to Shenyang. After arrival in Shenyang Taoxian International Airport, you can take a taxi to go to the conference hotel: Shenyang Hotel (Shen Yang Bin Guan).

By Train: There are direct trains from Beijing, Shanghai, Guangzhou, Nanjing, Wuhan, Chengdu, Xi'an, and other big cities to Shenyang. After arrival in Shenyang North Railway Station or Shenyang Railway Station, you can take a taxi to go to the conference hotel: Shenyang Hotel (Shen Yang Bin Guan).

VI. Plenary Lecture I (BICS)

Structured Sparsity: Modeling, Algorithms, and Applications

Zongben Xu
Xi'an Jiaotong University, China

Abstract

Structured sparsity (SS) is a common feature of information expression with which an observation can be represented by virtue of fewer group of atoms with reference to an appropriately chosen dictionary. The group property characterizes dependence of variables. The SS problems appear in various applications of information processing, imaging technologies, social networks and gene engineering. We present a modeling approach to transform the SS problem into a nonlinear transformed sparsity (NTS) problem, and suggest a generic ALM based, efficient alternative iteration algorithm for solution of the NTS problem. We show that the most crucial step in this procedure is how effectively to treat an L(1/2) regularization problem, and hence the L(1/2) regularization theory previously developed by the speaker plays a key role. We introduce the necessary L(1/2) regularization theory and demonstrate the usefulness and high efficiency of the formalized approach, through applying the approach to three typical SS problems: the MRI application, the model selection in feed-forward neural networks and the SAR imaging.

Biography

Zongben Xu was born in 1955. He received his Ph.D. degrees in mathematics from Xi'an Jiaotong University, China, in 1987. He serves as Vice President of Xi'an Jiaotong University, the Chief Scientist of National Basic Research Program of China (973 Project), and Director of the Institute for Information and System Sciences of the university. He is owner of the National Natural Science Award of China in 2007， and winner of CSIAM Su Buchin Applied Mathematics Prize in 2008. He delivered a 45 minute talk on the International Congress of Mathematicians 2010. He was elected as member of Chinese Academy of Science in 2011. His current research interests include intelligent information processing and applied mathematics.

VII. Plenary Lecture II (ISNN)

Visual Pattern Recognition by Multi-Layered Neural Networks: Grandmother Cells or Population Coding?

Kunihiko Fukushima
Kansai University, Japan

Abstract

The blurring operation is essential for endowing multi-layered neural networks with an ability to recognize visual patterns robustly. We discuss the role of blur in neural networks, taking the neocognitron as an example.

The neocognitron is a hierarchical multi-layered network and acquires the ability to recognize visual patterns through learning. It consists of two kinds of cells: S-cells that extract features, and C-cells that produce spatial blur. In the intermediate stages of the hierarchical network, blur is produced, not only by C-cells, but also by S-cells: a low threshold of S-cells produces a blur in the multi-dimensional feature space, while C-cells produce a blur in the retinotopic space.

During learning under competitive learning rules, new S-cells are generated if, and only if, all S-cells are silent. This means that S-cells come to behave like grandmother cells. This guarantees creating a situation where S-cells distribute uniformly in the feature space.

In the recognition phase after learning, however, behavior like grandmother cells is not desirable. Situation like population coding, which can be produced by S-cells with a lowered threshold, is essential for recognizing patterns robustly.

Biography

Kunihiko Fukushima received a B.Eng. degree in electronics in 1958 and a PhD degree in electrical engineering in 1966 from Kyoto University, Japan. He was a professor at Osaka University from 1989 to 1999, at the University of Electro-Communications from 1999 to 2001, at Tokyo University of Technology from 2001 to 2006, and a visiting professor at Kansai University from 2006 to 2010. Prior to his Professorship, he was a Senior Research Scientist at the NHK Science and Technical Research Laboratories. After retirement from universities, he has now part-time positions at several laboratories: Senior Research Scientist, Fuzzy Logic Systems Institute; Research Consultant, Laboratory for Neuroinformatics, RIKEN Brain Science Institute; and Research Scientist, Kansai University. He is one of the pioneers in the field of neural networks and has been engaged in modeling neural networks of the brain since 1965. His special interests lie in modeling neural networks of the higher brain functions, especially the mechanism of the visual system. He was the founding President of JNNS (Japanese Neural Network Society) and a founding member on the Board of Governors of INNS (International Neural Network Society). He is a former President of APNNA (Asia-Pacific Neural Network Assembly).

