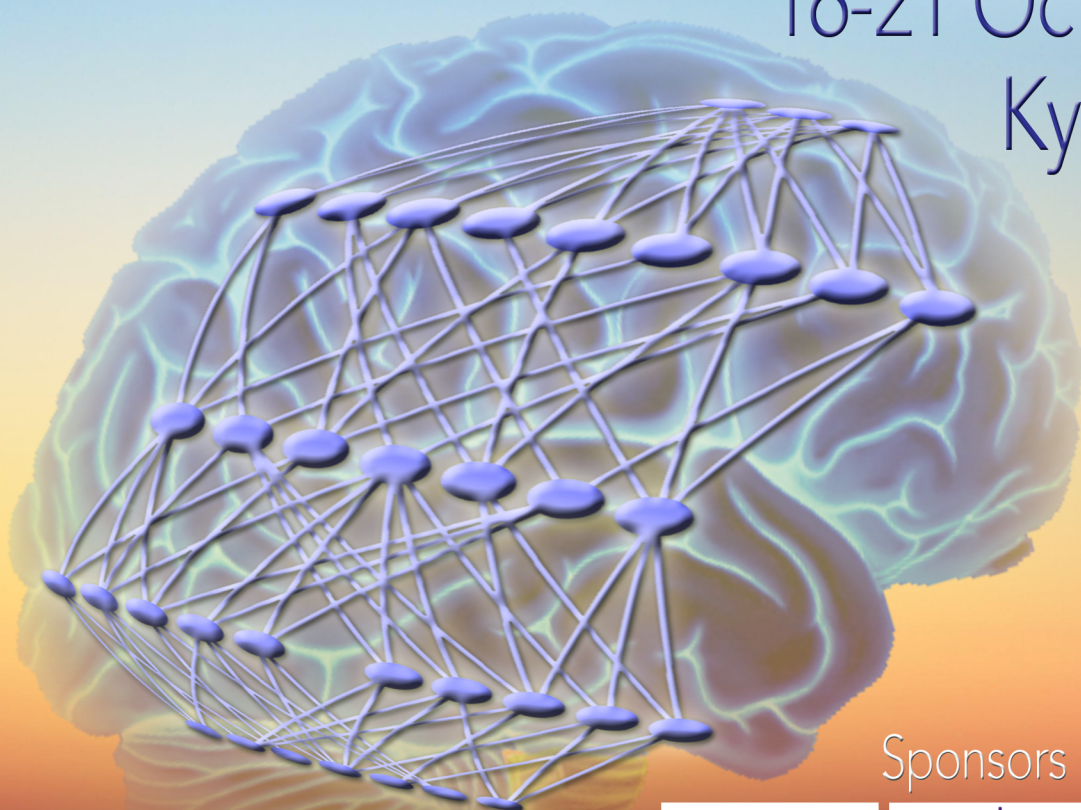


The 23rd International Conference on Neural Information Processing

# ICONIP 2016

## Programme

16-21 October 2016  
Kyoto, Japan



Sponsors



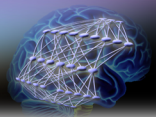
Asia Pacific Neural Network Society



Japanese Neural Network Society

Photo: Kyoto university





**Day 1 (October 16th, Sunday)**

	Clock Tower Centennial Hall	International Conference Hall I	International Conference Hall II	International Conference Hall III	Conference Room III	Conference Room IV
13:00-14:30		<b>Tutorial 1</b> Non-Gaussian Machine Learning: From ICA to unsupervised deep learning  Prof. Aapo Hyvarinen		<b>Tutorial 2</b> The Use of Robotic Technology and Control Theory to Explore Brain Function and Dysfunction  Prof. Stephen Scott		
14:30-16:00		<b>Tutorial 3</b> Deep Learning, Spiking Neural Networks and Evolving Spatio-Temporal Data Machines  Prof. Nikola Kasabov		<b>Tutorial 4</b> Analysis Methods for Understanding Human Brain Activities  Dr Okito Yamashita		
16:00-16:30			Coffee Break			
16:30-18:30				Best Student Paper Awards Presentation		
18:30-20:30		Welcome Reception				

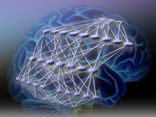
**NOTICE: The conference venue, Kyoto University Clock Tower Centennial Hall, is not open until 9:00.**

**Day 2 (October 17th, Monday)**

	Clock Tower Centennial Hall	International Conference Hall I	International Conference Hall II	International Conference Hall III	Conference Room III	Conference Room IV
9:20-9:30	<b>Opening Remark</b> General Chair Akira Hirose					
9:30-10:20	<b>Plenary 1</b> Deep CNN Neocognitron for Visual Pattern Recognition  Prof. Kunihiko Fukushima					
10:20-10:40			Coffee Break			
10:40-12:20		<b>MonAM-1:</b> Deep and Reinforcement Learning	<b>MonAM-2:</b> Exhibition	<b>MonAM-3:</b> Big Data Analysis	<b>MonAM-4:</b> Neural Data Analysis	<b>MonAM-5:</b> Robotics and Control
12:20-13:20	Lunch (@Cafeteria of Kyoto Univ Coop)					
13:20-15:00		<b>MonPM1-1:</b> Bio-Inspired / Energy-Efficient Information Processing: Theory, Systems, Devices 1	<b>MonPM1-2:</b> Exhibition	<b>MonPM1-3:</b> Whole Brain Architecture: Toward a Human Like General Purpose Artificial Intelligence 1	<b>MonPM1-4:</b> Neurodynamics 1	<b>MonPM1-5:</b> Bioinformatics
15:00-15:20			Coffee Break			
15:20-17:00		<b>MonPM2-1:</b> Bio-Inspired / Energy-Efficient Information Processing: Theory, Systems, Devices 2	<b>MonPM2-2:</b> Exhibition	<b>MonPM1-3:</b> Whole Brain Architecture: Toward a Human Like General Purpose Artificial Intelligence 2	<b>MonPM2-4:</b> Neurodynamics 2	<b>MonPM2-5:</b> Biomedical Engineering

**Day 3 (October 18th, Tuesday)**

	Clock Tower Centennial Hall	International Conference Hall I	International Conference Hall II	International Conference Hall III	Conference Room III	Conference Room IV
9:30-10:20	<b>Plenary 2</b> Recent Developments in Online Learning for Big Data Applications  Prof. Irwin King					
10:20-10:40			Coffee Break			
10:40-12:20		<b>TueAM-1:</b> Data Mining and Cybersecurity Workshop 1	<b>TueAM-2:</b> Exhibition	<b>TueAM-3:</b> Neuromorphic Hardware	<b>TueAM-4:</b> Machine Learning 1	<b>TueAM-5:</b> Sensory Perception
12:20-13:20	Lunch (@Cafeteria of Kyoto Univ Coop)					
13:20-15:00		<b>TuePM1-1:</b> Data Mining and Cybersecurity Workshop 2	<b>TuePM1-2:</b> Exhibition	<b>TuePM1-3:</b> Pattern Recognition 1	<b>TuePM1-4:</b> Machine Learning 2	<b>TuePM1-5:</b> Social Networks
15:00-15:20			Coffee Break			
15:20-17:20		<b>TuePM2-1:</b> Data Mining and Cybersecurity Workshop 3	<b>TuePM2-2:</b> Exhibition	<b>TuePM2-3:</b> Pattern Recognition 2	<b>TuePM2-4:</b> Machine Learning 3	
17:20-19:00			Poster 1			



**Day 4 (October 19th, Wednesday)**

	Clock Tower Centennial Hall	International Conference Hall I	International Conference Hall II	International Conference Hall III	Conference Room III	Conference Room IV
9:30-10:20	<b>Plenary 3</b> DecNef: Tool for Revealing Brain-Mind Causal Relation Dr. Mitsuo Kawato					
10:20-10:40			Coffee Break			
10:40-12:20		<b>WedAM-1:</b> Brain-machine interface	<b>WedAM-2:</b> Exhibition	<b>WedAM-3:</b> Computer Vision 1	<b>WedAM-4:</b> Machine Learning 4	<b>WedAM-5:</b> Time Series Analysis
12:20-14:00		JNNS Meeting (13:00-14:00)	Lunch (@Cafeteria of Kyoto Univ Coop)			
14:00-15:40		<b>WedPM1-1:</b> Data-Driven Approach for Extracting Latent Features from Multi-Dimensional Data 1		<b>WedPM1-3:</b> Computer Vision 2	<b>WedPM1-4:</b> Machine Learning 5	<b>WedPM1-5:</b> Topological and Graph Based Clustering Methods 1
15:40-16:00			Coffee Break			
16:00-17:40		<b>WedPM2-1:</b> Data-Driven Approach for Extracting Latent Features from Multi-Dimensional Data 2	<b>WedPM2-2:</b> Exhibition	<b>WedPM2-3:</b> Computer Vision 3	<b>WedPM2-4:</b> Machine Learning 6	<b>WedPM2-5:</b> Topological and Graph Based Clustering Methods 2
17:40-19:20			<b>Poster 2</b>			

**Day 5 (October 20th, Thursday)**

	Clock Tower Centennial Hall	International Conference Hall I	International Conference Hall II	International Conference Hall III	Conference Room III	Conference Room IV
9:30-10:20	<b>Plenary 4</b> Neural Nets and The Connectome Prof. Sebastian Seung					
10:20-10:40			Coffee Break			
10:40-12:20		<b>ThuAM1-1:</b> Reinforcement learning	<b>ThuAM-2:</b> Applications	<b>ThuAM-3:</b> Computational Intelligence 1	<b>ThuAM-4:</b> Data Mining 1	<b>ThuAM-5:</b> Deep Neural Networks 1
12:20-13:20		Lunch (@Cafeteria of Kyoto Univ Coop)				
13:20-15:00		<b>ThuPM1-1:</b> Workshop on Novel Approaches of Systems Neuroscience to Sports and Rehabilitation 1	<b>ThuPM1-2:</b> Machine Learning 7	<b>ThuPM1-3:</b> Computational Intelligence 2	<b>ThuPM1-4:</b> Data Mining 2	<b>ThuPM1-5:</b> Deep Neural Networks 2
15:00-15:20			Coffee Break			
15:20-17:00		<b>ThuPM2-1:</b> Workshop on Novel Approaches of Systems Neuroscience to Sports and Rehabilitation 2	<b>ThuPM2-2:</b> Computer Vision 4	<b>ThuPM2-3:</b> Computational Intelligence 3	<b>ThuPM2-4:</b> Data Mining 3	<b>ThuPM2-5:</b> Deep Neural Networks 3
<b>Move to Kyoto Hotel Okura</b>						
17:30-18:30	Tea Ceremony & Maiko Greetings (Kyoto Hotel Okura)					
18:30-21:30	Banquet & APNNS Regular Meeting of Members (Kyoto Hotel Okura)					

**Day 6 (October 21th, Friday)**

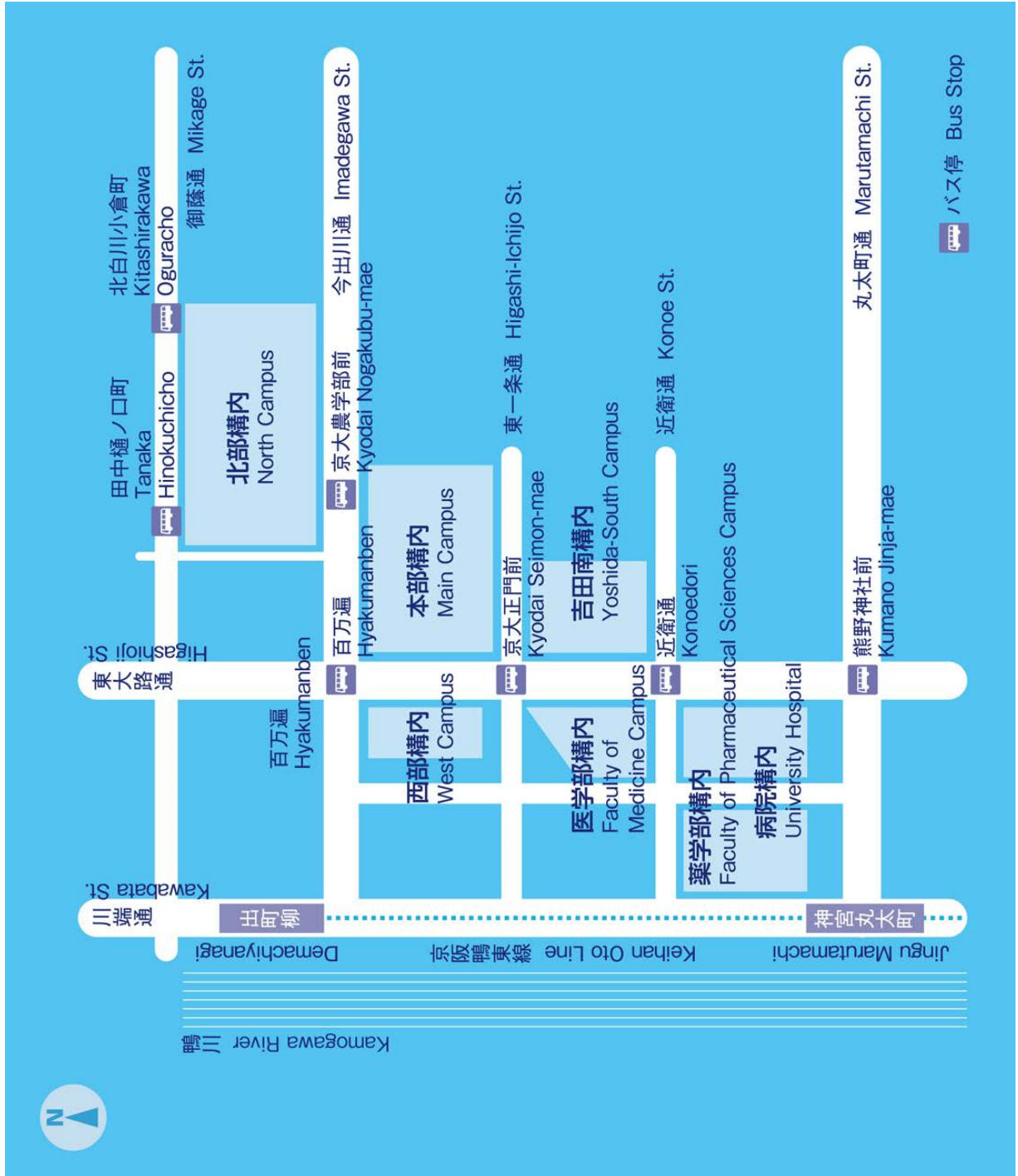
9:00-16:00	Technical Tour (optional) *Please ask the details at the registration desk.
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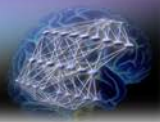
# Available Cafeteria of Kyoto University Coop with a lunch ticket of ICONIP 2016



