

# SMC Cybernetics Oral Sessions

October 6

8:00 – 9:40

6KC301m

## Cyber 1 Fuzzy Systems

**Possible Chair: Plamen Angelov, Professor, Lancaster University**

- 93** A Parameterized Activation Function for Learning Fuzzy Logic Operations in Deep Neural Networks  
Godfrey, Luke; Gashler, Michael
- 148** Extended Kalman Filter-Based Learning of Interval Type-2 Intuitionistic Fuzzy Logic System  
Eyoh, Imo; John, Robert; De Maere, Geert
- 221** Pythagorean Fuzzy Bonferroni Mean Operators With Their Application To Supply Chain Management  
Wang, Jun, Zhang, Runtong, Buchmeister, Borut
- 503** A Cascade of Deep Learning Fuzzy Rule-based Image Classifier and SVM  
Angelov, Plamen; Gu, Xiaowei
- 911** Improved Fuzzy  $\mathcal{H}_\infty$  Filter Design Method for Nonlinear Systems with Time-Varying Delay  
Ma, Qianqian; Li, Li; Ma, Guangcheng; Shen, Junhui; Xia, Hongwei

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## Cyber 2 Machine Learning II

**Possible Chair: Wu, Q.M. Jonathan, Professor, University of Windsor**

- 299** Multiscale Depth Local Derivative Pattern for Sparse Representation Based 3D Face Recognition  
Soltanpour, Sima; Wu, Q.M. Jonathan
- 382** multi-dimensional motif discovery for large-scale time series in air pollution data  
Liu, Bo; liu, yinxing; Li, Jianqiang
- 619** Robust Affine Registration Based on Corner Point Guided ICP Algorithm  
Wu, Liyang; Xiong, Lei; Du, Shaoyi; Cui, Wenting; Bi, Duyan; Fang, Ting
- 843** Meta-Heuristic Algorithms for Scheduling on Parallel Batch Machines with Unequal Job Ready Times  
Fidelis, Michele; Arroyo, Jose Elias
- 1074** Search Space Reduction Approach in Evolutionary Algorithms: The Case of High-Dimensional Portfolio Replication Problem  
Orito, Yukiko; Hanada, Yoshiko
- 1081** A Late Fusion Approach for Harnessing Multi-CNN Model High-Level Features  
Thangarajah, Akilan; Wu, Q.M. Jonathan; Jiang, Wei Safaei, Amin

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Cyber 3

**Image Processing**

**Possible Chair: Paulo Rodrigo Cavalin, IBM**

- 36** Color Image Watermarking Using Selective MSB-LSB Embedding And 2D Otsu Thresholding  
Huynh-The, Thien; Lee, Sungyoung
- 95** Improved Rank Pooling Strategy for Complex Action Recognition  
Mohammadi, Eman; Wu, Q.M. Jonathan; Saif, Mehrdad
- 391** Object Detection of Satellite Images Using Multi-Channel Higher-order Local Autocorrelation  
Uehara, Kazuki; Sakanashi, Hidenori; Nosato, Hirokazu; Murakawa, Masahiro; Miyamoto, Hiroki; Nakamura, Ryosuke
- 549** Video Summarization Method Based on the Weber Local Descriptor  
Cirne, Marcos; Pedrini, Helio
- 554** Shot Boundary Detection for Video Temporal Segmentation Based on the Weber Local Descriptor  
Santos, Anderson; Pedrini, Helio
- 581** Multi-Scale Texture Recognition Systems with Reduced Cost: A Case Study on Forest Species  
Cavalin, Paulo; Kapp, Marcelo; Oliveira, Luiz
- 787** Multi-Layer Feature Histogram with Correlative Degree for Cross-Camera-Based Target Re-Identification  
Han, Hua; Zhou, Mengchu; Lu, Xiaoyu, Sean; Zhang, Yujin
- 855** Visual Perception based Adaptive Feature Fusion for Object Tracking  
Krieger, Evan; Asari, Vijayan
- 1025** Dynamic Textures Based Target Detection for PTZ Camera Sequences  
Zitouni, M. Sami; Bhaskar, Harish; Sluzek, Andrzej
- 1096** A Content-Specific IQM Augmentation Technique for Better Assessment of Image Quality  
Kamballur Kottayil, Navaneeth; Cheng, Irene
- 1157** Synthetic Minority Image Over-sampling Technique: How to Improve AUC for Glioblastoma Patient Survival Prediction  
Liu, Renhao; Hall, Lawrence; Bowyer, Kevin; Goldgof, Dmitry; Gatenby, Robert; Ben Ahmed, Kaoutar