VIII. Plenary Lecture III (BICS)

Inference by Matrix Factorizations

Erkki Oja
Aalto University, Finland

Abstract

Many standard inference problems involve combinatorial optimizations. A typical example is clustering in which some items are placed into groups, where the items within each group are more similar than items belonging to different groups. Another related example is graph bipartitioning where we want to split a graph into two subgraphs with maximal number of edge weights within the subgraphs and minimal number of edge weights between them. Yet another generic problem is solving for graph isomorphisms. This kind of problems can be often presented as matrix decompositions with constraints; typically the solution is given by a binary orthogonal indicator matrix. The talk reviews an approach where the binary indicator matrix is replaced by a nonnegative approximately orthogonal continuous-valued matrix. Then the hard combinatorial optimization is replaced by continuous-space gradient optimization which is computationally much lighter and results in unsupervised machine learning rules. Correct and convergent versions of the learning rules are presented, as well as a number of experimental comparisons in various inference problems.

Biography

Erkki Oja is Professor of Computer Science and Engineering at Aalto University, School of Science and Technology. He is Director of the Adaptive Informatics Research Centre at Aalto and Chairman of the Research Council for Natural Sciences and Engineering of the Academy of Finland. Erkki Oja received the Dr.Sc. degree from Helsinki University of Technology in 1977. He has been research associate at Brown University, Providence, RI, and visiting professor at the Tokyo Institute of Technology, Japan. He is the author or coauthor of more than 280 articles and book chapters on pattern recognition, computer vision, and neural computing, and three books: “Subspace Methods of Pattern Recognition” (New York: Research Studies Press and Wiley, 1983), which has been translated into Chinese and Japanese; “Kohonen Maps” (Amsterdam, The Netherlands: Elsevier, 1999), and “Independent Component Analysis” (New York: Wiley, 2001), translated into Japanese. His research interests are in the study of principal component and independent component analysis, self-organization, statistical pattern recognition, and applying artificial neural networks to computer vision and signal processing. Prof. Oja is a member of the Finnish Academy of Sciences, Founding Fellow of the International Association of Pattern Recognition (IAPR), Past President of the European Neural Network Society (ENNS), and Past Governing Board member of the International Neural Network Society (INNS). He is also a member of the editorial boards of several journals and has been in the program committees of several international conferences. Prof. Oja is the recipient of the 2004 IAPR Pierre Devijver Award and the 2006 IEEE Computational Intelligence Society Neural Networks Pioneer Award.

IX. Plenary Lecture IV (ISNN)

Learning in Structured Domains: from Neural Networks to Kernel Methods, and Back to Linear Dynamical Systems

Alessandro Sperduti
University of Padua, Italy

Abstract

Structured domains are characterized by complex patterns which are usually represented as lists, trees, and graphs of variable sizes and complexity. The ability to recognize and classify these patterns is fundamental for several applications, such as medical and technical diagnoses, molecular biology and chemistry, automated reasoning, speech and text processing, and many other application domains. Because of its complexity, and thanks to the availability of large datasets, learning in structured domains is becoming more and more important. Nowadays it is clear how to learn in structured domains with Neural Networks, since general frameworks for supervised and unsupervised learning are available. We will introduce these frameworks, showing examples of applications, and pointing out pros and cons.

A valid alternative to Neural Networks is constituted by Kernel Methods. We will discuss what are the main problems to solve in the definition of efficient and effective kernels for trees and graphs. Moreover, we show how Neural Networks for structures and Graphical Models can be used to define adaptive tree and graph kernels. An interesting line of research which seems not much explored is the use of linear dynamical systems to devise fixed-size compact and informative representations of structured data. We present some recent results connected with Model Order Reduction and give some hints on how a currently very hot research topic, i.e. Compressed Sensing, could be exploited to advance learning in structured domanis.