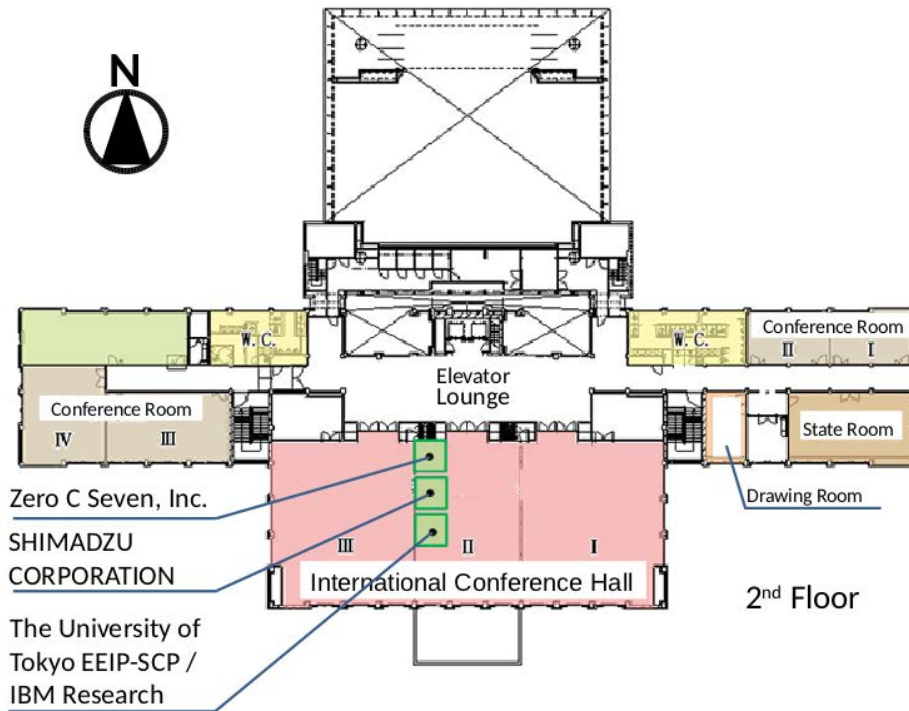


# Bus stops

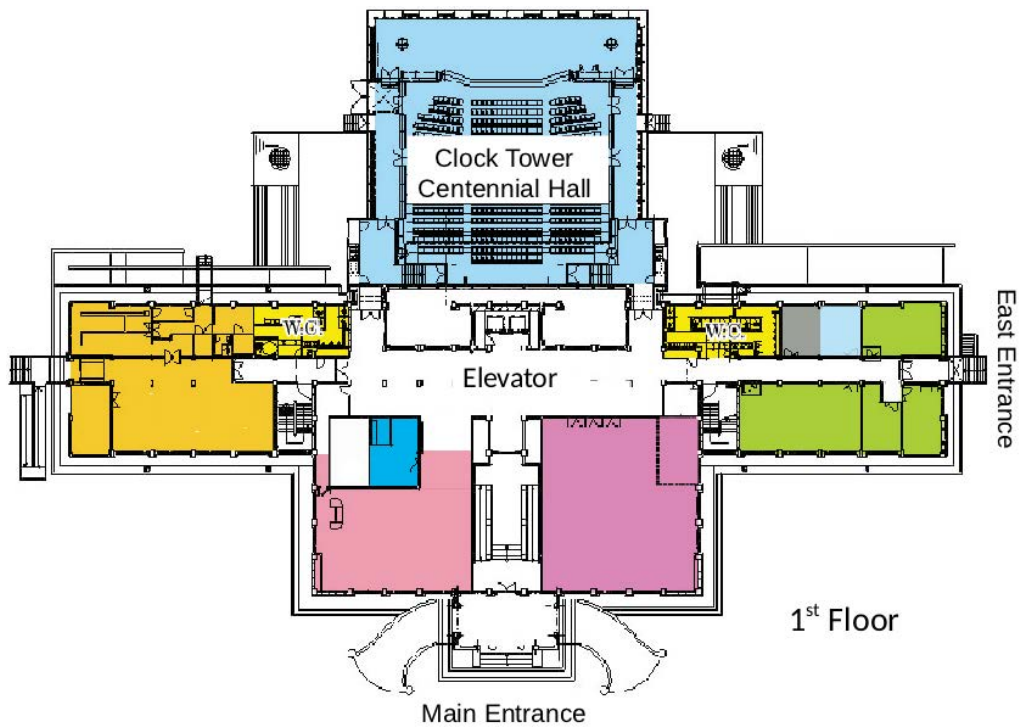




## Floor map



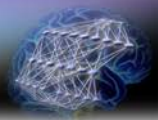
2<sup>nd</sup> Floor



1<sup>st</sup> Floor





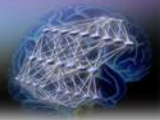


## Tutorials (October 16, 2016)

Tutorial		International Conference Hall I
13:00	- 14:30	Tutorial 1: Non-Gaussian machine learning: From ICA to unsupervised deep learning Aapo Hyvärinen University of Helsinki
14:30	- 16:00	Tutorial 3: Deep Learning, Spiking Neural Networks and Evolving Spatio-Temporal Data Machines Nikola Kasabov, FIEEE, FRNSZ Knowledge Engineering and Discovery Research Institute (KEDRI), Auckland University of Technology
18:30	- 20:30	Welcome Reception
Tutorial		International Conference Hall III
13:00	- 14:30	Tutorial 2: The Use of Robotic Technology and Control Theory to Explore Brain Function and Dysfunction Stephen Scott GSK-CIHR Chair in Neuroscience, Centre for Neuroscience Studies, Department of Biomedical and Molecular Sciences, Queen 's University
14:30	- 16:00	Tutorial 4: Analysis Methods for Understanding Human Brain Activities Okito Yamashita Neural Information Analysis Laboratories, ATR
16:30	- 18:30	Best Student Paper Awards Presentation



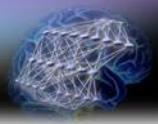




## October 17 (Monday)

<b>Opening Remark</b>	Clock Tower Centennial Hall	9:20	–	9:30
Akira Hirose General Chair of ICONIP2016 (University of Tokyo)				
<b>Plenary 1</b>	Clock Tower Centennial Hall	9:30	–	10:20
chair: Akira Hirose				
<b>Deep CNN Neocognitron for Visual Pattern Recognition</b>				
Kunihiko Fukushima Senior Research Scientist, Fuzzy Logic Systems Institute (Iizuka, Fukuoka, Japan)				





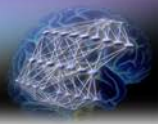
## Monday AM

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<b>MonAM-1</b>	<b>Deep and Reinforcement Learning</b>
Chair:	Kazushi Ikeda
Room:	International Conference Hall I

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10:40	-	11:00	Emotion Prediction from User-Generated Videos by Emotion Wheel Guided Deep Learning Che-Ting Ho <sup>1</sup> , Yu-Hsun Lin <sup>1</sup> , Ja-Ling Wu <sup>1</sup> <sup>1</sup> NTU
<hr/>			
11:00	-	11:20	Deep Q-learning with Prioritized Sampling Jianwei Zhai <sup>1</sup> Quan Liu <sup>1</sup> Zongzhang Zhang <sup>1</sup> Shan Zhong <sup>1</sup> Haijun Zhu <sup>1</sup> Peng Zhang <sup>1</sup> Cijia Sun <sup>1</sup> <sup>1</sup> School of Computer Science & Technology, Soochow University
<hr/>			
11:20	-	11:40	Deep Inverse Reinforcement Learning by Logistic Regression Eiji Uchibe <sup>1</sup> <sup>1</sup> ATR Computational Neuroscience Labs.
<hr/>			
11:40	-	12:00	Parallel Learning for Combined Knowledge Acquisition Model Kohei Henmi <sup>1</sup> , Motonobu Hattori <sup>1</sup> <sup>1</sup> University of Yamanashi
<hr/>			
12:00	-	12:20	Emergence of Higher Exploration in Reinforcement Learning using a Chaotic Neural Network Yuki Goto <sup>1</sup> , Katsunari Shibata <sup>1</sup> <sup>1</sup> Oita University
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**MonAM-3            Big Data Analysis**

Chair: Farookh Hussain, Gohei Tanaka

Room: International Conference Hall III

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10:40    -    11:00    Establishing Mechanism of Warning for River Dust Event based on an Artificial Neural Network  
Yen Hsun Chuang<sup>1</sup>, Ho Wen Chen<sup>1</sup>, Wei Yea Chen<sup>1</sup>, Ya Chin Teng<sup>1</sup>  
<sup>1</sup>Tung Hai University

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11:00    -    11:20    Harvesting multiple resources for Software as Service offers: a big data study  
Asma Alkalbani<sup>1</sup>, Farookh Hussain<sup>1</sup>, Ahmed Ghamry<sup>2</sup>, Omar Hussain<sup>2</sup>  
<sup>1</sup>University of Technology Sydney    <sup>2</sup>University of New South Wales  
Canberra (UNSW Canberra)

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11:20    -    11:40    Cloud Monitoring Data Challenges: A Systematic Review  
Asif Gill<sup>1</sup>, Sarhang Hevary<sup>2</sup>  
<sup>1</sup>University of Technology Sydney (UTS)    <sup>2</sup>University of Technology,  
Sydney (UTS)

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11:40    -    12:00    Locality-Sensitive Linear Bandit Model for Online Social Recommendation  
Tong Zhao<sup>1</sup>, Irwin King<sup>2</sup>  
<sup>1</sup>Shenzhen Key Laboratory of Rich Media Big Data Analytics and Applications, Shenzhen Research Institute, The Chinese University of Hong Kong, Shenzhen, China    <sup>2</sup>Department of Computer Science and Engineering, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

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12:00    -    12:20    An Online-Updating Approach on Task Recommendation in Crowdsourcing Systems  
Man-Ching Yuen<sup>1</sup>, Irwin King<sup>1</sup>, Kwong-Sak Leung<sup>1</sup>  
<sup>1</sup>The Chinese University of Hong Kong

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**MonAM-4      Neural Data Analysis**

Chair: Juergen Fell, Junnosuke Teramae

Room: Conference Room III

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10:40 - 11:00      Inferred duality of synaptic connectivity in local cortical circuit with receptive field correlation  
Kohei Watanabe<sup>1</sup>, Junnosuke Teramae<sup>1</sup>, Naoki Wakamiya<sup>1</sup>  
<sup>1</sup>Graduate School of Information Science and Technology, Osaka University

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11:00 - 11:20      Identifying gifted thinking activities through EEG microstate topology analysis  
Li Zhang<sup>1</sup>, Mingna Cao<sup>1</sup>, Bo Shi<sup>1</sup>  
<sup>1</sup>Bengbu Medical College

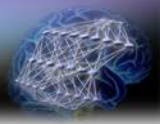
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11:20 - 11:40      Representation of local figure-ground by a group of V4 cells  
Masaharu Hasuike<sup>1</sup>, Yukako Yamane<sup>2</sup>, Hiroshi Tamura<sup>2</sup>, Ko Sakai<sup>1</sup>  
<sup>1</sup>University of Tsukuba    <sup>2</sup>Osaka University

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11:40 - 12:00      Dynamic MEMD associated with Approximate Entropy in Patients' Consciousness Evaluation  
Gaochao Cui<sup>1,2</sup>, Qibin Zhao<sup>1,2</sup>, Toshihisa Tanaka<sup>3</sup>, Jianting Cao<sup>1,2</sup>, Andrzej Cichocki<sup>2</sup>  
<sup>1</sup>Saitama Institute of Technology    <sup>2</sup>Brain Science Institute, RIKEN  
<sup>3</sup>Tokyo University

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**MonAM-5            Robotics and Control**

Chair:    Shuichi Kurogi, Sung-Bae Cho

Room:    Conference Room IV

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10:40    -    11:00    Neural Dynamic Programming for Event-Based Nonlinear Adaptive Robust Stabilization  
Ding Wang<sup>1</sup>, Hongwen Ma<sup>1</sup>, Derong Liu<sup>2</sup>, Huidong Wang<sup>3</sup>  
<sup>1</sup>Institute of Automation, Chinese Academy of Sciences <sup>2</sup>University of Science and Technology Beijing <sup>3</sup>Shandong University of Finance and Economics

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11:00    -    11:20    Entropy Maximization of Occupancy Grid Map for Selecting Good Registration of SLAM Algorithms  
Daishiro Akiyama<sup>1</sup>, Kazuya Matsuo<sup>1</sup>, Shuichi Kurogi<sup>1</sup>  
<sup>1</sup>Kyushu Institute of Technology

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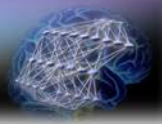
11:20    -    11:40    Analysis of an Intention-Response Model inspired by Brain Nervous System for Cognitive Robot  
Jae-Min Yu<sup>1</sup>, Sung-Bae Cho<sup>1</sup>  
<sup>1</sup>Yonsei University

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11:40    -    12:00    Dynamic Surface Sliding Mode Algorithm Based on Approximation for Three-dimensional Trajectory Tracking Control of an AUV  
Kai Zhang<sup>1</sup>, Tieshan LI<sup>1</sup>, Yuqi Wang<sup>1</sup>, Zifu Li<sup>2</sup>  
<sup>1</sup>Dalian Maritime University <sup>2</sup>Jimei University

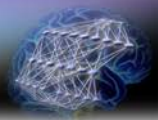
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## Monday PM1

<b>MonPM1-1</b>		<b>Bio-Inspired / Energy-Efficient Information Processing: Theory, Systems, Devices 1</b>
Chair:		Shigeru Nakagawa, Akira Hirose, Daiju Nakano
Room:		International Conference Hall I
13:20	- 13:40	Exploiting Heterogeneous Units for Reservoir Computing with Simple Architecture Gouhei Tanaka <sup>1</sup> , Ryosho Nakane <sup>1</sup> , Toshiyuki Yamane <sup>2</sup> , Daiju Nakano <sup>2</sup> , Seiji Takeda <sup>2</sup> , Shigeru Nakagawa <sup>2</sup> , Akira Hirose <sup>1</sup> <sup>1</sup> The University of Tokyo <sup>2</sup> IBM Research - Tokyo
13:40	- 14:00	Graceful Degradation under Noise on Brain Inspired Robot Controllers Ricardo de Azambuja <sup>1</sup> , Frederico Klein <sup>1</sup> , Martin Stoelen <sup>1</sup> , Samantha Adams <sup>1</sup> , Angelo Cangelosi <sup>1</sup> <sup>1</sup> Plymouth University
14:00	- 14:20	Dynamics of reservoir computing at the edge of stability Toshiyuki Yamane <sup>1</sup> , Seiji Takeda <sup>1</sup> , Daiju Nakano <sup>1</sup> , Gouhei Tanaka <sup>2</sup> , Ryosho Nakane <sup>2</sup> , Shigeru Nakagawa <sup>1</sup> , Akira Hirose <sup>2</sup> <sup>1</sup> IBM Research - Tokyo <sup>2</sup> The University of Tokyo
14:20	- 14:40	Hybrid Gravitational Search Algorithm with Swarm Intelligence for Object Tracking Henry Fung Yeung <sup>1</sup> , Guang Liu <sup>1</sup> , Yuk Ying Chung <sup>1</sup> , Eric Liu <sup>1</sup> , Wei-Chang Yeh <sup>2</sup> <sup>1</sup> University of Sydney <sup>2</sup> National Tsing Hua University, Taiwan
14:40	- 15:00	Photonic Reservoir Computing Based on Laser Dynamics with External Feedback Seiji Takeda <sup>1</sup> , Daiju Nakano <sup>1</sup> , Toshiyuki Yamane <sup>1</sup> , Gouhei Tanaka <sup>2</sup> , Ryosho Nakane <sup>2</sup> , Akira Hirose <sup>2</sup> , Shigeru Nakagawa <sup>1</sup> <sup>1</sup> IBM Research - Tokyo <sup>2</sup> The University of Tokyo




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**MonPM1-3      Whole Brain Architecture: Toward a Human Like General Purpose Artificial Intelligence 1**


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Chair: Takashi Omori, Hiroshi Yamakawa

Room: International Conference Hall III

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13:20 - 13:40      Whole brain architecture approach is a feasible way toward an Artificial General Intelligence  
Hiroshi Yamakawa<sup>1</sup>, Masahiko Osawa<sup>2</sup>, Yutaka Matsuo<sup>3</sup>  
<sup>1</sup>Dwango <sup>2</sup>Keio University <sup>3</sup>The University of Tokyo

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13:40 - 14:00      Learning Visually Guided Risk-Aware Reaching on a Robot Controlled by a GPU Spiking Neural Network  
Terence Sanger<sup>1</sup>  
<sup>1</sup>USC

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14:00 - 14:20      Regularization Methods for the Restricted Bayesian Network BESOM  
Yuuji Ichisugi<sup>1</sup>, Takashi Sano<sup>1</sup>  
<sup>1</sup>AIST

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14:20 - 14:40      Representation of Relations by Planes in Neural Network Language Model  
Takuma Ebisu<sup>1</sup>, Ryutaro Ichise<sup>2</sup>  
<sup>1</sup>SOKENDAI <sup>2</sup>National Institute of Informatics

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14:40 - 15:00      Modeling of emotion system as a value calculation system  
Takashi Omori<sup>1</sup>, Masahiro Miyata<sup>1</sup>  
<sup>1</sup>Tamagawa University

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**MonPM1-4      Neurodynamics 1**

Chair: Katsunari Shibata, Toshimichi Saito

Room: Conference Room III

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13:20    -    13:40    Modeling Attention-Induced Reduction of Spike Synchrony in the Visual Cortex  
Nobuhiko Wagatsuma<sup>1</sup>, Rudiger der Heydt<sup>2</sup>, Ernst Niebur<sup>2</sup>  
<sup>1</sup>Tokyo Denki University   <sup>2</sup>Johns Hopkins University

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13:40    -    14:00    A Robust TOA Source Localization Algorithm based on LPNN  
Chi Sing Leung<sup>1</sup>, Hao Wang<sup>1</sup>, Ruibin Feng<sup>1</sup>  
<sup>1</sup>City University of Hong Kong

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14:00    -    14:20    Reward-Based Learning of a Memory-Required Task based on the Internal Dynamics of a Chaotic Neural Network  
Toshitaka Matsuki<sup>1</sup>, Katsunari Shibata<sup>1</sup>  
<sup>1</sup>Oita University

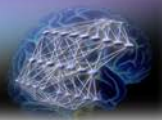
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14:20    -    14:40    Roles of Gap Junctions in Organizing Traveling Waves in a Hippocampal CA3 Network Model  
Toshikazu Samura<sup>1</sup>, Yutaka Sakai<sup>2</sup>, Hatsuo Hayashi<sup>3</sup>, Takeshi Aihara<sup>2</sup>  
<sup>1</sup>Yamaguchi University   <sup>2</sup>Tamagawa University   <sup>3</sup>Kyushu Institute of Technology

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14:40    -    15:00    Towards Robustness to Fluctuated Perceptual Patterns by a Deterministic Predictive Coding Model in a Task of Imitative Synchronization with Human Movement Patterns  
Ahmadreza Ahmadi<sup>1</sup>, Jun Tani<sup>1</sup>  
<sup>1</sup>KAIST