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Cyber 4

**Neural Network**

**Possible Chair: HUANG, DEXIAN, Professor, Tsinghua University**

- 232** Representing and Reasoning with Constrained PCP-Nets  
Mouhoub, Malek; El Fidha, Sleh; Ben Amor, Nahla; Alanazi, Eisa
- 278** A Multi-Scale Fusion Convolutional Neural Network for Face Detection  
Chen, Qiaosong; Xiaomin, Meng; Wen, Li; Xingyu, Fu; Xin, Deng; Jin, Wang
- 304** Novel Hybrid CNN-SVM Model for Recognition of Functional Magnetic Resonance Images  
Sun, Xiaolong; Park, Juyoung; Hur, Junbeom; Kang, Kyungtae
- 363** Controlled Dropout: A Different Dropout for Improving Training Speed on Deep Neural Network  
Ko, ByungSoo; Kim, Han-Gyu; Choi, Ho-Jin

- 379** Imbalanced Data Classification Using Complementary Fuzzy Support Vector Machine Techniques and SMOTE  
Prueangkarn, Ratchakoon; Wong, Kok Wai; Fung, Chu Che
- 539** A Scale-Invariant Framework for Image Classification with Deep Learning  
Jiang, Yalong; Chi, Zheru
- 541** Deep Q Learning for Traffic Simulation in Autonomous Driving at a Highway Junction  
Kashihara, Koji
- 700** Deep Metric Learning for Scene Text Detection  
Zhu, Qi-Hai; Zhu, Rui; Li, Ning; Yang, Yu-Bin
- 736** Automatic Hyper-Parameter Tuning for Soft Sensor Modeling Based on Dynamic Deep Neural Network  
Wang, Kangcheng; Shang, Chao; Yang, Fan; Jiang, Yongheng; HUANG, DEXIAN
- 807** Trajectory tracking on complex networks via neural sliding-mode pinning control  
Vega-Perez, Carlos Jesus; Suarez-Sierra, Oscar Javier; Nelson Sánchez Camperos., Edgar; Chen, Guanrong
- 1148** Biologically Motivated Quantum Neural Networks  
teck, james; Behrman, Elizabeth