Biography

Prof. Sperduti is full professor of Computer Science at the Department of Mathematics of the University of Padua, Italy. His research interests are mainly in Neural Networks and Kernel Methods, especially for structured data. He is also interested in Data and Process Mining. Prof. Sperduti has been member of several program committees of international conferences, and guest editor of special issues for the journals Neural Networks, IEEE Transactions on Knowledge and Data Engineering, and Cognitive Systems Research. He is in the editorial board of the European Journal on Artificial Intelligence (AI COM), IEEE Transactions on Neural Networks, IEEE Intelligent Systems Magazine. Starting from 2001 till 2010, he has been member of the European Neural Networks Society (ENNS) Executive Committee, and chair of the DMTC of IEEE CIS for the years 2009 and 2010. He is currently senior member IEEE, and chair of the NNTC of IEEE CIS. He has delivered several tutorials in main Artificial Intelligence conferences (WCCI 2012, IJCAI 2001, IJCAI 1999, IJCAI 1997) and summer schools. He was the recipient of the 2000 AI*IA (Italian Association for Artificial Intelligence) "MARCO SOMALVICO" Young Researcher Award. He as been invited plenary speaker for the conferences ICANN 2001 and WSOM 2007. Prof. Sperduti is the author of more than 140 publications on refereed journals, conferences, and chapters in books.

X. Plenary Lecture V (BICS)

Cognitive Optimization and Prediction: Recent Breakthroughs and New Opportunities

Paul Werbos
National Science Foundation, USA

Abstract

In the 1970's, computer scientists "knew" that mathematical networks of neurons (artificial or biological) could not possible learn to solve simple pattern recognition problems like XOR. More recently, they "know" that they cannot learn to approximate nonlinear functions of more than 30-50 inputs; thus they "know" that neural networks cannot be used in pattern recognition or control, unless one preprocesses the data with domain-dependent feature extraction obtained by laborious means. Yet the brain shows us that this is not true. This past year, researchers in deep learning used relatively simple extensions of the basic MLP neural network to break all records and achieve world's best performance in a host of competitive benchmarks in object recognition direct from complex images, speech recognition, language processing and others. This talk will review and explain recent progress in cognitive prediction, the principles which would allow one to do even better, and the implications for cognitive optimization and approximate dynamic programming.

Biography

Paul Werbos began training as a mathematician, taking many university courses culminating in the graduate course in logic from Alonzo Church at Princeton while in middle and high school. Realizing the limits of deductive logic, he began his quest to understand inductive logic and intelligence in the mind back in those days. He obtained two degrees in economics from Harvard and the London School of Economics, divided equally between using mathematical economics as a model for distributed intelligence and developing some broader understanding. For his Harvard M.S., he took courses in quantum field theory (QFT) from Julian Schwinger, but did not fully understand the subject until many years later, after he started an activity in quantum technology and modeling at NSF (see his papers at http://arxiv.org/.) For his 1974 Harvard PhD thesis (reprinted in The Roots of Backpropagation, Wiley 1994), he proposed the development of more powerful, more biologically plausible reinforcement learning systems by the then new idea of using neural networks to approximate dynamic programming (ADP), including the value function. He has also gotten deep into domain issues and organization, as reflected at http://www.werbos.com, serving on boards of the National Space Society, the Millennium Project, the Lifeboat Foundation, and the IEEE Energy Policy Committee, and as a Fellow in the Senate in 2009. From 1980-1989, he developed official econometric forecasting models (two based on backpropagation) and was lead analyst for the long-term future at EIA in the Department of Energy. He is a Fellow of IEEE and INNS, a winner of the IEEE Neural Networks Pioneer Award and winner of the Hebb Award for 2011 from the International Neural Network Society (INNS). The Hebb Award is INNS's highest award, to honor substantive contributions to the understanding of biological learning systems.