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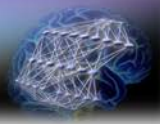
**MonPM1-5****Bioinformatics**

Chair: Kitsuchart Pasupa, Madhu Chetty

Room: Conference Room IV

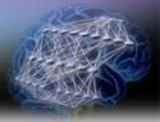
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- |       |   |       |  |
|-------|---|-------|--|
| 13:20 | - | 13:40 | Clustering-based Weighted Extreme Learning Machine for Classification in Drug Discovery Process<br>Wasu Kudisthalert <sup>1</sup> , Kitsuchart Pasupa <sup>1</sup><br><sup>1</sup> Faculty of Information Technology, King Mongkut's Institute of Technology Ladkrabang                      |
| <hr/> |   |       |  |
| 13:40 | - | 14:00 | Metabolite Named Entity Recognition: A Hybrid Approach<br>Wutthipong Kongburan <sup>1</sup> , Praisan Padungweang <sup>1</sup> , Worarat Krathu <sup>1</sup> , Jonathan Chan <sup>1</sup><br><sup>1</sup> School of Information Technology, King Mongkut's University of Technology Thonburi |
| <hr/> |   |       |  |
| 14:00 | - | 14:20 | Improving strategy for discovering interacting genetic variants in association studies<br>Suneetha Uppu <sup>1</sup> , Aneesh Krishna <sup>1</sup><br><sup>1</sup> Curtin University   |
| <hr/> |   |       |  |
| 14:20 | - | 14:40 | Improving Dependency Parsing on Clinical Text with Syntactic Clusters from Web Text<br>Xiuming Qiao <sup>1</sup> , Hailong Cao <sup>1</sup> , Tiejun Zhao <sup>1</sup> , Kehai Chen <sup>1</sup><br><sup>1</sup> Harbin Institute of Technology  |
| <hr/> |   |       |  |
| 14:40 | - | 15:00 | Exploiting Temporal Genetic Correlations for Enhancing Regulatory Network Optimization<br>Ahammed Kizhakkethil Youseph <sup>1</sup> , Madhu Chetty <sup>2</sup> , Gour Karmakar <sup>2</sup><br><sup>1</sup> Monash University, Australia <sup>2</sup> Federation University, Australia      |
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## Monday PM2

<b>MonPM2-1</b>		<b>Bio-Inspired / Energy-Efficient Information Processing: Theory, Systems, Devices 2</b>
Chair:		Shigeru Nakagawa, Akira Hirose, Daiju Nakano
Room:		International Conference Hall I
15:20	- 15:40	FPGA Implementation of Autoencoders having Shared Synapse Architecture Akihiro Suzuki <sup>1</sup> , Takashi Morie <sup>1</sup> , Hakaru Tamukoh <sup>1</sup> <sup>1</sup> Kyushu Institute of Technology Graduate School of Life Science and Systems Engineering
15:40	- 16:00	Time-domain Weighted-sum Calculation for Ultimately Low Power VLSI Neural Networks Quan Wang <sup>1</sup> , Hakaru Tamukoh <sup>1</sup> , Takashi Morie <sup>1</sup> <sup>1</sup> Kyushu Institute of Technology
16:00	- 16:20	A CMOS Unit Circuit Using Subthreshold Operation of MOSFETs for Chaotic Boltzmann Machines Masatoshi Yamaguchi <sup>1</sup> , Takashi Kato <sup>1</sup> , Quan Wang <sup>1</sup> , Hideyuki Suzuki <sup>2</sup> , Hakaru Tamukoh <sup>1</sup> , Takashi Morie <sup>1</sup> <sup>1</sup> Kyushu Institute of Technology <sup>2</sup> Osaka University
16:20	- 16:40	An attempt of speed-up of Neurocommunicator, an EEG-based communication aid. Ryohei Hasegawa <sup>1</sup> <sup>1</sup> AIST
16:40	- 17:00	Computational Performance of Echo State Networks with Dynamic Synapses Ryota Mori <sup>1</sup> , Gouhei Tanaka <sup>1</sup> , Ryosho Nakane <sup>1</sup> , Akira Hirose <sup>1</sup> , Kazuyuki Aihara <sup>1</sup> <sup>1</sup> The University of Tokyo




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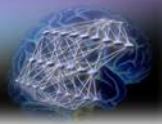
**MonPM2-3      Whole Brain Architecture: Toward a Human Like General Purpose Artificial Intelligence 2**

Chair: Takashi Omori, Hiroshi Yamakawa

 Room: International Conference Hall III
 

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- |       |   |       |   |
|-------|---|-------|---|
| 15:20 | - | 15:40 | The Whole Brain Architecture Initiative<br>Naoya Arakawa <sup>1</sup> , Hiroshi Yamakawa <sup>2</sup><br><sup>1</sup> The Whole Brain Architecture Initiative <sup>2</sup> Dwango   |
| <hr/> |   |       |   |
| 15:40 | - | 16:00 | Neural Network for Quantum Brain Dynamics: 4D $CP^1 + U(1)$ Gauge<br>Theory on Lattice and its Phase Structure<br>Shinya Sakane <sup>1</sup> , Tetsuo Matsui <sup>1</sup><br><sup>1</sup> Kindai University   |
| <hr/> |   |       |   |
| 16:00 | - | 16:20 | BriCA: A Modular Software Platform for Whole Brain Architecture<br>Kotone Itaya <sup>1</sup> , Koichi Takahashi <sup>2</sup> , Masayoshi Nakamura <sup>3</sup> , Moriyoshi<br>Koizumi <sup>4</sup> , Naoya Arakawa <sup>5</sup> , Masaru Tomita <sup>1</sup> , Hiroshi Yamakawa <sup>3</sup><br><sup>1</sup> Keio University <sup>2</sup> RIKEN QBiC <sup>3</sup> DWANGO Co. <sup>4</sup> Open Collector<br>Inc. <sup>5</sup> The Whole Brain Architecture Initiative |
| <hr/> |   |       |   |
| 16:20 | - | 16:40 | An Implementation of Working Memory Using Stacked Half Restricted<br>Boltzmann Machine: Toward to Restricted Boltzmann Machine-Based<br>Cognitive Architecture<br>Masahiko Osawa <sup>1</sup> , Hiroshi Yamakawa <sup>1</sup> , Michita Imai <sup>1</sup><br><sup>1</sup> Keio University / Dwango AI Laboratory  |
| <hr/> |   |       |   |
| 16:40 | - | 17:00 | A Game-Engine-Based Learning Environment Framework for Artificial<br>General Intelligence - Toward Democratic AGI -<br>Masayoshi Nakamura <sup>1</sup> , Hiroshi Yamakawa <sup>1</sup><br><sup>1</sup> DWANGO Co.   |
| <hr/> |   |       |   |




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**MonPM2-4      Neurodynamics 2**

Chair: Katsunari Shibata, Toshimichi Saito

Room: Conference Room III

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15:20 - 15:40 Image Segmentation using Graph Cuts based on Maximum-Flow Neural Network  
Masatoshi Sato<sup>1</sup>, Hideharu Toda<sup>2</sup>, Hisashi Aomori<sup>2</sup>, Tsuyoshi Otake<sup>3</sup>, Mamoru Tanaka<sup>4</sup>  
<sup>1</sup>Tokyo Metropolitan University <sup>2</sup>Chukyo University <sup>3</sup>Tamagawa University <sup>4</sup>Sophia University

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15:40 - 16:00 Joint Routing and Bitrate Adjustment for DASH Video via neurodynamic programming in SDN  
Kunjie Zhu<sup>1</sup>, Junchao Jiang<sup>1</sup>, Bowen Yang<sup>1</sup>, Weizhe Cai<sup>1</sup>, Jian Yang<sup>1</sup>  
<sup>1</sup>University of Science and Technology of China

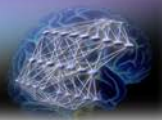
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16:00 - 16:20 Stability of Periodic Orbits in Dynamic Binary Neural Networks with Ternary Connection  
Kazuma Makita<sup>1</sup>, Ryuji Sato<sup>1</sup>, Toshimichi Saito<sup>1</sup>  
<sup>1</sup>Hosei University

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16:20 - 16:40 Evaluation of Chaotic Resonance by Lyapunov Exponent in Attractor-Merging Type Systems  
Sou Nobukawa<sup>1</sup>, Haruhiko Nishimura<sup>2</sup>, Teruya Yamanishi<sup>1</sup>  
<sup>1</sup>Fukui University of Technology <sup>2</sup>University of Hyogo

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**MonPM2-5      Biomedical Engineering**

Chair: Jianwu Li, Atsunori Kanemura

Room: Conference Room IV

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15:20 - 15:40 Sleep Stage Prediction Using Respiration and Body-Movement Based on Probabilistic Classifier  
Hiroataka Kaji<sup>1</sup>, Hisashi Iizuka<sup>1</sup>, Mitsuo Hayashi<sup>2</sup>  
<sup>1</sup>Toyota Motor Corp. <sup>2</sup>Hiroshima University

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15:40 - 16:00 Removing Ring Artifacts in CBCT Images Using Smoothing based on Relative Total Variation  
Qirun Huo<sup>1</sup>, Jianwu Li<sup>1</sup>, Yao Lu<sup>1</sup>, Ziyi Yan<sup>2</sup>  
<sup>1</sup>Beijing Institute of Technology <sup>2</sup>China Resource Wandong Medical Equipment

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16:00 - 16:20 Proposal of a human heartbeat detection/monitoring system employing chirp Z-transform and time-sequential neural prediction  
Ayse Bezer<sup>1</sup>, Akira Hirose<sup>1</sup>  
<sup>1</sup>University of Tokyo

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16:20 - 16:40 Fast Dual-Tree Wavelet Composite Splitting Algorithms for Compressed Sensing MRI  
Jianwu Li<sup>1</sup>, Jinpeng Zhou<sup>1</sup>, Qiang Tu<sup>1</sup>, Javaria Ikram<sup>1</sup>, Zhengchao Dong<sup>2</sup>  
<sup>1</sup>Beijing Institute of Technology <sup>2</sup>Columbia University

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16:40 - 17:00 Implementation of a modular Growing When Required neural gas architecture for recognition of falls  
Frederico Belmonte Klein<sup>1</sup>, Karla Stepanova<sup>2</sup>, Angelo Cangelosi<sup>1</sup>  
<sup>1</sup>Plymouth University <sup>2</sup>FEL CTU in Prague

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## October 18 (Tuesday)

<b>Plenary 2</b>	Clock Tower Centennial Hall	9:30 – 10:20
chair:	Kenji Doya	
<b>Recent Developments in Online Learning for Big Data Applications</b>		
Irwin King		
Department of Computer Science & Engineering. The Chinese University of Hong Kong		

## Tuesday AM

<b>TueAM-1</b>	<b>Data Mining and Cybersecurity Workshop 1</b>	
Chair:	Tao Ban, Paul Pang, Kaizhu Huang	
Room:	International Conference Hall I	
<u>Invited talk</u>		
10:20 - 11:00	Cyber-security Information Sharing with Data Correlation Koji Nakao <sup>1,2</sup> <sup>1</sup> Distinguished Researcher, Cybersecurity Research Institute National Institute of Information and Communications Technology, <sup>2</sup> Information Security advisor, KDDI	
11:00 - 11:20	Botnet Detection Using Graphical Lasso with Graph Density Chansu Han <sup>1</sup> Kento Kono <sup>1</sup> Shoma Tanaka <sup>1</sup> Masanori Kawakita <sup>1</sup> Jun'ichi Takeuchi <sup>1</sup> <sup>1</sup> Graduate School of ISEE, Kyushu University	
11:20 - 11:40	The Usability of Metadata for Android Application Analysis Takeshi Takahashi <sup>1</sup> , Tao Ban <sup>1</sup> , Chin-Wei Tien <sup>2</sup> , Chih-Hung Lin <sup>2</sup> , Daisuke Inoue <sup>1</sup> , Koji Nakao <sup>1</sup> <sup>1</sup> National Institute of Information and Communications Technology, <sup>2</sup> Institute for Information Industry	
11:40 - 12:00	Preserving Privacy of Agents in Reinforcement Learning for Distributed Cognitive Radio Networks Geong Sen Poh <sup>1</sup> , Kok-Lim Alvin Yau <sup>2</sup> <sup>1</sup> MIMOS Berhad <sup>2</sup> Sunway University	




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**TueAM-3          Neuromorphic Hardware**

Chair: Mutsumi Kimura, Toshimichi Saito

 Room: International Conference Hall III
 

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10:40    -    11:00    Simplification of Processing Elements in Cellular Neural Networks - Working Confirmation using Circuit Simulation - Mutsumi Kimura<sup>1</sup>, Nao Nakamura<sup>1</sup>, Tomoharu Yokoyama<sup>1</sup>, Tokiyoshi Matsuda<sup>1</sup>, Tomoya Kameda<sup>2</sup>, Yasuhiko Nakashima<sup>2</sup>  
<sup>1</sup>Ryukoku University    <sup>2</sup>Nara Institute of Science and Technology

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11:00    -    11:20    Pattern and frequency generation using an opto-electronic reservoir computer with output feedback  
 Piotr Antonik<sup>1</sup>, Michiel Hermans<sup>1</sup>, Marc Haelterman<sup>1</sup>, Serge Massar<sup>1</sup>  
<sup>1</sup>Université Libre de Bruxelles

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11:20    -    11:40    A retino-morphic hardware system simulating the graded and action potentials in retinal neuronal layers  
 Yuki Hayashida<sup>1</sup>, Yuka Kudo<sup>1</sup>, Ryoya Ishida<sup>1</sup>, Hirotsugu Okuno<sup>2</sup>, Tetsuya Yagi<sup>1</sup>  
<sup>1</sup>Osaka University    <sup>2</sup>Osaka Institute of Technology

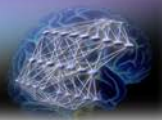
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11:40    -    12:00    Stability Analysis of Periodic Orbits in Digital Spiking Neurons  
 Tomoki Hamaguchi<sup>1</sup>, Kei Yamaoka<sup>1</sup>, Toshimichi Saito<sup>1</sup>  
<sup>1</sup>Hosei University

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12:00    -    12:20    Letter Reproduction Simulator for Hardware Design of Cellular Neural Network using Thin-Film Synapses - Crosspoint-type Synapses and Simulation Algorithm -  
 Tomoya Kameda<sup>1</sup>  
<sup>1</sup>Nara Institute of Science and Technology

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**TueAM-4          Machine Learning 1**

Chair: Daniel Berrar, Kazuyuki Hara

Room: Conference Room III

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10:40    -    11:00    Non-parametric e-mixture of density functions  
Hideitsu Hino<sup>1</sup>, Ken Takano<sup>2</sup>, Shotaro Akaho<sup>3</sup>, Noboru  
Murata<sup>2</sup>

<sup>1</sup>University of Tsukuba    <sup>2</sup>Waseda University    <sup>3</sup>AIST

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11:00    -    11:20    An Entropy Estimator Based on Polynomial Regression with  
Poisson Error Structure

Hideitsu Hino<sup>1</sup>, Shotaro Akaho<sup>2</sup>, Noboru Murata<sup>3</sup>

<sup>1</sup>University of Tsukuba    <sup>2</sup>AIST    <sup>3</sup>Waseda University

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11:20    -    11:40    A problem in model selection of LASSO and introduction of  
scaling

Katsuyuki Hagiwara<sup>1</sup>

<sup>1</sup>Mie University

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11:40    -    12:00    A Theoretical Analysis of Semi-Supervised Learning

Takashi Fujii<sup>1</sup>, Hidetaka Ito<sup>1</sup>, Seiji Miyoshi<sup>1</sup>

<sup>1</sup>Kansai University

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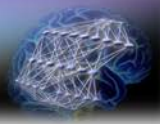
12:00    -    12:20    Evolutionary multi-task learning for modular training of feed-  
forward neural networks

Rohitash Chandra<sup>1</sup> Abhishek Gupta<sup>1</sup> Yew Soon Ong<sup>1</sup>  
ChiKeong Goh<sup>1</sup>

<sup>1</sup>Rolls Royce @NTU Corporate Lab, Nanyang Technological  
University, Nanyang View, Singapore

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**TueAM-4          Sensory Perception**

Chair: Kazuhiro Sakamoto, Yoshiki Kashimori

Room: Conference Room IV

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10:40    -    11:00    An analysis of current source density profiles activated by local stimulation in the mouse auditory cortex in vitro  
Daiki Yamamura<sup>1</sup>, Ayaka Sano<sup>1</sup>, Takashi Tateno<sup>1</sup>  
<sup>1</sup>Hokkaido University

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11:00    -    11:20    Differential Effect of Two Types of Anesthesia on Sound-driven Oscillations in the Rat Primary Auditory Cortex  
Hisayuki Osanai<sup>1</sup> Takashi Tateno<sup>1</sup>  
<sup>1</sup>Hokkaido University

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11:20    -    11:40    Developing an Implantable Micro Magnetic Stimulation System to Induce Neural Activity in vivo  
Shunsuke Minusa<sup>1</sup>, Takashi Tateno<sup>1</sup>  
<sup>1</sup>Hokkaido University