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**6KC105f**

**Cyber 5**

**Pattern Recognition**

**Possible Chair: Il-Chul Moon, Assistant Professor, KAIST**

- 164** BSMBBoost for Imbalanced Pattern Classification Problems  
Ng, Wing Yin; Zhang, Yuda; Zhang, Jianjun
- 213** Trend Classification by Bayesian Network and Gaussian Mixture Model  
Wang, Bo; Liu, Xiaodong; Wang, Wei
- 241** Predicting the Number of Driving Service Orders in Fine-Grained Regions by an Ensemble Multi-View-Based Model  
Luo, Pei; Guo, Ping; Xin, Xin; Zhang, Kuai
- 333** Hybrid Modeling and Simulation of Tactical Maneuvers in Computer Generated Force  
Bae, Jang Won; Lee, Junseok; Nam, Bowon; Kim, Kee-Eung; Moon, Il-Chul
- 372** Rare Chinese Character Recognition by Radical Extraction Network  
yan, ziang zhang, changshui
- 625** Autoencoder, Low Rank approximation and Pseudoinverse Learning Algorithm  
Wang, Ke; Guo, Ping; Xin, Xin; Yao, Yao; Ye, Zebin
- 706** Fine-Grained News Recommendation by Fusing Matrix Factorization, Topic Analysis and Knowledge Graph Representation  
Zhang, Kuai; Guo, Ping; Xin, Xin; Luo, Pei
- 854** Text Augmented Automatic Statistician for Predicting Approval Rates of Politicians  
Park, JunKeon; Na, Yeongyeon; Moon, Il-Chul
- 887** CSnet: Constructing Symptom Network Based on Disease-Symptom Relationships  
Kim, Jungrim Kim, Jeongwoo; Park, Sanghyun
- 1035** Automatic Action Segmentation and Continuous Recognition for Basic Indoor Actions Based on Kinect Pose Streams  
Han, Yun; Chung, Sheng-Luen; Su, Shun-Feng

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Cyber 6

**Cybernetics for Informatics**

**Possible Chair: Macnab, Chris, Associate Professor, University of Calgary**

- 112 Evaluation of a Classification Method for MR Image Segmentation  
Kubota, Yoshihiko; Tsuruta, Setsuo; Kobashi, Syoji; Sakurai, Yoshitaka Knauf, Rainer
- 169 Study on an Adaptive GMDH-PID Controller Using Adaptive Moment Estimation  
Wakitani, Shin; Ishimura, Akihiro; Yamamoto, Toru
- 309 Control of a Flexible-Joint Robot Using a Stable Adaptive Introspective CMAC  
Macnab, Chris; Razmi, Mohammadsaleh
- 316 Object-Oriented Stripe Structured-Light Vision-Guided Robot  
Zhang, Liang; Zhang, jian-zhou
- 343 Acquiring grasp strategies for a multifingered robot hand using evolutionary algorithms  
Hirayama, Chiaki; Watanabe, Toshiya; Kawabata, Shinji; Sukanuma, Masanori; Nagao, Tomoharu
- 359 Real-time Rigid Motion Segmentation using Grid-based Optical Flow  
Lee, Sangil; Kim, H. Jin
- 405 A Framework for Fall Detection of Elderly People by Analyzing Environmental Sounds through Acoustic Local Ternary Patterns  
Irtaza, Aun; Adnan, Syed; Aziz, Sumair; Ali, Javed; Ullah, Obaid; Mahmood, Muhammad Tariq
- 472 Decentralized Reinforcement Social Learning Based on Cooperative Policy Exploration in Multi-Agent Systems  
Wang, Chi; Chen, Xin
- 624 Obstacle Detection on Around View Monitoring System  
Wang, Senbo; Yue, Jiguang; Dong, Yanchao
- 1023 Incremental Maintenance of C-Rank Scores in Dynamic Web Environment  
Koo, Jangwan; Kim, Dong-Jin; Chae, Dong-Kyu; Kim, Sang-Wook
- 1032 The relationships between topological interactions and collective behavior  
Yuan, Ye; Chen, Xuebo; Huang, Tianyun

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Cyber 7

**Machine Learning III**

**Possible Chair: Baruah, Rashmi, Associate Professor, IIT Guwahati**

- 354 Improving Firefly Algorithm Performance Using Fuzzy Logic  
Bidar, Mahdi; Sadaoui, Samira; Mouhoub, Malek; Bidar, Mohsen
- 526 Language-Independent Data Set Annotation for Machine Learning-Based Sentiment Analysis  
Guthier, Benjamin; Ho, Kalun; El Saddik, Abdulmotaieb
- 772 Barricaded Boundary Minority Oversampling LS-SVM for linearly non-Separable Imbalanced Binary Classification  
Nadine, Hajj; Yara, Rizk; Mariette, Awad
- 862 An Immuno-inspired Online Feature Selection Mechanism  
Sharma, Sonia; Nair, Shivashankar B.; Baruah, Rashmi