XI. International Conference on Brain Inspired Cognitive Systems – Past and Present

Brain Inspired Cognitive Systems (BICS 2004)

- Organizers: Leslie Smith, Amir Hussain, Igor Aleksander
- August 29 – September 1, 2004, Stirling, Scotland, UK

Brain Inspired Cognitive Systems (BICS 2006)

- GC: Igor Aleksander
- PCs: Ron Chrisley, Igor Aleksander, Leslie Smith, Amir Hussain
- October 10 – 12, 2006, Island of Lesvos, Greece

Third International Brain Inspired Cognitive Systems Conference (BICS 2008)

- GC: Allan Kardec Barros
- PCs: Ron Chrisley, Igor Aleksander, Leslie Smith, Amir Hussain
- June 24 – 27, 2008, Sao Luis, Brazil

Fourth International Brain Inspired Cognitive Systems Conference (BICS 2010)

- GC: Ricardo Sanz
- PCs: Jaime Gómez, Amir Hussain, Leslie Smith, Igor Aleksander, Antonio Chella
- July 14 – 16, 2010, Madrid, Spain

Fifth International Conference on Brain Inspired Cognitive Systems (BICS 2012)

- GC: Derong Liu
- PCs: Amir Hussain, Leslie Smith, Robert Kozma, Liang Zhao
- July 11 – 14, 2012, Shenyang, China

ISNN/BICS 2012 Program at a Glance

July 11, 2012 (Wednesday)

12:00 – 20:00	Registration	**Hotel reception area** 宾馆大堂
18:00 – 20:30	Welcome Reception (dinner)	**Cafeteria, 1st floor** 一楼咖啡厅

July 12, 2012 (Thursday)

08:00 – 08:30	**Opening Ceremony**	**International Conference Hall, 2nd floor** 二楼国际会议厅
08:30 – 09:30	**Plenary Lecture I (BICS)** Chair: Derong Liu Speaker: Zongben Xu	
09:30 – 10:00 Coffee Break		
10:00 – 11:00	**Plenary Lecture II (ISNN)** Chair: Jun Wang Speaker: Kunihiko Fukushima	**International Conference Hall, 2nd floor** 二楼国际会议厅
11:00 – 12:00	**Plenary Lecture III (BICS)** Chair: Marios Polycarpou Speaker: Erkki Oja	
12:00 – 13:30 Lunch		
13:30 – 14:30	**Plenary Lecture IV (ISNN)** Chair: Cesare Alippi Speaker: Alessandro Sperduti	**International Conference Hall, 2nd floor** 二楼国际会议厅
14:30 – 15:30	**Plenary Lecture V (BICS)** Chair: Gary Yen Speaker: Paul Werbos	
15:30 – 16:00 Coffee Break		
16:00 – 18:00	**Plenary Panel** Moderator: Frank Lewis Panelists: Cesare Alippi, Bhaskar DasGupta, Kunihiko Fukushima, Erkki Oja, Marios Polycarpou, Alessandro Sperduti, Jun Wang, Paul Werbos, Zongben Xu, Gary Yen Topic: Future of Neural Networks and Brain Inspired Cognitive Systems Research	**International Conference Hall, 2nd floor** 二楼国际会议厅

* The conference does not provide dinner on July 12, 2012. Participants are suggested to use this time to get to know each other.

July 13, 2012 (Friday)

Hall / Period	ISNN 2012			BICS 2012
	Meeting room no.1, 1st floor 一楼第一会议室	**Meeting room no.2, 1st floor** 一楼第二会议室	**Sakura Hall, 1st floor** 一楼樱花厅	**Lily Hall, 2nd floor** 二楼百合厅
Morning Session I 08:30 – 10:00	**M11 (Special Session)** Control and Analysis of Complex Nonlinear Systems	**M12** Stability and Convergence Analysis	**M13** Pattern Analysis and Classification	**M14** Biologically Inspired Systems
10:00 – 10:30 Coffee Break				
Morning Session II 10:30 – 12:00	**M21** Computational Neuroscience	**M22** Learning and Optimization Algorithms	**M23** Vision and Object Recognition	**M24** Cognitive Neuroscience and Consciousness Models
12:00 – 13:30 Lunch				
Afternoon Session I 13:30 – 15:00	**A11 (Special Session)** Cognitive and Emotional Information Processing	**A12** Neural Network Models I	**A13** Neurodynamics and Neural Control	**A14** Neural Computation I
15:00 – 15:30 Coffee Break				
Afternoon Session II 15:30 – 17:00	**A21** Adaptive and Intelligent Systems	**A22** Neural Network Models II	**A23** Novel Approaches and Applications	**A24** Neural Computation II
18:00 – 21:00 Banquet (Shenyang Banquet Hall, 2nd floor 二楼沈阳厅)				