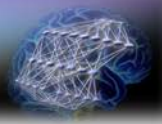
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11:40    -    12:00    "Figure" Saliency as a Meta-Rule for Rule Dynamics in Visual Perception  
Kazuhiro Sakamoto<sup>1</sup>  
<sup>1</sup>Tohoku Medical and Pharmaceutical University

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12:00    -    12:20    A neural network model for retaining object information required in a categorization task  
Yuki Abe<sup>1</sup> Kazuhisa Fujita<sup>2</sup> Yoshiki Kashimori<sup>1</sup>  
<sup>1</sup>University of Electro-Communications    <sup>2</sup>Tsuyama National College of Technology

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## Tuesday PM1

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### TuePM1-1 Data Mining and Cybersecurity Workshop 2

Chair: Tao Ban, Paul Pang, Kaizhu Huang

Room: International Conference Hall I

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#### Invited talk

The emerging era of Cognitive Big Data Informatics: Some Case Studies and future Directions

Amir Hussain<sup>1,2</sup>

13:00 - 13:40 <sup>1</sup>Director, Cognitive Big Data Informatics (CogBID) Laboratory,

<sup>2</sup>Division of Computing Science and Mathematics, University of Stirling, Stirling FK9 4LA, UK

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13:40 - 14:00 winner presentation

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14:00 - 14:20 Campus Wireless LAN Usage Analysis and Its Applications

Kensuke Miyashita<sup>1</sup>, Yuki Maruno<sup>1</sup>

<sup>1</sup>Kyoto Women's University

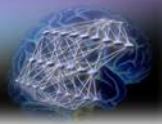
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14:20 - 14:40 MDL Criterion for NMF with Application to Botnet Detection

Shoma Tanaka<sup>1</sup>, Yuki Kawamura<sup>2</sup>, Masanori Kawakita<sup>1</sup>,  
Noboru Murata<sup>3</sup>, Jun'ichi Takeuchi<sup>1</sup>

<sup>1</sup>Graduate School of ISEE Kyushu University <sup>2</sup>Nihon Unisys, Ltd. <sup>3</sup>Waseda University

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**TuePM1-3      Pattern Recognition 1**

Chair: Tong Zhiqiang

Room: International Conference Hall III

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13:20    -    13:40    Weighted Discriminant Analysis and Kernel Ridge Regression  
Metric Learning for Face Verification  
Siew-Chin Chong<sup>1</sup>, Andrew Jin Teoh<sup>2</sup>, Thian-Song Ong<sup>1</sup>  
<sup>1</sup>Multimedia University   <sup>2</sup>Yonsei University

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13:40    -    14:00    An Incremental One Class Learning Framework for Large  
Scale Data  
Qilin Deng<sup>1</sup> Yi Yang<sup>1</sup> Furao Shen<sup>1</sup> Chaomin Luo<sup>2</sup> Jinxi Zhao<sup>1</sup>  
<sup>1</sup>Department of Computer Science and Technology, Nanjing  
University   <sup>2</sup>Department of Electrical and Computer Engi-  
neering, University of Detroit Mercy

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14:00    -    14:20    Gesture Spotting by Using Vector Distance of Self-Organizing  
Map  
Yuta Ichikawa<sup>1</sup>, Shuji Tashiro<sup>1</sup>, Hidetaka Ito<sup>1</sup>, Hiroomi  
Hikawa<sup>1</sup>  
<sup>1</sup>Kansai University

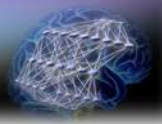
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14:20    -    14:40    Cross-Database Facial Expression Recognition via Unsuper-  
vised Domain Adaptive Dictionary Learning  
Keyu Yan<sup>1</sup>, Wenming Zheng<sup>1</sup>, Zhen Cui<sup>1</sup>, Yuan Zong<sup>1</sup>  
<sup>1</sup>Southeast University

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14:40    -    15:00    Adaptive Multi-View Semi-Supervised Nonnegative Matrix  
Factorization  
Jing Wang<sup>1</sup>, Xiao Wang<sup>2</sup>, Feng Tian<sup>1</sup>, Chang Hong Liu<sup>1</sup>,  
Hongchuan Yu<sup>1</sup>, Yanbei Liu<sup>3</sup>  
<sup>1</sup>Bournemouth University   <sup>2</sup>Tsinghua University   <sup>3</sup>Tianjin  
University

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**TuePM1-4      Machine Learning 2**

Chair: Hiroaki Sasaki, Seiji Miyoshi

Room: Conference Room III

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13:20    -    13:40    On the Noise Resilience of Ranking Measures  
Daniel Berrar<sup>1</sup>  
<sup>1</sup>Shibaura Institute of Technology

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13:40    -    14:00    BPSpike II : A new backpropagation learning algorithm for  
spiking neural networks  
Satoshi Matsuda<sup>1</sup>  
<sup>1</sup>Nihon University

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14:00    -    14:20    Group dropout inspired by ensemble learning  
Kazuyuki Hara<sup>1</sup> Daisuke Saitoh<sup>2</sup> Tasuku Kondo<sup>2</sup> Satoshi  
Suzuki<sup>3</sup> Hayaru Shouno<sup>3</sup>  
<sup>1</sup>College of Industrial Technology, Nihon University,  
<sup>2</sup>Graduate School of Industrial Technology, Nihon Univeristy  
<sup>3</sup>Graduate School of Informatics and Engineering, The Uni-  
versity of Electro-Communications

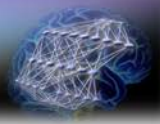
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14:20    -    14:40    Audio Generation From Scene Considering Its Emotion Aspect  
Gwenaelle Cunha Sergio<sup>1</sup>, Minhoo Lee<sup>1</sup>  
<sup>1</sup>Kyungpook National University

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14:40    -    15:00    Semi Supervised Autoencoder  
Anupriya Gogna<sup>1</sup> Angshul Majumdar<sup>1</sup>  
<sup>1</sup>Indraprasatha Institute of Information Technology-Delhi

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**TuePM1-5      Social Networks**

Chair: Ma Huifang, Marcos Quiles

Room: Conference Room IV

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13:20    -    13:40    Influence Spread Evaluation and Propagation Rebuilding  
Qianwen Zhang<sup>1</sup>, Cheng-Chao Huang<sup>1</sup>, Jinkui Xie<sup>1</sup>  
<sup>1</sup>East China Normal University

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13:40    -    14:00    A Tag Probability Correlation-based Microblog Recommen-  
dation Method  
Zhang Di<sup>1</sup>, Ma Huifang<sup>1</sup>  
<sup>1</sup>Northwest Normal University

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14:00    -    14:20    A New Model and Heuristic for Infection Minimization by  
Cutting Relationships  
Rafael Santiago<sup>1</sup>, Wellington Zunino<sup>1</sup>, Fernando Concatto<sup>1</sup>,  
Luís Lamb<sup>2</sup>  
<sup>1</sup>Universidade do Vale do Itajaí <sup>2</sup>Federal University of Rio  
Grande do Sul

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14:20    -    14:40    Sentiment and Behavior Analysis of one Controversial Amer-  
ican Individual on Twitter  
J. Eliakin M. de Oliveira<sup>1</sup>, Moshe Cotacallapa<sup>1</sup>, Wilson  
Seron<sup>2</sup>, Rafael Santos<sup>1</sup>, Marcos Quiles<sup>2</sup>  
<sup>1</sup>INPE <sup>2</sup>UNIFESP

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## Tuesday PM2

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### TuePM2-1 Data Mining and Cybersecurity Workshop 3

Chair: Tao Ban, Paul Pang, Kaizhu Huang

Room: International Conference Hall I

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15:20 - 15:40 A Brief Review of Spin-glass Applications in Unsupervised and Semi-supervised Learning  
Lei Zhu<sup>1</sup>, Kazushi Ikeda<sup>2</sup>, Paul Pang<sup>1</sup>, Ruibin Zhang<sup>1</sup>, Abdolhossein Sarrafzadeh<sup>1</sup>  
<sup>1</sup>Unitec Institute of Technology, New Zealand <sup>2</sup>Nara Institute of Science and Technology

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15:40 - 16:00 Learning Latent Features with Infinite Non-negative Binary Matrix Tri-factorization  
Xi Yang<sup>1</sup> Kaizhu Huang<sup>1</sup> Rui Zhang<sup>1</sup> Amir Hussain<sup>2</sup>  
<sup>1</sup>Xi'an Jiaotong-Liverpool University <sup>2</sup>University of Stirling

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16:00 - 16:20 A Novel Manifold Regularized Online Semi-Supervised Learning Algorithm  
Shuguang Ding<sup>1</sup>, Xuanyang Xi<sup>2</sup>, Zhiyong Liu<sup>2</sup>, Hong Qiao<sup>2</sup>, Bo Zhang<sup>3</sup>  
<sup>1</sup>Institute of Applied Mathematics, AMSS, Chinese Academy of Sciences <sup>2</sup>State Key Lab of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences <sup>3</sup>LSEC and Institute of Applied Mathematics, AMSS, Chinese Academy of Sciences

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16:20 - 16:40 Learning from Few Samples with Memory Network  
Shufei Zhang<sup>1</sup>, Kaizhu Huang<sup>1</sup>  
<sup>1</sup>Xi'an Jiaotong-Liverpool Univ.

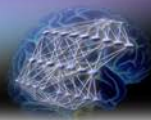
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16:40 - 17:00 Generalized Compatible Function Approximation for Policy Gradient Search  
Yiming Peng<sup>1</sup>, Gang Chen<sup>1</sup>, Mengjie Zhang<sup>1</sup>, Paul Pang<sup>2</sup>  
<sup>1</sup>Victoria University of Wellington <sup>2</sup>Unitec Institute of Technology, New Zealand

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17:00 - 17:20 A Combo Object Model for Maritime Boat Ramps Traffic Monitoring  
Paul pang<sup>1</sup>  
<sup>1</sup>Unitec Institute of Technology, New Zealand

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**TuePM2-3      Pattern Recognition 2**

Chair: Hiroomi Hikawa, Tong Zhiqiang

Room: International Conference Hall III

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15:20    -    15:40    Robust Soft Semi-Supervised Discriminant Projection for Feature Learning  
Xiaoyu Wang<sup>1</sup>, Zhao Zhang<sup>1</sup>, Yan Zhang<sup>1</sup>  
<sup>1</sup>Soochow University

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15:40    -    16:00    A Hybrid Pooling Method for Convolutional Neural Networks  
Tong Zhiqiang<sup>1</sup> Kazuyuki Aihara<sup>1</sup> Gouhei Tanaka<sup>1</sup>  
<sup>1</sup>The University of Tokyo

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16:00    -    16:20    Multi-nation and multi-norm License plates detection in real traffic surveillance environment using Deep Learning  
Amira Naimi<sup>1</sup> Yousri Kessentini<sup>1</sup> Mohamed Hammami<sup>1</sup>  
<sup>1</sup>MIRACL

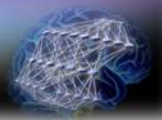
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16:20    -    16:40    A study on cluster size sensitivity of fuzzy c-means algorithm variants  
Laszlo Szilagyi<sup>1</sup>, Sandor Miklos Szilagyi<sup>2</sup>, Calin Enachescu<sup>2</sup>  
<sup>1</sup>Sapientia University of Transylvania, Tirgu Mures, Romania  
<sup>2</sup>Petru Maior University

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16:40    -    17:20    Invited talk  
Statistical mechanics of pre-training and fine tuning in deep learning  
Masayuki Ohzeki<sup>1</sup>  
<sup>1</sup>Graduate School of Informatics, Kyoto University.

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**TuePM2-4      Machine Learning 3**

Chair: Hideitsu Hino, Seiji Miyoshi

Room: Conference Room III

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15:20    -    15:40    Sampling-based Gradient Regularization for Capturing Long-Term Dependencies in Recurrent Neural Networks

Artem Chernodub<sup>1</sup>, Dimitri Nowicki<sup>1</sup><sup>1</sup>Institute of MMS of NAS of Ukraine

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15:40    -    16:00    FACE HALLUCINATION USING CORRELATIVE RESIDUE COMPENSATION IN A MODIFIED FEATURE SPACE

Javaria Ikram<sup>1</sup>, Yao Lu<sup>1</sup>, Jianwu Li<sup>1</sup>, Hui Nie<sup>1</sup><sup>1</sup>Beijing Institute of Technology

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16:00    -    16:20    Modal Regression via Direct Log-Density Derivative Estimation

Hiroaki Sasaki<sup>1</sup>, Yurina Ono<sup>2</sup>, Masashi Sugiyama<sup>2</sup><sup>1</sup>Nara Institute of Science and Technology    <sup>2</sup>The University of Tokyo

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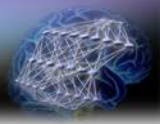
16:20    -    16:40    Simplicial Nonnegative Matrix Tri-Factorization: Fast Guaranteed Parallel Algorithm

Duy Khuong Nguyen<sup>1</sup>, Dinh Quoc Tran<sup>2</sup>, Tu Bao Ho<sup>3</sup><sup>1</sup>University of Engineering and Technology: VNU    <sup>2</sup>The University of North Carolina at Chapel Hill    <sup>3</sup>JAIST

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16:40    -    17:00    Active Consensus-Based Semi-Supervised Growing Neural Gas

Vinicius Maximo<sup>1</sup>, Mariá Nascimento<sup>1</sup>, Fabricio Breve<sup>2</sup>, Marcos Quiles<sup>1</sup><sup>1</sup>UNIFESP    <sup>2</sup>UNESP



## Poster Session 1

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### Poster1-1 : Applications

Room International Conference Hall II

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Data Analysis of Correlation Between Project Popularity and Code Change Frequency

Dabeeruddin Syed<sup>1</sup>, Jadran Sessa<sup>1</sup>, Andreas Henschel<sup>1</sup>, Davor Svetinovic<sup>1</sup>

<sup>1</sup>Masdar Institute of Science and Technology

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Hidden space neighbourhood component analysis for cancer classification

Li Zhang<sup>1</sup>, Xiaojuan Huang<sup>1</sup>, Bangjun Wang<sup>1</sup>, Fanzhang Li<sup>1</sup>, Zhao Zhang<sup>1</sup>

<sup>1</sup>Soochow University

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Prediction of Bank Telemarketing with Co-training of Mixture-of-Experts and MLP

Jae-Min Yu<sup>1</sup>, Sung-Bae Cho<sup>1</sup>

<sup>1</sup>Yonsei University

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Prioritising Security Tests on Large-Scale and Distributed Software Development Projects by Using Self-Organised Maps

Marcos Alvares<sup>1</sup>, Fernando Lima Neto<sup>2</sup>, Tshilidzi Marwala<sup>1</sup>

<sup>1</sup>University of Johannesburg <sup>2</sup>University of Pernambuco

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Android Malware Detection Method Based on Function Call Graphs

Yuxin Ding<sup>1</sup>, Siyi Zhu<sup>1</sup>, Xiaoling Xia<sup>1</sup>

<sup>1</sup>Harbin Institute of Technology Shenzhen Graduate School

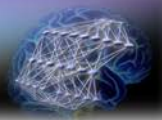
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Proposal of singular-unit restoration by focusing on the spatial continuity of topographical statistics in spectral domain

Kazuhide Ichikawa<sup>1</sup>, Akira Hirose<sup>1</sup>

<sup>1</sup>The University of Tokyo

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**Poster1-2 : Computational & Cognitive Neurosciences**

Room International Conference Hall II

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The Impact of Adaptive Regularization of the Demand Predictor on A  
Multistage Supply Chain Simulation

Fumiaki Saitoh<sup>1</sup>

<sup>1</sup>Aoyama Gakuin University

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The effect of reward information on perceptual decision making

Devu Mahesan<sup>1</sup>, Manisha Chawla<sup>1</sup>, Krishna P Miyapuram<sup>1</sup>

<sup>1</sup>Indian Institute of Technology, Gandhinagar, India

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Doubting What to Eat: A Computational Model for Food Choice Using  
Different Valuing Perspectives

Altaf Hussain Abro<sup>1</sup>, Jan Treur<sup>1</sup>

<sup>1</sup>VU University, Amsterdam, Netherlands

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A Novel Graph Regularized Sparse Linear Discriminant Analysis Model  
for EEG Emotion Recognition

Yang Li<sup>1</sup>, Wenming Zheng<sup>1</sup>, Zhen Cui<sup>1</sup>, Xiaoyan Zhou<sup>2</sup>

<sup>1</sup>Southeast University <sup>2</sup>Nanjing University of Information Science &  
Technology

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Information maximization in a feedforward network replicates the stim-  
ulus preference of the medial geniculate and the auditory cortex

Takuma Tanaka<sup>1</sup>

<sup>1</sup>Shiga University

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A simple visual model accounts for drift illusion and reveals illusory  
patterns

Daiki Nakamura<sup>1</sup>, Shunji Satoh<sup>1</sup>

<sup>1</sup>The University of Electro-Communications

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An Internal Model of the Human Hand Affects Recognition of Graspable  
Tools

Masazumi Katayama<sup>1</sup>, Yusuke Akimaru<sup>1</sup>

<sup>1</sup>Department of Human and Artificial Intelligent Systems, Graduate  
School of Engineering, University of Fukui

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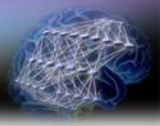
Perceptual Representation of Material Quality — Adaptation to BRDF-  
morphing Images —

Kouki Kudou<sup>1</sup>, Ko Sakai<sup>1</sup>

<sup>1</sup>University of Tsukuba

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Rhinal-hippocampal information flow reverses between memory encoding and retrieval

Juergen Fell<sup>1</sup>, Tobias Wagner<sup>1</sup>, Bernhard Staresina<sup>2</sup>, Charan Ranganath<sup>3</sup>, Christian Elger<sup>1</sup>, Nikolai Axmacher<sup>4</sup>

<sup>1</sup>Dept. of Epileptology, Univ. of Bonn, Germany <sup>2</sup>Dept. of Psychology, Univ. of Birmingham, UK <sup>3</sup>Center for Neuroscience and Dept. of Psychology, Univ. of California, Davis, USA <sup>4</sup>Dept. of Psychology, Ruhr-University Bochum, Germany

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GPU-Accelerated Simulations of an Electric Stimulus and Neural Activities in Electrolocation

Kazuhisa Fujita<sup>1</sup>, Yoshiki Kashimori<sup>2</sup>

<sup>1</sup>Tsuyama National College of Technology <sup>2</sup>Univ. of Electro-Communications

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Analysis of Similarity and Differences in Brain Activities between Perception and Production of Facial Expressions Using EEG Data and the NeuCube Spiking Neural Network Architecture

Hideaki Kawano<sup>1</sup>, Akinori Seo<sup>1</sup>, Zohreh Gholami Doborjeh<sup>2</sup>, Nikola Kasabov<sup>2</sup>, Maryam Gholami Doborjeh<sup>2</sup>

<sup>1</sup>Kyushu Institute of Technology <sup>2</sup>Auckland University of Technology

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Self and Non-self Discrimination Mechanism Based on Predictive Learning with Estimation of Uncertainty

Ryoichi Nakajo<sup>1</sup>, Maasa Takahashi<sup>1</sup>, Shingo Murata<sup>1</sup>, Hiroaki Arie<sup>1</sup>, Tetsuya Ogata<sup>1</sup>

<sup>1</sup>Waseda University

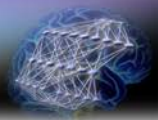
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A Framework for Ontology Based Management of Neural Network as a Service

Erich Schikuta<sup>1</sup>, Abdelkader Magdy<sup>1</sup>, A. Baith Mohamed<sup>2</sup>

<sup>1</sup>University of Vienna <sup>2</sup>Arab Academy for Science and Technology & Maritime Transport, Egypt

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**Poster1-3 : Theory & Algorithms**Room International Conference Hall II

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Modeling the propensity score with statistical learning

Kenshi Uchihashi<sup>1</sup>, Atsunori Kanemura<sup>1</sup><sup>1</sup>National Institute of Advanced Industrial Science and Technology (AIST)

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Analysis of the DNN-*k*WTA Network Model with Drifts in the Offset Voltages of Threshold Logic UnitsChi Sing Leung<sup>1</sup>, Ruibin Feng<sup>1</sup>, John Sum<sup>2</sup><sup>1</sup>City University of Hong Kong <sup>2</sup>National Chung Hsing University

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Efficient Numerical Simulation of Neuron Models with Spatial Structure on Graphics Processing UnitsTsukasa Tsuyuki<sup>1</sup>, Yuki Yamamoto<sup>2</sup>, Tadashi Yamazaki<sup>1</sup><sup>1</sup>The University of Electro-Communications <sup>2</sup>Tokyo Medical and Dental University

---

A Scalable Patch-Based Approach for RGB-D Face RecognitionNesrine GRATI<sup>1</sup>, Achraf Ben-Hamadou<sup>2</sup>, Mohamed Hammami<sup>1</sup><sup>1</sup>Miracl Laboratory Sfax-Tunisia <sup>2</sup>Valeo

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Gaussian Processes based fusion of multiple data sources for automatic identification of geological boundaries in miningKatherine Silversides<sup>1</sup>, Arman Melkumyan<sup>1</sup><sup>1</sup>The University of Sydney

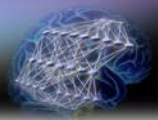
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Speaker Detection in Audio Stream via Probabilistic Prediction Using Generalized GEBIKoki Sakata<sup>1</sup>, Shota Sakashita<sup>1</sup>, Kazuya Matsuo<sup>1</sup>, Shuichi Kurogi<sup>1</sup><sup>1</sup>Kyushu Institute of Technology

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Probabilistic Prediction for Text-Prompted Speaker Verification Capable of Accepting Spoken Words with the Same Meaning but Different PronunciationsShota Sakashita<sup>1</sup>, Satoshi Takeguchi<sup>1</sup>, Kazuya Matsuo<sup>1</sup>, Shuichi Kurogi<sup>1</sup><sup>1</sup>Kyushu Institute of Technology

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Segment-Level Probabilistic Sequence Kernel based Support Vector Machines for Classification of Varying Length Patterns of Speech

Shikha Gupta<sup>1</sup>, Veena Thenkanidiyoor<sup>2</sup>, Dileep A.D<sup>1</sup>

<sup>1</sup>IIT Mandi, H.P India <sup>2</sup>Department of CSE, National Institute of Technology Goa, Ponda, Goa, India

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Attention Estimation for Input Switch in Scalable Multi-Display Environments

Xingyuan Bu<sup>1</sup>, Mingtao Pei<sup>1</sup>, Yunde Jia<sup>1</sup>

<sup>1</sup>Beijing Institute of Technology

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Deep Dictionary Learning vs Deep Belief Network vs Stacked Autoencoder: An Empirical Analysis

Vanika Singhal<sup>1</sup>, Anupriya Gogna<sup>1</sup>, Angshul Majumdar<sup>1</sup>

<sup>1</sup>IIT Delhi

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Bi-directional LSTM Recurrent Neural Network for Chinese Word Segmentation

Yushi Yao<sup>1</sup>, Zheng Huang<sup>1</sup>

<sup>1</sup>Shanghai Jiaotong University

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Alternating optimization method based on nonnegative matrix factorizations for deep neural networks

Tetsuya Sakurai<sup>1</sup>, Akira Imakura<sup>1</sup>, Yuto Inoue<sup>1</sup>, Yasunori Futamura<sup>1</sup>

<sup>1</sup>University of Tsukuba

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Fissionable Deep Neural Network

DongXu Tan<sup>1</sup>, JunMin Wu<sup>2</sup>, HuanXin Zheng<sup>3</sup>, Yan Yin<sup>3</sup>, YaXin Liu<sup>1</sup>

<sup>1</sup>School of Software Engineering of USTC <sup>2</sup>Suzhou Institute for Advanced Study of USTC <sup>3</sup>Department of Computer Science and Technology of USTC

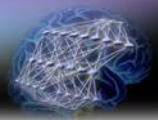
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A Structural Learning Method of Restricted Boltzmann Machine by Neuron Generation and Annihilation Algorithm

Shin Kamada<sup>1</sup>, Takumi Ichimura<sup>2</sup>

<sup>1</sup>Graduate School of Information Sciences, Hiroshima City University, Japan <sup>2</sup>Faculty of Management and Information Systems, Prefectural University of Hiroshima, Japan

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Semi-supervised Learning for Convolutional Neural Networks using Mild Supervisory Signals

Takashi Shinozaki<sup>1</sup>  
<sup>1</sup>NICT CiNet

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On the Singularity in Deep Neural Networks

Tohru Nitta<sup>1</sup>  
<sup>1</sup>National Institute of Advanced Industrial Science and Technology

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A Deep Neural Network Architecture Using Dimensionality Reduction with Sparse Matrices

Wataru Matsumoto<sup>1</sup>, Manabu Hagiwara<sup>2</sup>, Petros Boufounos<sup>3</sup>, Kunihiro Fukushima<sup>1,4</sup>, Toshisada Mariyama<sup>1</sup>, Zhao Xiongxin<sup>1</sup>

<sup>1</sup>Mitsubishi Electric Corporation, Information Technology R&D Center, Kanagawa, Japan <sup>2</sup>Chiba University, Chiba, Japan <sup>3</sup>Mitsubishi Electric Research Laboratories, Cambridge, MA, USA <sup>4</sup>Fuzzy Logic System Institute, Fukuoka, Japan.

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Noisy Softplus: A Biology Inspired Activation Function

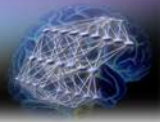
Qian Liu<sup>1</sup>, Steve Furber<sup>1</sup>  
<sup>1</sup>University of Manchester

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Compressing Word Embeddings

Martin Andrews<sup>1</sup>  
<sup>1</sup>Red Cat Labs

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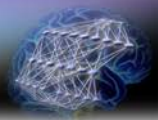
## October 19 (Wednesday)

<b>Plenary 3</b> Clock Tower Centennial Hall 9:30 – 10:20 chair: Ko Sakai
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<b>DecNef: tool for revealing brain-mind causal relation</b>
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Mitsuo Kawato

Director, ATR Brain Information Communication Research Laboratory Group



## Wednesday AM

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### WedAM-1      Brain-machine interface

Chair: Bao-Liang Lu, Kazushi Ikeda

Room: International Conference Hall I

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10:40 - 11:00      Emotion Recognition Using Multimodal Deep Learning  
Wei Liu<sup>1</sup>, Wei-Long Zheng<sup>1</sup>, Bao-Liang Lu<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University

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11:00 - 11:20      Continuous Vigilance Estimation using LSTM Neural Networks  
Nan Zhang<sup>1</sup>, Wei-Long Zheng<sup>1</sup>, Wei Liu<sup>1</sup>, Bao-Liang Lu<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University

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11:20 - 11:40      Motor Priming as a Brain-computer Interface  
Tom Stewart<sup>1</sup>, Kiyoshi Hoshino<sup>1</sup>, Andrzej Cichocki<sup>2</sup>, Tomasz Rutkowski<sup>3</sup>  
<sup>1</sup>University of Tsukuba    <sup>2</sup>RIKEN Brain Science Institute  
<sup>3</sup>The University of Tokyo

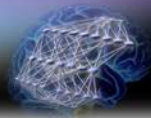
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11:40 - 12:00      Discriminating Object from Non-Object Perception in a Visual Search Task by Joint Analysis of Neural and Eyetracking Data  
Andrea Finke<sup>1</sup>, Helge Ritter<sup>1</sup>  
<sup>1</sup>Bielefeld University

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12:00 - 12:20      Assessing the Properties of Single-Trial Fixation-Related Potentials in a Complex Choice Task  
Dennis Wobrock<sup>1</sup>, Andrea Finke<sup>2</sup>  
<sup>1</sup>CITEC Bielefeld    <sup>2</sup>Bielefeld University

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**WedAM-3      Computer Vision 1**

Chair: Hayaru Shouno

Room: International Conference Hall III

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10:40 - 11:00 Unconstrained face detection from a mobile source using convolutional neural networks  
Shonal Chaudhry<sup>1</sup>, Rohitash Chandra<sup>2</sup>  
<sup>1</sup>Artificial Intelligence and Cybernetics Research Group  
<sup>2</sup>Nanyang Technological University

---

11:00 - 11:20 Driver Face Detection Based on Aggregate Channel Features and Deformable Part-Based Model in Traffic Camera  
Yang Wang<sup>1</sup>, Xiaoma Xu<sup>2</sup>, Mingtao Pei<sup>1</sup>  
<sup>1</sup>Beijing Institute of Technology <sup>2</sup>PetroChina

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11:20 - 11:40 Segmentation with Selectively Propagated Constraints  
Peng Han<sup>1</sup>, Guangzhen Liu<sup>1</sup>, Songfang Huang<sup>2</sup>, Wenwu Yuan<sup>1</sup>, Zhiwu Lu<sup>1</sup>  
<sup>1</sup>Renmin University of China <sup>2</sup>IBM China Research Lab

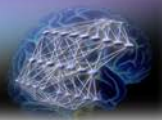
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11:40 - 12:00 Gaussian-Bernoulli Based Convolutional Restricted Boltzmann Machine for Images Feature Extraction  
Ziqiang Li<sup>1</sup>, Xun Cai<sup>1</sup>, Ti Liang<sup>1</sup>  
<sup>1</sup>Shandong university

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12:00 - 12:20 Gaze Movement Control Neural Network Based on Multidimensional Topographic Class Grouping  
Wenqi Zhong<sup>1</sup>, Jun Miao<sup>1</sup>, Laiyun Qing<sup>2</sup>  
<sup>1</sup>Institute of Computing Technology, Chinese Academy of Sciences <sup>2</sup>University of Chinese Academy of Sciences

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**WedAM-4      Machine Learning 4**

Chair: Gergana Lazarova, Nicoló Navarin

Room: Conference Room III

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10:40   -   11:00      Kernel L1-minimization: Application to Kernel Sparse Representation based Classification  
Anupriya Gogna<sup>1</sup>, Angshul Majumdar<sup>1</sup>  
<sup>1</sup>IIT Delhi

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11:00   -   11:20      Nuclear Norm Regularized Randomized Neural Network  
Anupriya Gogna<sup>1</sup>, Angshul Majumdar<sup>1</sup>  
<sup>1</sup>IIT Delhi

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11:20   -   11:40      Gram-Schmidt Orthonormalization to the Adaptive ICA Function for Fixing the Permutation Ambiguity  
Yoshitatsu Matsuda<sup>1</sup>, Kazunori Yamaguchi<sup>1</sup>  
<sup>1</sup>The University of Tokyo

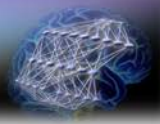
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11:40   -   12:00      Data Cleaning Using Complementary Fuzzy Support Vector Machine Technique  
Ratchakoon Pruengkarn<sup>1</sup>, Kok Wai Wong<sup>1</sup>, Chun Che Fung<sup>1</sup>  
<sup>1</sup>Murdoch University

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12:00   -   12:20      Fault-Tolerant Incremental Learning for Extreme Learning Machines  
Chi Sing Leung<sup>1</sup>, Ho Chun Leung<sup>1</sup>, Eric Wong<sup>1</sup>  
<sup>1</sup>City University of Hong Kong

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**WedAM-5 Time Series Analysis**

Chair: Min Han

Room: Conference Room IV

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10:40 - 11:00 Chaotic feature selection and reconstruction in time series prediction  
Shamina Hussein<sup>1</sup>, Rohitash Chandra<sup>2</sup>  
<sup>1</sup>The University of the South Pacific <sup>2</sup>Nanyang Technological University

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11:00 - 11:20  $L_{1/2}$  Norm Regularized Echo State Network for Chaotic Time Series Prediction  
Meiling Xu<sup>1</sup>, Min Han<sup>1</sup>, Shunshoku Kanae<sup>2</sup>  
<sup>1</sup>Dalian University of Technology <sup>2</sup>Fukui University

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11:20 - 11:40 SVD and Text Mining Integrated Approach to Measure Effects of Disasters on Japanese Economics – Effects of the Thai Flooding in 2011–  
Yukari Shirota<sup>1</sup>, Yuriko Yano<sup>1</sup>  
<sup>1</sup>Gakushuin University

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11:40 - 12:00 Deep Belief Network using Reinforcement Learning and its Applications to Time Series Forecasting  
Takaomi Hirata<sup>1</sup>, Takashi Kuremoto<sup>2</sup>, Masanao Obayashi<sup>1</sup>, Shingo Mabu<sup>2</sup>, Kunikazu Kobayashi<sup>2</sup>  
<sup>1</sup>Yamaguchi University, <sup>2</sup>Aichi Prefectural University

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12:00 - 12:20 Neuron-Network Level problem decomposition method for Co-operative Coevolution of Recurrent Networks for Time Series Prediction  
Ravneil Nand<sup>1</sup>, Emmenuel Reddy<sup>1</sup>, Mohammed Naseem<sup>1</sup>  
<sup>1</sup>University of the South Pacific

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## Wednesday PM1

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**WedPM1-1      Data-Driven Approach for Extracting Latent Features  
from Multi-Dimensional Data 1**

Chair: Toshiaki Omori, Seiichi Ozawa

Room: International Conference Hall I

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14:00    -    14:20    Yet Another Schatten Norm for Tensor Recovery  
Chao Li<sup>1</sup>, Lili Guo<sup>1</sup>, Yu Tao<sup>1</sup>, Jinyu Wang<sup>1</sup>, Lin Qi<sup>1</sup>, Zheng  
Dou<sup>1</sup>  
<sup>1</sup>Harbin Engineering University

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14:20    -    14:40    Memory of reading literature in a hippocampal network model  
based on theta phase coding  
Naoyuki Sato<sup>1</sup>  
<sup>1</sup>Future University Hakodate