BICS 2012 Technical Program

July 12, 2012 (Thursday)

Opening Ceremony	08:00 – 08:30, International Conference Hall
Plenary Lecture I (BICS)	08:30 – 09:30, International Conference Hall
Chair: Derong Liu Speaker: Zongben Xu Title: Structured Sparsity: Modeling, Algorithms, and Applications	
Plenary Lecture II (ISNN)	10:00 – 11:00, International Conference Hall
Chair: Jun Wang Speaker: Kunihiko Fukushima Title: Visual Pattern Recognition by Multi-Layered Neural Networks: Grandmother Cells or Population Coding?	
Plenary Lecture III (BICS)	11:00 – 12:00, International Conference Hall
Chair: Marios Polycarpou Speaker: Erkki Oja Title: Inference by Matrix Factorizations	
Plenary Lecture IV (ISNN)	13:30 – 14:30, International Conference Hall
Chair: Cesare Alippi Speaker: Alessandro Sperduti Title: Learning in Structured Domains: from Neural Networks to Kernel Methods, and Back to Linear Dynamical Systems	
Plenary Lecture V (BICS)	14:30 – 15:30, International Conference Hall
Chair: Gary Yen Speaker: Paul Werbos Title: Cognitive Optimization and Prediction: Recent Breakthroughs and New Opportunities	
Plenary Panel	16:00 – 18:00, International Conference Hall
Moderator: Frank Lewis Panelists: Cesare Alippi, Bhaskar DasGupta, Kunihiko Fukushima, Erkki Oja, Marios Polycarpou, Alessandro Sperduti, Jun Wang, Paul Werbos, Zongben Xu, Gary Yen Topic: Future of Neural Networks and Brain Inspired Cognitive Systems Research	

July 13, 2012 (Friday)

Session M14: Biologically Inspired Systems		
Chair: Amir Hussain, Co-Chair: Juan Huo		
08:30 – 10:00, Lily Hall, 2nd floor (二楼百合厅)		
1-01-0002	COGPARSE: Brain-Inspired Knowledge-Driven Full Semantics Parsing Radical Construction Grammar, Categories, Knowledge-Based Parsing & Representation	Daniel J. Olsher
1-01-0003	Sentic Neural Networks: a Novel Cognitive Model for Affective Common Sense Reasoning	Thomas Mazzocco, Erik Cambria, Amir Hussain, Qiu-Feng Wang
1-01-0004	Individual Differences in Working Memory Capacity and Presence in Virtual Environments	Terry G. Rawlinson, Shulan Lu, Patrick Coleman