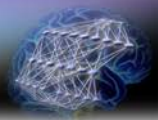
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14:40    -    15:00    Combining Deep Learning and Preference Learning for Object  
Tracking  
Shuchao Pang<sup>1</sup> Juan del Coz<sup>2</sup> Zhezhou Yu<sup>1</sup> Oscar Luaces<sup>2</sup>  
Jorge Diez<sup>2</sup>  
<sup>1</sup>College of Computer Science and Technology, Jilin Uni-  
versity, China <sup>2</sup>Artificial Intelligence Center, University of  
Oviedo at Gijón, Spain

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15:00    -    15:20    A Cost-sensitive Learning Strategy for Feature Extraction  
from Imbalanced Data  
Ali Braytee<sup>1</sup>, Wei Liu<sup>1</sup>, Paul Kennedy<sup>1</sup>  
<sup>1</sup>UTS

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**WedPM1-3      Computer Vision 2**

Chair: Rohitash Chandra, Yide Ma

Room: International Conference Hall III

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14:00 - 14:20 Incremental Robust Nonnegative Matrix Factorization for Object tracking  
Fanghui Liu<sup>1</sup>, Mingna Liu<sup>2</sup>, Tao Zhou<sup>1</sup>, Yu Qiao<sup>3</sup>, Jie Yang<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University <sup>2</sup>Shanghai Institute of Spaceflight Control Technology, Infrared Detection Technology Research and Development Center, China Aerospace Science and Technology Corporation <sup>3</sup>Institute of Image Processing and Pattern Recognition, Shanghai Jiao Tong University

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14:20 - 14:40 High precision direction-of-arrival estimation for wideband signals in environment with interference based on complex-valued neural networks  
Kazutaka Kikuta<sup>1</sup>, Akira Hirose<sup>1</sup>  
<sup>1</sup>The University of Tokyo

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14:40 - 15:00 Content-based Image Retrieval Using Deep Search  
Zhengzhong Zhou<sup>1</sup>, Liqing Zhang<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University

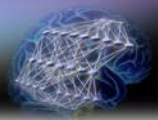
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15:00 - 15:20 Robust Part-Based Correlation Tracking  
Xiaodong Liu<sup>1</sup>, Yue Zhou<sup>1</sup>  
<sup>1</sup>Institute of Image Processing and Pattern Recognition, Shanghai Jiao Tong University

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15:20 - 15:40 A new Weight Adjusted Particle Swarm Optimization for Real-time Multiple Object Tracking  
Guang Liu<sup>1</sup>, Zhenghao Chen<sup>1</sup>, Henry Fung Yeung<sup>1</sup>, Yuk Ying Chung<sup>1</sup>, Wei-Chang Yeh<sup>2</sup>  
<sup>1</sup>the University of Sydney <sup>2</sup>National Tsing Hua University, Taiwan

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**WedPM1-4      Machine Learning 5**

Chair: Katsuyuki Hagiwara, Chi Sing Leung

Room: Conference Room III

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14:00 - 14:20 Character-Aware Convolutional Neural Networks for Paraphrase Identification  
Jiangping Huang<sup>1</sup>, Donghong Ji<sup>1</sup>, Shuxin Yao<sup>2</sup>, Wenzhi Huang<sup>1</sup>  
<sup>1</sup>Wuhan University <sup>2</sup>Carnegie Mellon University

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14:20 - 14:40 Learning a Discriminative Dictionary with CNN for Image Classification  
Shuai Yu<sup>1</sup>, Jie Yang<sup>1</sup>, Tao Zhang<sup>1</sup>, Chao Ma<sup>1</sup>, Lei Zhou<sup>1</sup>, Xiangjian He<sup>2</sup>  
<sup>1</sup>Shanghai Jiao Tong University <sup>2</sup>University of Technology, Sydney, Australia

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14:40 - 15:00 Online Weighted Multi-Task Feature Selection  
Wei Xue<sup>1</sup>, Wensheng Zhang<sup>2</sup>  
<sup>1</sup>Nanjing University of Science and Technology <sup>2</sup>Chinese Academy of Sciences

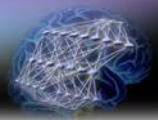
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15:00 - 15:20 Multithreading incremental learning scheme for embedded system to realize a high-throughput  
Daisuke Nishio<sup>1</sup>, Koichiro Yamauchi<sup>1</sup>  
<sup>1</sup>Chubu University

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15:20 - 15:40 Hyper-parameter tuning for graph kernels via Multiple Kernel Learning  
Carlo Maria Massimo<sup>1</sup>, Nicolò Navarin<sup>1</sup>, Alessandro Sperduti<sup>1</sup>  
<sup>1</sup>University of Padova

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**WedPM1-5      Topological and Graph Based Clustering Methods 1**

Chair: Rushed Kanawati, Nistor Grozavu

Room: Conference Room IV

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Tutorial14:00   -   15:00   Topological and Graph Based Clustering: Recent Algorithmic  
AdvancesRushed Kanawati<sup>1</sup>, Nistor Grozavu<sup>1</sup><sup>1</sup> A3-LIPN, University Sorbonne Paris Cité

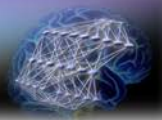
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15:00   -   15:20   Parcellating whole brain for individuals by simple linear iter-  
ative clusteringJing Wang<sup>1</sup>, Zilan Hu<sup>2</sup>, Haixian Wang<sup>1</sup><sup>1</sup>Southeast University   <sup>2</sup>School of Mathematics and Physics,  
Anhui University of Technology, Maanshan, Anhui 243002,  
PR China

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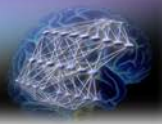
15:20   -   15:40   Overlapping Community Structure Detection of Brain Func-  
tional Network Using Non-negative Matrix FactorizationXuan Li<sup>1</sup>, Zilan Hu<sup>2</sup>, Haixian Wang<sup>1</sup><sup>1</sup>Southeast University   <sup>2</sup>School of Mathematics and Physics,  
Anhui University of Technology, Maanshan, Anhui 243002,  
PR China

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## Wednesday PM2

WedPM2-1		Data-Driven Approach for Extracting Latent Features from Multi-Dimensional Data 2
Chair:		Toshiaki Omori, Seiichi Ozawa
Room:		International Conference Hall I
16:00	- 16:20	Nonnegative Tensor Train Decompositions for Multi-Domain Feature Extraction and Clustering Namgil Lee <sup>1</sup> , Anh-Huy Phan <sup>1</sup> , Fengyu Cong <sup>2</sup> , Andrzej Cichocki <sup>1</sup> <sup>1</sup> RIKEN Brain Science Institute <sup>2</sup> Dalian University of Technology
16:20	- 16:40	Hyper-Parameter Optimization of Sticky HDP-HMM Through an Enhanced Particle Swarm Optimization Jiaxi Li <sup>1</sup> , JunFu Yin <sup>1</sup> , Yuk Ying Chung <sup>1</sup> , Feng Sha <sup>1</sup> <sup>1</sup> University of Sydney
16:40	- 17:00	Approximate inference method for dynamic interactions in larger neural populations Christian Donner <sup>1</sup> , Hideaki Shimazaki <sup>2</sup> <sup>1</sup> Bernstein Center for Computational Neuroscience Berlin <sup>2</sup> RIKEN Brain Science Institute
17:00	- 17:20	Features learning and transformation based on Deep Autoencoders Eric Janvier <sup>1</sup> , Nistor Grozavu <sup>2</sup> , Thierry Couronne <sup>1</sup> <sup>1</sup> Mindlytix <sup>2</sup> LIPN, Paris 13 University
17:20	- 17:40	t-Distributed Stochastic Neighbor Embedding with Inhomogeneous Degrees of Freedom Jun Kitazono <sup>1</sup> , Nistor Grozavu <sup>2</sup> , Nicoleta Rogovschi <sup>3</sup> , Toshiaki Omori <sup>1</sup> , Seiichi Ozawa <sup>1</sup> <sup>1</sup> Kobe University <sup>2</sup> LIPN, Paris 13 University <sup>3</sup> LIPADE, University of Paris Descartes



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**WedPM2-3      Computer Vision 3**

Chair: Rohitash Chandra, Yide Ma

Room: International Conference Hall III

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16:00 - 16:20      Fast Visual Object Tracking Using Convolutional Filters  
Mingxuan Di<sup>1</sup> Guang Yang<sup>1</sup> Qinchuan Zhang<sup>1</sup> Kang Fu<sup>1</sup>  
Hongtao Lu<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University

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16:20 - 16:40      An Effective Approach for Automatic LV Segmentation Based  
on GMM and ASM  
Yurun Ma<sup>1</sup>, Deyuan Wang<sup>1</sup>, Yide Ma<sup>1</sup>, Ruoming Lei<sup>1</sup>, Min  
Dong<sup>1</sup>, Kemin Wang<sup>1</sup>, Li Wang<sup>1</sup>  
<sup>1</sup>Lanzhou University

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16:40 - 17:00      Position Gradient and Plane Consistency based Feature Ex-  
traction  
Sujan Chowdhury<sup>1</sup>, Brijesh Verma<sup>1</sup>, Ligang Zhang<sup>1</sup>  
<sup>1</sup>Central Queensland University

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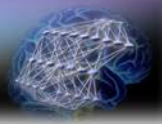
17:00 - 17:20      Fusion of Multi-View Multi-Exposure Images with Delaunay  
Triangulation  
Hanyi Yu<sup>1</sup>, Yue Zhou<sup>2</sup>  
<sup>1</sup>Institute of Image Processing and Pattern Recognition,  
Shanghai Jiao Tong University <sup>2</sup>Institute of Image Process-  
ing and Pattern Recognition, Shanghai Jiao Tong University

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17:20 - 17:40      Detection of Human Faces using Neural Networks  
Mozammel Chowdhury<sup>1</sup>, Junbin Gao<sup>2</sup>, Rafiqul Islam<sup>1</sup>  
<sup>1</sup>Charles Sturt University <sup>2</sup>University of Sydney, Australia

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**WedPM2-4      Machine Learning 6**

Chair: Katsuyuki Hagiwara, Chi Sing Leung

Room: Conference Room III

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16:00    -    16:20    A Corrector for the Sample Mahalanobis Distance Free from  
Estimating the Population Eigenvalues of Covariance Matrix  
Yasuyuki Kobayashi<sup>1</sup>  
<sup>1</sup>Teikyo University

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16:20    -    16:40    Online Learning Neural Network for Adaptively Weighted Hy-  
brid Modeling  
Shaoming Yang<sup>1</sup>, Yalin Wang<sup>1</sup>, Yongfei Xue<sup>1</sup>, Bei Sun<sup>1</sup>, Bu-  
song Yang<sup>1</sup>  
<sup>1</sup>Central South University, School of Information Science and  
Engineering

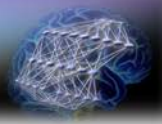
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16:40    -    17:00    Semi-supervised Support Vector Machines - a Genetic Algo-  
rithm Approach  
Gergana Lazarova<sup>1</sup>  
<sup>1</sup>Sofia University St. Kliment Ohridski

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17:00    -    17:20    Hinge Loss Projection for Classification  
Syukron Ishaq Alfarozi<sup>1</sup>, Kuntpong Woraratpanya<sup>1</sup>, Kit-  
suchart Pasupa<sup>1</sup>, Masanori Sugimoto<sup>2</sup>  
<sup>1</sup>Faculty of Information Technology, King Mongkut's Insti-  
tute of Technology Ladkrabang    <sup>2</sup>Hokkaido University

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**WedPM2-5      Topological and Graph Based Clustering Methods 2**

Chair: Rushed Kanawati, Nistor Grozavu

Room: Conference Room IV

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16:00   -   16:20   Collaborative-based multi-scale clustering in very high resolution satellite Images

Jeremie Sublime<sup>1</sup> Antoine Cornuéjols<sup>1</sup> Younes Bennani<sup>2</sup><sup>1</sup>AgroParisTech   <sup>2</sup>University Paris 13

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16:20   -   16:40   Towards Ontology Reasoning for Topological Cluster Labeling  
Hatim Chahdi<sup>1</sup>, Nistor Grozavu<sup>2</sup>

<sup>1</sup>UMR Espace-Dev & LIPN   <sup>2</sup>LIPN, Paris 13 University

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16:40   -   17:00   Overlapping community detection using core label propagation and belonging function

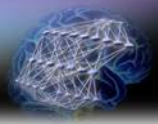
Jean-Philippe Attal<sup>1</sup>, Maria Malek<sup>1</sup>, Marc Zolghadri<sup>2</sup><sup>1</sup>EISTI : École internationale des sciences du traitement de l'information   <sup>2</sup>SUPMECA

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17:00   -   17:20   A new clustering algorithm for dynamic data  
Parisa Rastin<sup>1</sup>, Tong Zhang<sup>1</sup>, Guenael Cabanes<sup>1</sup>

<sup>1</sup>Université Paris 13

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## Poster Session 2

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### Poster2-1 : Applications

Room International Conference Hall II

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Inferring Users' Gender from Interests: A Tag Embedding Approach

Peisong Zhu<sup>1</sup>, Tieyun Qian<sup>1</sup>, Ming Zhong<sup>1</sup>, Xuhui Li<sup>1</sup>

<sup>1</sup>Wuhan University

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Fast color quantization via fuzzy clustering

Laszlo Szilagyi<sup>1,2</sup>, Gellert Denesi<sup>1</sup>, Calin Enachescu<sup>3</sup>

<sup>1</sup>Sapientia University of Transylvania, Tirgu Mures, Romania

<sup>2</sup>Budapest University of Technology and Economics, Hungary <sup>3</sup>Petru  
Maior University of Tirgu Mures, Romania

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Extended Dependency-Based Word Embeddings for Aspect Extraction

Xin Wang<sup>1</sup>, Yuanchao Liu<sup>1</sup>, Chengjie Sun<sup>1</sup>, Ming Liu<sup>1</sup>, Xiaolong Wang<sup>1</sup>

<sup>1</sup>Harbin Institute of Technology

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Topological Order Discovery via Deep Knowledge Tracing

Jiani Zhang<sup>1</sup>, Irwin King<sup>1</sup>

<sup>1</sup>the Chinese University of Hong Kong

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PTR: Phrase-Based Topical Ranking for Automatic Keyphrase Extrac-  
tion in Scientific Publications

Minmei Wang<sup>1</sup>, Bo Zhao<sup>1</sup>, Yihua Huang<sup>1</sup>

<sup>1</sup>The National Key Laboratory for Novel Software Technology, Depart-  
ment of Computer Science and Technology, Nanjing University, China

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Neural Network Based Association Rule Mining from Uncertain Data

Sameen Mansha<sup>1</sup>, Zaheer Babar<sup>1</sup>, Faisal Kamiran<sup>1</sup>, Asim Karim<sup>2</sup>

<sup>1</sup>Information technology University, Punjab, Lahore, Pakistan <sup>2</sup>Lahore  
University of Management Sciences, Pakistan

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Analysis and knowledge discovery by means of Self-Organising Maps for  
Gaia data releases

M. Álvarez<sup>1</sup>, Carlos Dafonte<sup>1</sup>, Daniel Garabato<sup>1</sup>, Minia Manteiga<sup>1</sup>

<sup>1</sup>University of A Coruna

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**Poster2-2 : Computational & Cognitive Neurosciences**

Room International Conference Hall II

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Computational Model of the Cerebellum and the Basal Ganglia for Interval Timing Learning

Ohki Katakura<sup>1</sup>, Tadashi Yamazaki<sup>1</sup>

<sup>1</sup>The University of Electro-Communications.

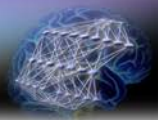
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Bihemispheric cerebellar spiking network model to simulate acute VOR motor learning

Keiichiro Inagaki<sup>1</sup>, Yutaka Hirata<sup>1</sup>

<sup>1</sup>Chubu University

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**Poster2-3 : Theory & Algorithms**

Room International Conference Hall II

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An Iterative Incremental Learning Algorithm for Complex-Valued Hopfield Associative Memory

Naoki Masuyama<sup>1</sup>, Chu Kiong Loo<sup>1</sup>

<sup>1</sup>University of Malaya

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LDA-Based Word Image Representation for Keyword Spotting on Historical Mongolian Documents

Hongxi Wei<sup>1</sup>, Guanglai Gao<sup>1</sup>, Xiangdong Su<sup>1</sup>

<sup>1</sup>Inner Mongolia University

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Solving the Vanishing Information Problem with Repeated Potential Mutual Information Maximization

Ryotaro Kamimura<sup>1</sup>

<sup>1</sup>Tokai University

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Self-Organization on a Sphere with Application to Topological Ordering of Chinese Characters

Andrew Paplinski<sup>1</sup>

<sup>1</sup>Monash University

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A Spectrum Allocation Algorithm Based on Optimization and Protection in Cognitive Radio Networks

Jing Gao<sup>1</sup>, Jianyu Lv<sup>1</sup>, Song Xin<sup>1</sup>

<sup>1</sup>Northeastern University

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A Conjugate Gradient-based Efficient Algorithm for Training Single Hidden Layer Neural Networks

Xiaoling Gong<sup>1</sup>, Jian Wang<sup>1</sup>

<sup>1</sup>China University of Petroleum

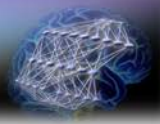
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The Ability of Learning Algorithms for Fuzzy Inference Systems using Vector Quantization

Hirofumi Miyajima<sup>1</sup>, Noritaka Shigei<sup>2</sup>, Hiromi Miyajima<sup>2</sup>

<sup>1</sup>Nagasaki University <sup>2</sup>Kagoshima University

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An improved multi-strategy ensemble artificial bee colony algorithm with neighborhood search

Xinyu Zhou<sup>1</sup>, Mingwen Wang<sup>1</sup>, Jianyi Wan<sup>1</sup>, Jiali Zuo<sup>1</sup>

<sup>1</sup>Jiangxi Normal University

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Gender-Specific Classifiers in Phoneme Recognition and Academic Emotion Detection

Judith Azcarraga<sup>1</sup>, Arnulfo Azcarraga<sup>1</sup>, Arces Talavera<sup>1</sup>

<sup>1</sup>De La Salle University

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Local Invariance Representation Learning Algorithm With Multi-Layer Extreme Learning Machine

Xibin Jia<sup>1</sup>, Xiaobo Li<sup>1</sup>, Hua Du<sup>1</sup>, Bir Bhanu<sup>2</sup>

<sup>1</sup>Beijing University of Technology <sup>2</sup>University of California Riverside

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Two-dimensional Soft Linear Discriminant Projection for Robust Image Feature Extraction and Recognition

Yu Tang<sup>1</sup>, Zhao Zhang<sup>1</sup>, Yan Zhang<sup>1</sup>

<sup>1</sup>Soochow University

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Asymmetric Synaptic Connections in Z(2) Gauge Neural Network

Atsutomo Murai<sup>1</sup>, Tetsuo Matsui<sup>1</sup>

<sup>1</sup>Kindai University

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SOMphony: Visualizing Symphonies using Self Organizing Maps

Arnulfo Azcarraga<sup>1</sup>, Fritz Kevin Flores<sup>1</sup>

<sup>1</sup>De La Salle University

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Online EM for the Normalized Gaussian Network with Weight-Time-Dependent Updates

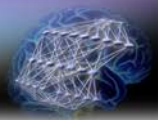
Jana Backhus<sup>1</sup>, Ichigaku Takigawa<sup>1</sup>, Hideyuki Imai<sup>1</sup>, Mineichi Kudo<sup>1</sup>,

Masanori Sugimoto<sup>1</sup>

<sup>1</sup>Hokkaido University

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Learning Phrase Representations Based on Word and Character Embeddings

Jiangping Huang<sup>1</sup>, Donghong Ji<sup>1</sup>, Shuxin Yao<sup>2</sup>, Wenzhi Huang<sup>1</sup>, Bo Chen<sup>1</sup>

<sup>1</sup>Wuhan University <sup>2</sup>Carnegie Mellon University

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A Mobile-Based Obstacle Detection Method: Application to the Assistance of Visually Impaired People

Manal Alshehri<sup>1</sup>, Salma Kammoun Jarraya<sup>2</sup>, Hanene Ben-Abdallah<sup>2</sup>

<sup>1</sup>Faculty of Computing and Information Technology, King Abdulaziz University, Jeddah, Saudi Arabia <sup>2</sup>Faculty of Computing and Information Technology, King Abdulaziz University, Jeddah, Saudi Arabia, MIR-ACL Laboratory

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t-SNE based Visualisation and Clustering of Geological Domain

Mehala Balamurali<sup>1</sup>, Arman Melkumyan<sup>1</sup>

<sup>1</sup>University of Sydney

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Data-based Optimal Tracking Control of Nonaffine Nonlinear Discrete-time Systems

Biao Luo<sup>1</sup>, Derong Liu<sup>2</sup>, Tingwen Huang<sup>3</sup>, Chao Li<sup>1</sup>

<sup>1</sup>Institute of Automation, Chinese Academy of Sciences <sup>2</sup>University of Science and Technology Beijing <sup>3</sup>Texas A&M University at Qatar

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Parallel Learning for Combined Knowledge Acquisition Model

Kohei Henmi<sup>1</sup>, Motonobu Hattori<sup>1</sup>

<sup>1</sup>University of Yamanashi

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Time series classification based on multi-codebook important time subsequence approximation algorithm

Zhiwei Tao<sup>1</sup>, Li Zhang<sup>1</sup>, Bangjun Wang<sup>1</sup>, Fanzhang Li<sup>1</sup>

<sup>1</sup>Soochow University

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Performance Improvement via Bagging in Ensemble Prediction of Chaotic Time Series Using Similarity of Attractors and LOOCV Predictable Horizon

Mitsuki Toidani<sup>1</sup>, Kazuya Matsuo<sup>1</sup>, Shuichi Kurogi<sup>1</sup>

<sup>1</sup>Kyushu Institute of Technology

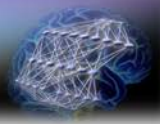
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A review of EEG Signal Simulation methods

Ibrahima Faye<sup>1</sup>, Muhammad Izhan Noorzi<sup>1</sup>

<sup>1</sup>Universiti Teknologi PETRONAS

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A New Blind Image Quality Assessment Based on Pairwise

Jianbin Jiang<sup>1</sup>, Yue Zhou<sup>1</sup>, Liming He<sup>1</sup>

<sup>1</sup>Institute of Image Processing and Pattern Recognition, Shanghai Jiao  
Tong University

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Self-organizing maps as feature detectors for supervised neural network  
pattern recognition

Macario II Cordel<sup>1</sup>, Arren Matthew Antioquia<sup>1</sup>, Arnulfo Azcarraga<sup>1</sup>

<sup>1</sup>De La Salle University

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A Review of Electroencephalogram-based Analysis and Classification  
Frameworks for Dyslexia

Harshani Perera<sup>1</sup>, Mohd Fairuz Shiratuddin<sup>1</sup>, Kok Wai Wong<sup>1</sup>

<sup>1</sup>Murdoch University

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Rule-Based Grass Biomass Classification for Roadside Fire Risk Assess-  
ment

Ligang Zhang<sup>1</sup>, Brijesh Verma<sup>1</sup>

<sup>1</sup>Central Queensland University

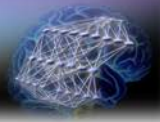
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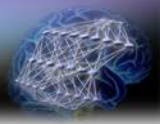
Efficient Recognition of Attentional Bias using EEG data and the Neu-  
Cube Evolving Spatio-Temporal Data Machine

Zohreh Gholami Doborjeh<sup>1</sup>, Maryam Gholami Doborjeh<sup>1</sup>, Nikola  
Kasabov<sup>1</sup>

<sup>1</sup>Auckland University of Technology

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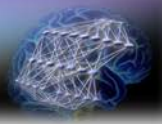
## October 20 (Thursday)

<b>Plenary 4</b> Clock Tower Centennial Hall 9:30 – 10:20 chair: Shin Ishii
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**Neural nets and the connectome**

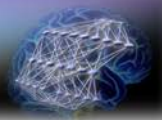
Sebastian Seung

Neuroscience Institute and Computer Science Dept. Princeton University



## Thursday AM

<b>ThuAM-1</b>		<b>Reinforcement learning</b>
Chair:		Derong Liu, Junichiro Yoshimoto
Room:		International Conference Hall I
10:40	- 11:00	Decentralized Stabilization for Nonlinear Systems with Unknown Mismatched Interconnections Bo Zhao <sup>1</sup> , Ding Wang <sup>1</sup> , Guang Shi <sup>1</sup> , Derong Liu <sup>2</sup> , Yuanchun Li <sup>3</sup> <sup>1</sup> Institute of Automation, Chinese Academy of Sciences <sup>2</sup> University of Science and Technology Beijing <sup>3</sup> Changchun University of Technology
11:00	- 11:20	Optimal Constrained Neuro-Dynamic Programming Based Self-Learning Battery Management in Microgrids Qinglai Wei <sup>1</sup> , Derong Liu <sup>2</sup> <sup>1</sup> Institute of Automation, Chinese Academy of Sciences <sup>2</sup> University of Science and Technology Beijing
11:20	- 11:40	Risk sensitive reinforcement learning scheme is suitable for learning on a budget Kazuyoshi Kato <sup>1</sup> , Koichiro Yamauchi <sup>1</sup> <sup>1</sup> Chubu University
11:40	- 12:00	A Kernel-Based Sarsa( $\lambda$ ) Algorithm with Clustering-Based Sample Sparsification Haijun Zhu <sup>1</sup> Fei Zhu <sup>2</sup> Yuchen Fu <sup>2</sup> Quan Liu <sup>2</sup> Jianwei Zhai <sup>2</sup> Cijia Sun <sup>3</sup> Peng Zhang <sup>2</sup> <sup>1</sup> school of computer science&technology, soochow university <sup>2</sup> school of computer science&thechnology, soochow university <sup>3</sup> School of Computer Science and Technology, Soochow University
12:00	- 12:20	Sparse Kernel-based Least Squares Temporal Difference with Prioritized Sweeping Cijia Sun <sup>1</sup> Xinghong Ling <sup>1</sup> Yuchen Fu <sup>1</sup> Quan Liu <sup>1</sup> Haijun Zhu <sup>1</sup> Jianwei Zhai <sup>1</sup> Peng Zhang <sup>1</sup> <sup>1</sup> School of Computer Science & Technology, Soochow University



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**ThrAM-2 Applications**

Chair: Hiroaki Gomi, Nojun Kwak

Room: International Conference Hall II

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10:40 - 11:00 Classifying Human Activities with Temporal Extension of Random Forest  
Shih Yin Ooi<sup>1</sup>, Shing Chiang Tan<sup>1</sup>, Wooi Ping Cheah<sup>1</sup>  
<sup>1</sup>Multimedia University

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11:00 - 11:20 Echo State Network Ensemble for Human Motion Data Temporal Phasing: A Case Study on Tennis Forehands  
Boris Bacic<sup>1</sup>  
<sup>1</sup>Auckland University of Technology

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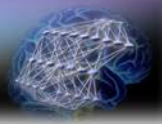
11:20 - 11:40 Unregistered Bosniak Classification with Multi-phase Convolutional Neural Networks  
Myunggi Lee<sup>1</sup>, Hyeogjin Lee<sup>1</sup>, Jiyong Oh<sup>1</sup>, Hak Jong Lee<sup>1</sup>, Seung Hyup Kim<sup>1</sup>, Nojun Kwak<sup>1</sup>  
<sup>1</sup>Seoul National University

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11:40 - 12:00 Direct Estimation of Wrist Joint Angular Velocities from Surface EMGs by Using an SDNN Function Approximator F  
Kazumasa Horie<sup>1</sup>, Atsuo Suemitsu<sup>2</sup>, Tomohiro Tanno<sup>1</sup>, Masahiko Morita<sup>1</sup>  
<sup>1</sup>University of Tsukuba <sup>2</sup>Sapporo University of Health Sciences

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**ThuAM-3          Computational Intelligence 1**

Chair: Tejiro Isokawa, Laizhong Cui

Room: International Conference Hall III

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10:40   -   11:00   Vietnamese POS Tagging for Social Media Text  
Ngo Xuan Bach<sup>1</sup>, Nguyen Dieu Linh<sup>1</sup>, Tu Minh Phuong<sup>1</sup>  
<sup>1</sup>Posts and Telecommunications Institute of Technology,  
Vietnam

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11:00   -   11:20   Scaled Conjugate Gradient Learning for Quaternion-Valued  
Neural Networks  
Calin-Adrian Popa<sup>1</sup>  
<sup>1</sup>Polytechnic University Timisoara

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11:20   -   11:40   Performance of Qubit Neural Network in Chaotic Time Series  
Forecasting  
Taisei Ueguchi<sup>1</sup>, Nobuyuki Matsui<sup>1</sup>, Tejiro Isokawa<sup>1</sup>  
<sup>1</sup>University of Hyogo

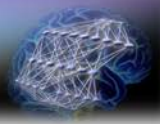
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11:40   -   12:00   The Evolutionary Process of Image Transition in Conjunction  
with Box and Strip Mutation  
Aneta Neumann<sup>1</sup>, Bradley Alexander<sup>1</sup>, Frank Neumann<sup>1</sup>  
<sup>1</sup>The University of Adelaide, School of Computer Science,  
Faculty of Engineering, Computer and Mathematical Science

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12:00   -   12:20   A preliminary model for understanding how life experiences  
generate human emotions and behavioural responses  
Irosh Fernando<sup>1</sup>  
<sup>1</sup>University of Newcastle

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**ThuAM-4      Data Mining 1**

Chair: Tetsuo Furukawa

Room: Conference Room III

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10:40   -   11:00      Semi-Supervised Classification by Nuclear-norm based Trans-  
ductive Label Propagation  
Lei Jia<sup>1</sup>, Zhao Zhang<sup>1</sup>, Yan Zhang<sup>1</sup>  
<sup>1</sup>Soochow University

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11:00   -   11:20      Effective and Efficient Multi-label Feature Selection Ap-  
proaches via Modifying Hilbert-Schmidt Independence Cri-  
terion  
Jianhua Xu<sup>1</sup>  
<sup>1</sup>Nanjing Normal University

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11:20   -   11:40      Storm Surge Prediction for Louisiana Coast Using Artificial  
Neural Networks  
Qian Wang<sup>1</sup>, Jianhua Chen<sup>1</sup>, Kelin Hu<sup>1</sup>  
<sup>1</sup>Louisiana State University

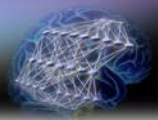
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11:40   -   12:00      Factorization of Multiple Tensors for Supervised Feature Ex-  
traction  
Wei Liu<sup>1</sup>  
<sup>1</sup>UTS

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12:00   -   12:20      A Non-linear Label Compression Coding Method Based on  
Five-layer Auto-encoder for Multi-label Classification  
Jiapeng Luo<sup>1</sup>, Lei Cao<sup>1</sup>, Jianhua Xu<sup>1</sup>  
<sup>1</sup>Nanjing Normal University

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**ThuAM-5          Deep Neural Networks 1**

Chair: Yuki Maruno

Room: Conference Room IV

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10:40    -    11:00    Unsupervised Video Hashing by Exploiting Spatio-Temporal Feature  
Chao Ma<sup>1</sup>, Yun Gu<sup>1</sup>, Wei Liu<sup>1</sup>, Jie Yang<sup>1</sup>, Xiangjian He<sup>2</sup>  
<sup>1</sup>Shanghai Jiao Tong University   <sup>2</sup>University of Technology, Sydney, Australia

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11:00    -    11:20    Selective Dropout for Deep Neural Networks  
Erik Barrow<sup>1</sup>, Mark Eastwood<sup>1</sup>, Chrisina Jayne<sup>2</sup>  
<sup>1</sup>Coventry University   <sup>2</sup>Robert Gordon University

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11:20    -    11:40    Real-time action recognition in surveillance videos using ConvNets  
Sheng Luo<sup>1</sup>, Haojin Yang<sup>1</sup>, Cheng Wang<sup>1</sup>, Xiaoyin Che<sup>1</sup>, Christoph Meinel<sup>1</sup>  
<sup>1</sup>Hasso Plattner Institute

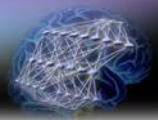
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11:40    -    12:00    An Architecture Design Method of Deep Convolutional Neural Network  
Satoshi Suzuki<sup>1</sup>, Hayaru Shouno<sup>1</sup>  
<sup>1</sup>Graduate School of Informatics and Engineering, The University of Electro-Communications

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12:00    -    12:20    Investigation of the Efficiency of Unsupervised Learning for Multi-task Classification in Convolutional Neural Network  
Jonghong Kim<sup>1</sup>, Gil-Jin Jang<sup>1</sup>, Minhoo Lee<sup>1</sup>  
<sup>1</sup>Kyungpook National University

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**Thursday PM1**

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**ThuPM1-1      Novel Approaches of Systems Neuroscience to Sports and Rehabilitation Workshop 1**

Chair: Yasuharu Koike, Eiichi Naito, Toshitaka Kimura

Room: International Conference Hall I

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13:00 - 13:40      Special talk  
Understanding complex sports behavior: interpersonal competition and cooperation  
Yuji Yamamoto<sup>1</sup>  
<sup>1</sup>Research Center of Health, Physical Fitness & Sports, Nagoya University

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13:40 - 14:00      Talk 1  
Evaluation of sports performance with novel measurement techniques  
Toshitaka Kimura<sup>1</sup>  
<sup>1</sup>NTT Communication Science Laboratories

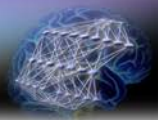
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14:00 - 14:20      Talk 2  
Hitting the sweet spot: investigating the neuroscience behind impact control by humans  
Ganesh Gowrishankar<sup>1</sup>  
<sup>1</sup> CNRS-AIST Joint Robotics Laboratory

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14:20 - 14:40      Talk 3  
Brain plasticity in artificial leg athletes  
Kento Nakagawa<sup>1</sup>  
<sup>1</sup>Graduate School of Arts and Sciences, The University of Tokyo