1-01-0005	An Ontology Driven and Bayesian Network Based Cardiovascular Decision Support Framework	Kamran Farooq, Amir Hussain, Stephen Leslie, Chris Eckl, Calum MacRae, Warner Slack
1-01-0006	Semantically Inspired Electronic Healthcare Records	Kamran Farooq, Amir Hussain, Stephen Leslie, Chris Eckl, Calum MacRae, Warner Slack
1-02-0002	A CSP-Based Orientation Detection Model	Hui Wei, Zheng Dong
1-02-0004	Evaluation of UAS Camera Operator Interfaces in a Simulated Task Environment: an Optical Brain Imaging Approach	Murat Perit Çakır, Abdullah Murat Şenyiğit, Daryal Murat Akay, Hasan Ayaz, Veysi İşler
1-05-0001	Cerebral Activation Patterns in the Preparation and Movement Periods of Spontaneous and Evoked Movements	Chunguang Li, Lining Sun
1-07-0002	Neurobiologically-Inspired Soft Switching Control of Autonomous Vehicles	Erfu Yang, Amir Hussain, Kevin Gurney
1-07-0003	An Intelligent Multiple-Controller Framework for the Integrated Control of Autonomous Vehicles	Amir Hussain, Rudwan Abdullah, Erfu Yang, Kevin Gurney
1-08-0001	Evolution of Small-World Properties in Embodied Networks	Derek Harter
1-12-0001	VLSI Implementation of Barn Owl Superior Colliculus Network for Visual and Auditory Integration	Juan Huo, Alan Murray
1-13-0001	Membrane Computing Optimization Method Based on Catalytic Factor	Fuluo Wang, Yourui Huang, Ming Shi, Shanshan Wu
Session M24: Cognitive Neuroscience and Consciousness Models		
Chair: Hasan Ayaz, Co-Chair: Jinhai Liu		
10:30 – 12:00, Lily Hall, 2nd floor (二楼百合厅)		
2-01-0002	Effect of Body Position on NIRS Based Hemodynamic Measures from Prefrontal Cortex	Murat Ozgoren, Merve Tetik, Kurtulus Izzetoglu, Adile Oniz, Banu Onaral
2-01-0003	Using Brain Activity to Predict Task Performance and Operator Efficiency	Hasan Ayaz, Scott Bunce, Patricia Shewokis, Kurtulus Izzetoglu, Ben Willems, Banu Onaral
2-06-0001	“Arousal” or “Activation” Dysfunction in the Frontal Region of Children with Attention-Deficit/Hyperactivity Disorder: Evidence from an Electroencephalogram Study	Ligang Wang, Jie Kong, Jing Luo, Wenbin Gao, Xianju Guo
2-08-0002	A New Italian Sign Language Database	Marco Fagiani, Emanuele Principi, Stefano Squartini, Francesco Piazza
2-12-0001	Study of Phase Relationships in ECoG Signals Using Hilbert-Huang Transforms	Gahangir Hossain, Mark H. Myers, Robert Kozma
2-12-0002	Treatment Status Predicts Differential Prefrontal Cortical Responses to Alcohol and Natural Reinforcer Cues among Alcohol Dependent Individuals	Scott C. Bunce, Kurtulus Izzetoglu, Meltem Izzetoglu, Hasan Ayaz, Kambiz Pourrezaei, Banu Onaral
2-13-0002	A Filtering Method for Pressure Time Series of Oil Pipelines	Jinhai Liu, Zhibo Yu
3-07-0001	The Role of Event Boundaries in Language: Perceiving and Describing the Sequence of Simultaneous Events	Shulan Lu, Lonnie Wakefield

3-08-0001	Hyperchaotification Control for a Class of 3D Four-Wing Chaotic Systems via State Feedback	Shuang Wu, Guohua Fu
3-11-0001	Semantic-Based Affect and Metaphor Interpretation in Virtual Drama	Li Zhang
3-11-0002	A Framework for Experience Representation	Jan Kaczmarek, Dominik Ryzko
3-11-0004	Emotional Balance as a Predictor of Impulse Control in Prisoners and Non-Prisoners	Yunfeng Duan, Feng Jin
3-14-0001	Time Scales of Sensorimotor Contingencies	Alexander Maye, Andreas K. Engel
Session A14: Neural Computation I		
Chair: Shuxian Lun, Co-Chair: Siyao Fu		
13:30 – 15:00, Lily Hall, 2nd floor (二楼百合厅)		
4-01-0001	A Lateral Inhibitory Spiking Neural Network for Sparse Representation in Visual Cortex	Jiqian Liu, Yunde Jia
4-01-0002	Global Stability of a Class of High-Order Recurrent Neural Networks with Multiple Delays	Zhanshan Wang, Yongbin Zhao, Shuxian Lun
4-03-0002	Model-Based Human Gait Recognition via Deterministic Learning	Wei Zeng, Cong Wang
4-04-0001	Hybrid Neural Network Based on ART2—BP Information Fusion Control in Circulating Fluidized Bed Boiler (CFBB)	Peifeng Niu, Yunfei Ma, Pengfei Li, Yang Zhang, Guoqiang Li，Xiangye Zhang
4-04-0005	An Improved Single Neuron Adaptive PID Controller Based on Levenberg-Marquardt Algorithm	Ting-Ting Hu, Yu-Feng Zhuang, Jin Yu
4-05-0002	Analyzing EEG of Quasi-Brain-Death Based on Dynamic Sample Entropy Measures	Li Ni, Jianting Cao, Rubin Wang
4-05-0003	Stochastic Resonance in Excitable Neuronal System with Phase-Noise	Xiaoming Liang, Liang Zhao
4-05-0004	Emotion Recognition Based on Physiological Signals	Naiyu Wu, Huiping Jiang, Guosheng Yang
4-05-0005	A Comparative Study of Two Reference Estimation Methods in EEG Recording	Sanqing Hu, Yu Cao, Shihui Chen, Jianhai Zhang, Wanzeng Kong, Kun Yang, Xun Li, Yanbin Zhang
4-05-0006	Single LFP Sorting for High Resolution Brain Chip Interfacing	Mufti Mahmud, Davide Travalin, Amir Hussain, Stefano Girardi, Marta Maschietto, Florian Felderer, Stefano Vassanelli
4-10-0001	Adaptive Synchronization of Complex Interconnected Neural Networks with Time-Varying Coupling Connections	Zhanshan Wang, Yongbin Zhao, Huaguang Zhang
4-11-0002	The Possibility of Using Simple Neuron Models to Design Brain-Like Computers	Hong Hu , Zhongzhi Shi
4-12-0003	A Parametric Survey for Facial Expression Database	Siyao Fu, Guosheng Yang, Xinkai Kuai, Rui Zheng

Session A24: Neural Computation II		
Chair: Robert Kozma, Co-Chair: Erik Cambria		
15:30 – 17:00, Lily Hall, 2nd floor (二楼百合厅)		
1-01-0007	Learning Effects in Coupled Arrays of Cellular Neural Oscillators	Marko Puljic, Robert Kozma
1-11-0001	Common Sense Knowledge for Handwritten Chinese Text Recognition	Qiu-Feng Wang, Erik Cambria, Cheng-Lin Liu, Amir Hussain
3-16-0002	An Algorithm of Auto-Update Threshold for Singularity Analysis of Pipeline Pressure	Jinhai Liu, Liang Tan
4-12-0004	Analysis of Pesticide Application Practices Using an Intelligent Agriculture Decision Support System (ADSS)	Ahsan Abdullah, Amir Hussain, Ahmed Barnawi
4-13-0002	Survey of the Facial Expression Recognition Research	Ting Wu, Siyao Fu,Guosheng Yang
4-13-0005	Road Sign Detection and Recognition from Video Stream Using HSV, Contourlet Transform and Local Energy Based Shape Histogram	Usman Zakir, Eran A. Edirishinghe, Amir Hussain
CC-0002	Bayesian Classification Methods with Incomplete Data and the Applications in Ocean Data Processing	Xunan Zhang, Shiji Song
CC-0003	Biological Roaming Optimization— a Novel Ecological Inspired Heuristic Algorithm for Global Optimization	Jing An, Qi Kang , Qidi Wu
CC-0004	Doubly Constrained Robust Blind Beamforming Algorithm	Xin Song, Jinkuan Wang, Qiuming Li, Han Wang
NCA-0004	Kernelized LARS-LASSO for Constructing Radial Basis Function Neural Networks	Quan Zhou, Shiji Song, Cheng Wu
NCA-0006	Hybrid Neural Network Based on ART2—BP Information Fusion Clustering Control in Circulating Fluidized Bed Boiler	Peifeng Niu, Yunfei Ma, Pengfei Li, Yang Zhang
NCA-0007	Optimal Control of an Electric Vehicle’s Charging Schedule under Electricity Markets	Tian Lan, Junjie Hu, Qi Kang, Chengyong Si, Lei Wang , Qidi Wu
NCA-0015	Fuzzy Control of a Class of Autonomous Formation Constrained Systems	Hairong Dong, Yuanlei Kang, Xiaoxia Yang, Xubin Sun
NEU-0002	Fault Diagnosis and Forecasting in Wind-Power Generation System Based on Support Vector Machines and Multisensor Data Fusion	Yukui Zhang, Shiji Song, Cheng Wu
NEU-0013	Potpourri of Automatic Train Tracking Fuzzy PID Tuning Methods with Input Saturation	Hairong Dong, Shigen Gao, Bin Ning, Xubin Sun

Conference Room Location Guide

1**. Cafeteria** is on the first floor**.**

2. **Meeting room no.1**, **Meeting room no.2**, and **Sakura Hall** are on the first floor.

3. **Lily Hall** is on the second floor**.**

4. **International Conference Hall** is on the second floor.

5. **Shenyang Banquet Hall** is on the second floor.