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**ThuPM1-2      Machine Learning 7**

Chair:    Toshisada Mariyama, Hiroaki Sasaki

Room:    International Conference Hall II

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13:20    -    13:40    Analytical Incremental Learning: Fast Constructive Learning Method for Neural Network  
Syukron Ishaq Alfarozi<sup>1</sup>, Noor Akhmad Setiawan<sup>2</sup>, Teguh Bharata Adji<sup>2</sup>, Kuntpong Woraratpanya<sup>1</sup>, Kitsuchart Pasupa<sup>1</sup>, Masanori Sugimoto<sup>3</sup>  
<sup>1</sup>Faculty of Information Technology, King Mongkut's Institute of Technology Ladkrabang <sup>2</sup>Department of Electrical Engineering and Information Technology, Universitas Gadjah Mada <sup>3</sup>Hokkaido University

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13:40    -    14:00    Acceleration of word2vec using GPUs  
Seulki Bae<sup>1</sup>, Youngmin Yi<sup>1</sup>  
<sup>1</sup>University of Seoul

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14:00    -    14:20    Automatic design of neural network structures using AiS  
Toshisada Mariyama<sup>1</sup>, Kunihiko Fukushima<sup>1</sup>, Wataru Matsumoto<sup>1</sup>  
<sup>1</sup>Mitsubishi Electric

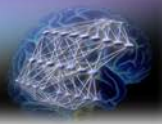
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14:20    -    14:40    Sequential Collaborative Ranking Using (No-)Click Implicit Feedback  
Frédéric Guillou<sup>1</sup>, Romaric Gaudel<sup>1</sup>, Philippe Preux<sup>1</sup>  
<sup>1</sup>Inria, Univ. Lille, CNRS, France <sup>2</sup>Univ. Lille, CNRS, Centrale Lille, Inria, UMR 9189 - CRISAL, Lille, France

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14:40    -    15:00    Group Information-based Dimensionality Reduction via Canonical Correlation Analysis  
Haiping Zhu<sup>1</sup>, Hongming Shan<sup>1</sup>, Youngjoo Lee<sup>2</sup>, Yiwei He<sup>1</sup>, Qi Zhou<sup>1</sup>, Junping Zhang<sup>1</sup>  
<sup>1</sup>Fudan University <sup>2</sup>Samsung Electronics

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**ThuPM1-3      Computational Intelligence 2**

Chair: Kazushi Ikeda, Nobuyuki Matsui

Room: International Conference Hall III

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13:20 - 13:40 Artificial Bee Colony Algorithm Based on Neighboring Information Learning  
Laizhong Cui<sup>1</sup>, Genghui Li<sup>1</sup>, Qiuzhen Lin<sup>1</sup>, Jianyong Chen<sup>1</sup>,  
Nan Lu<sup>1</sup>, Guanqing Zhang<sup>2</sup>  
<sup>1</sup>Shenzhen University <sup>2</sup>E-Techco Information Technologies Co., Ltd

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13:40 - 14:00 Data-driven Design of Type-2 Fuzzy Logic System by Merging Type-1 Fuzzy Logic Systems  
Chengdong Li<sup>1</sup>, Li Wang<sup>1</sup>, Zixiang Ding<sup>1</sup>, Guiqing Zhang<sup>1</sup>  
<sup>1</sup>Shandong Jianzhu university

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14:00 - 14:20 Memetic cooperative neuro-evolution for chaotic time series prediction  
Gary Wong<sup>1</sup>, Rohitash Chandra<sup>2</sup>, Anuraganand Sharma<sup>3</sup>  
<sup>1</sup>Software Foundation Fiji <sup>2</sup>Nanyang Technological University <sup>3</sup>The University of the South Pacific

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14:20 - 14:40 SLA Management Framework to Avoid Violation in Cloud  
Walayat Hussain<sup>1</sup>, Farookh Hussain<sup>1</sup>, Omar Hussain<sup>2</sup>  
<sup>1</sup>University of Technology Sydney <sup>2</sup>University of New South Wales

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14:40 - 15:00 Pattern Retrieval by Quaternionic Associative Memory with Dual Connections  
Toshifumi Minemoto<sup>1</sup>, Teijiro Isokawa<sup>1</sup>, Masaki Kobayashi<sup>2</sup>,  
Haruhiko Nishimura<sup>1</sup>, Nobuyuki Matsui<sup>1</sup>  
<sup>1</sup>University of Hyogo <sup>2</sup>University of Yamanashi

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**ThuPM1-4      Data Mining 2**

Chair: Jianhua Xu

Room: Conference Room III

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13:20   -   13:40   Fast Agglomerative Information Bottleneck based Trajectory Clustering  
Yuejun Guo<sup>1</sup>, Qing Xu<sup>1</sup>, Yang Fan<sup>1</sup>, Sheng Liang<sup>1</sup>, Mateu Sbert<sup>2</sup>  
<sup>1</sup>Tianjin University   <sup>2</sup>Universitat de Girona

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13:40   -   14:00   Anomaly Detection using Correctness Matching through a Neighborhood Rough Set  
Pey Yun Goh<sup>1</sup>, Shing Chiang Tan<sup>1</sup>, Wooi Ping Cheah<sup>1</sup>  
<sup>1</sup>Multimedia University

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14:00   -   14:20   Learning Class-informed Semantic Similarity  
Tinghua Wang<sup>1</sup>, Wei Li<sup>1</sup>  
<sup>1</sup>Gannan Normal University

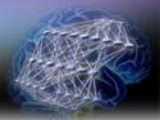
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14:20   -   14:40   Aggregated Temporal Tensor Factorization Model for Point-of-interest Recommendation  
Shenglin Zhao<sup>1</sup>, Michael Lyu<sup>1</sup>, Irwin King<sup>1</sup>  
<sup>1</sup>The Chinese University of Hong Kong

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14:40   -   15:00   Multilevel-Multigroup Analysis by the Hierarchical Tensor SOM Network  
Hideaki Ishibashi<sup>1</sup>, Ryota Shinriki<sup>1</sup>, Hirohisa Isogai<sup>1</sup>, Tetsuo Furukawa<sup>1</sup>  
<sup>1</sup>Kyushu Institute of Technology

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**ThuPM1-5      Deep Neural Networks 2**

Chair: Hayaru Shouno, Minho Lee

Room: Conference Room IV

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13:20    -    13:40      Sparse Auto-encoder with Smoothed l1 Regularization  
Li Zhang<sup>1</sup>, Yaping Lu<sup>1</sup>, Zhao Zhang<sup>1</sup>, Bangjun Wang<sup>1</sup>,  
Fanzhang Li<sup>1</sup>  
<sup>1</sup>Soochow University

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13:40    -    14:00      Encoding Multi-resolution Two-stream CNNs for Action  
Recognition  
Xue Weichen<sup>1</sup>, Zhao Haohua<sup>1</sup>, Zhang Liqing<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University

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14:00    -    14:20      Improving Neural Network Generalization by Combining Par-  
allel Circuits with Dropout  
Kien Tuong Phan<sup>1</sup>, Tomas Henrique Maul<sup>1</sup>, Tuong Thuy Vu<sup>1</sup>,  
Weng Kin Lai<sup>2</sup>  
<sup>1</sup>University of Nottingham Malaysia Campus    <sup>2</sup>Tunku Abdul  
Rahman University College

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14:20    -    14:40      Predicting Multiple Pregrasping Poses Prediction Using Com-  
bining Deep Convolutional Neural Network and Mixture Den-  
sity Network  
Youngbin Park<sup>1</sup>, Sungphill Moon<sup>1</sup>, Il-Hong Suh<sup>1</sup>  
<sup>1</sup>Hanyang university

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14:40    -    15:00      Recurrent Neural Networks for Adaptive Feature Acquisition  
Gabriella Contardo<sup>1</sup>, Ludovic Denoyer<sup>1</sup>, Thierry Artieres<sup>2</sup>  
<sup>1</sup>Sorbonne Universites, UPMC Univ Paris 06, UMR 7606,  
LIP6, F-75005, Paris    <sup>2</sup>Aix Marseille Univ, CNRS, Centrale  
Marseille, LIF, Marseille, France

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**Thursday PM2**

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**ThuPM2-1      Novel Approaches of Systems Neuroscience to Sports and Rehabilitation Workshop 2**

Chair: Yasuharu Koike, Eiichi Naito, Toshitaka Kimura

Room: International Conference Hall I

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Talk 4

Imaging human central motor system in children

15:00 - 15:20      Eiichi Naito<sup>1</sup><sup>1</sup>Center for Information and Neural Networks (CiNet), National Institute of Information and Communications Technology (NICT)

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Talk 5

Development of VR platform for cloud-based neurorehabilitation

15:20 - 15:40      Tetsunari Inamura<sup>1</sup><sup>1</sup> National Institute of Informatics; The Graduate University for Advanced Studies

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Talk 6

Function of the meso-limbic system in motor control

15:40 - 16:00      Michiaki Suzuki<sup>1</sup><sup>1</sup>Graduate school of Medicine, Kyoto University; School of Life Science, SOKENDAI

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Talk 7

Induction of embodiment of a prosthesis into the body

16:00 - 16:20      Noritaka Kawashima<sup>1</sup><sup>1</sup>Research Institute, National Rehabilitation Center for Persons with Disabilities

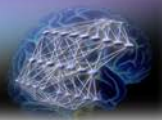
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Talk 8

Muscle synergy analysis for motor control

16:20 - 16:40      Yasuharu Koike<sup>1</sup><sup>1</sup>Institute of Innovative Research, Tokyo Institute of Technology

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**ThuPM2-2      Computer Vision 4**

Chair: Liang Wang

Room: International Conference Hall II

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15:20    -    15:40    Compound PDE-based Image Restoration Algorithm using  
Second-order and Fourth-order Diffusions  
Tudor Barbu<sup>1</sup>

<sup>1</sup>Institute of Computer Science of the Romanian Academy

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15:40    -    16:00    Multi-Swarm Particle Grid Optimization for Object Tracking  
Feng Sha<sup>1</sup>, Henry Fung Yeung<sup>1</sup>, Yuk Ying Chung<sup>2</sup>, Guang  
Liu<sup>1</sup>, Prof. Wei-Chang Yeh<sup>3</sup>

<sup>1</sup>University of Sydney    <sup>2</sup>the University of Sydney    <sup>3</sup>National  
Tsing Hua University, Taiwan

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16:00    -    16:20    Energy-based multi-plane detection from 3D point clouds

Liang Wang<sup>1</sup>, Chao Shen<sup>1</sup>, Fuqing Duan<sup>2</sup>, Ping Guo<sup>2</sup>

<sup>1</sup>Beijing University of Technology    <sup>2</sup>Beijing Normal University

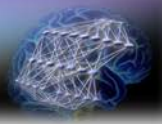
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16:20    -    16:40    Bi-Lp-Norm Sparsity Pursuing Regularization for Blind Mo-  
tion Deblurring

Wanlin Gan<sup>1</sup>, Yue Zhou<sup>2</sup>, Liming He<sup>1</sup>

<sup>1</sup>Shanghai Jiao Tong University    <sup>2</sup>Institute of Image Process-  
ing and Pattern Recognition, Shanghai Jiao Tong University

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**ThuPM2-3 Computational Intelligence 3**

Chair: Kazushi Ikeda, Nobuyuki Matsui

Room: International Conference Hall III

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15:20 - 15:40 A GPU Implementation of a Bat Algorithm Trained Neural Network  
Amit Roy Choudhury<sup>1</sup>, Rishabh Jain<sup>1</sup>, Kapil Sharma<sup>1</sup>  
<sup>1</sup>Delhi Technological University

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15:40 - 16:00 Investigating a dictionary-based non-negative matrix factorization in superimposed digits classification tasks  
Somnuk Phon-Amnuaisuk<sup>1</sup>, Soo-Young Lee<sup>2</sup>  
<sup>1</sup>Universiti Teknologi Brunei <sup>2</sup>Korea Advanced Institute of Science and Technology

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16:00 - 16:20 A Swarm Intelligence Algorithm Inspired by Twitter  
Lv Zhihui<sup>1</sup>, Furao Shen<sup>2</sup>, Jinxi Zhao<sup>2</sup>, Tao Zhu<sup>1</sup>  
<sup>1</sup>Nanjing University <sup>2</sup>Department of Computer Science and Technology, Nanjing University

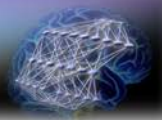
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16:20 - 16:40 Collaborative Filtering, Matrix Factorization & Population Based Search: The Nexus Unveiled  
Ayang Laishram<sup>1</sup>, Satya Prakash Sahu<sup>1</sup>, Vineet Padmanabhan<sup>1</sup>, Siba Kumar Udgata<sup>1</sup>  
<sup>1</sup>University of Hyderabad

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16:40 - 17:00 Adaptive Hausdorff Distances and Tangent Distance Adaptation for Transformation Invariant Classification Learning  
Sascha Saralajew<sup>1</sup>, David Nebel<sup>2</sup>, Thomas Villmann<sup>2</sup>  
<sup>1</sup>Dr. Ing. h.c. Porsche AG <sup>2</sup>Hochschule Mittweida

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**ThuPM2-4      Data Mining 3**

Chair: Jianhua Xu

Room: Conference Room III

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15:20 - 15:40      A Wavelet Deep Belief Network-based Classifier for Medical Images  
Amin Khatami<sup>1</sup>, Abbas Khosravi<sup>1</sup>, Chee Peng Lim<sup>1</sup>, Saeid Nahavandi<sup>1</sup>  
<sup>1</sup>Deakin University

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15:40 - 16:00      Bayesian Neural Networks Based Bootstrap Aggregating for Tropical Cyclone Tracks Prediction in South China Sea  
Lei Zhu<sup>1</sup>, Jin Jian<sup>1</sup>, Alex Cannon<sup>2</sup>, William Hsieh<sup>2</sup>  
<sup>1</sup>East China Normal University    <sup>2</sup>University of British Columbia

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16:00 - 16:20      Credit Card Fraud Detection Using Convolutional Neural Networks  
Kang Fu<sup>1</sup>, Dawei Cheng<sup>1</sup>, Yi Tu<sup>1</sup>, Zhang Liqing<sup>1</sup>  
<sup>1</sup>Shanghai Jiao Tong University

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16:20 - 16:40      An Efficient Data Extraction Framework for Mining Wireless Sensor Networks  
Md. Mamunur Rashid<sup>1</sup>, Iqbal Gondal<sup>2</sup>, Joarder Kamruzzaman<sup>1</sup>  
<sup>1</sup>Monash University    <sup>2</sup>Federation University and Monash University, Australia

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16:40 - 17:00      Incorporating Prior Knowledge Into Context-Aware Recommendation  
Mao Xiaoxi<sup>1</sup>, Zheng Haitao<sup>1</sup>  
<sup>1</sup>Tsinghua University

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**ThuPM2-5      Deep Neural Networks 3**

Chair: Hayaru Shouno, Minhoo Lee

Room: Conference Room IV

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15:20    -    15:40    Stacked Robust Autoencoder for Classification  
Janki Mehta<sup>1</sup>, Kavya Gupta<sup>1</sup>, Anupriya Gogna<sup>1</sup>, Angshul Majumdar<sup>1</sup>, Saket Anand<sup>1</sup>  
<sup>1</sup>Indraprastha Institute of Information Technology Delhi

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15:40    -    16:00    Pedestrian Detection using deep channel features in monocular image sequences  
Zhao Liu<sup>1,2</sup>, Yang He<sup>1</sup>, Yi Xie<sup>1,2</sup>, Hongyan Gu<sup>1</sup>, Chao Liu<sup>1</sup> and Mingtao Pei<sup>1</sup>  
<sup>1</sup>Beijing Lab of Intelligent Information, School of Computer Science, Beijing Institute of Technology, Beijing 100081, P.R.China  
<sup>2</sup>People's Public Security University of China, Beijing 100038, P.R.China

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16:00    -    16:20    Heterogeneous Multi-task Learning on Non-Overlapping Datasets for Facial Landmark Detection  
Takayuki Semitsu<sup>1</sup>, Xiongxin Zhao<sup>1</sup>, Wataru Matsumoto<sup>1</sup>  
<sup>1</sup>Mitsubishi Electric Corporation.

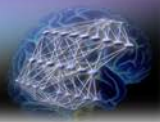
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16:20    -    16:40    Fuzzy string matching using sentence embedding algorithms  
Yu Rong<sup>1</sup>, Xiaolin Hu<sup>1</sup>  
<sup>1</sup>Tsinghua University

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16:40    -    17:00    Initializing Deep Learning based on Latent Dirichlet Allocation for Document Classification  
Hyung-Bae Jeon<sup>1</sup>, Soo-Young Lee<sup>2</sup>  
<sup>1</sup>ETRI <sup>2</sup>KAIST

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Banquet	Kyoto Hotel Okura (October 20th, Thursday)
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17:30 - 18:30 Tea Ceremony & Maiko Greetings

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18:30 - 21:30 Banquet & APNNS Regular Meeting of Members

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