566 DNN Based Approach for the Assessment of Elbow Flexion with Smart Textile Sensor  
Bobin, Maxence; Amroun, Hamdi; Coquillart, Sabine; Bimbard, Franck; Ammi, Mehdi

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**Cyber 8 Swarm Intelligence and Heuristic Algorithms**

**Possible Chair: Yasuda, Keiichiro, Professor, Tokyo Metropolitan University**

- 209 Adaptive Cuckoo Search Based on Ranking of Search Point  
Miyake, Yuki; Tamura, Kenichi; Tsuchiya, Junichi;
- 302 Formal Analysis in a Cellular Automata Ant Model Using Swarm Intelligence in Robotics Foraging Task  
Lima, Danielli; Oliveira, Gina
- 369 Effective Lazy Training Method for Deep Q-Network in Obstacle Avoidance and Path Planning  
Wu, Juan; Shin, Seabyuk; Kim, Cheong-Gil; Kim, Shin-Dug
- 509 An Ant Colony System Based Virtual Network Embedding Algorithm  
Wang, Jia-Bin; Chen, Wei-Neng; Cong, Hao; Zhan, Zhi-hui; Zhang, Jun
- 523 Precise Isotropic Scaling Iterative Closest Point Algorithm Based on Corner Points for Shape Registration  
Du, Shaoyi; Cui, Wenting; Wu, Liyang; Xiong, Lei; Zhang, Xuetao
- 711 Agglomerative Hierarchical Clustering Based on Local Optimization for Cluster Validity Measures  
Ozaki, Ryo; Hamasuna, Yukihiro; Endo, Yasunori
- 1202 Development of a computational model based on Particle Swarm Optimization and Network Flow applied to the problem of Hydrothermal Coordination  
Aragão, Anderson; Coimbra, Wellington; Rabelo, Ricardo; Asano, Patricia; Godoy, Ferreira, Fabio

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**Cyber 9 Machine Learning I**

**Possible Chair: Dr. Michael Kounavis, Intel**

- 160 Finding Label Noise Examples in Large Scale Datasets  
Ekambaram, Rajmadhan; Goldgof, Dmitry; Hall, Lawrence
- 260 Efficient Estimation for Shared Latent Space Using Multi-layer Perceptron  
Ohyama, Mariho; Kobayashi, Ichiro
- 417 Soft Subspace Clustering Ensemble Framework Based on the Latent Model  
Chen, Jieyan; Alzami, Farrikh; Yu, Zhiwen; Zhan, Zhi-Hui; Yang, Qinmin
- 467 Fingertip Detection without the Use of Depth Data, Color Information, or Large Training Data Sets  
Kounavis, Michael
- 673 An Approach for Detecting Groundwater Runoff Connectivity Using Cluster Analysis  
Kang, Xiaojun; Zhao, Xuguang; Guo, Caixia; Ding, Junhua
- 675 Reconstructing Dynamic Font-Based Chinese Characters Using Support Vector Machine  
Fujioka, Hiroyuki, Zhu, Wenli, Hidaka, Akinori, Kano, Hiroyuki
- 869 Exploiting Job Transition Patterns for Effective Job Recommendation  
Lee, Yujin; Lee, Yeon-Chang; Hong, Jiwon; Kim, Sang-Wook

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**Cyber 10**

**Computational Intelligence I**

**Possible Chair: ZENG, DANIEL, Professor, University of Arizona and Chinese Academy of Sciences**

- 91** Neural Decomposition of Time-Series Data  
Godfrey, Luke; Gashler, Michael
- 120** The Multiple Runway Aircraft Landing Problem: A Case Study for Tunis Carthage Airport  
Messaoud, Meriem; Ghedira, Khaled; Harizi, Riadh
- 412** A Comparative Study of the Clinical Use of Motion Analysis from Kinect Skeleton Data  
Maudsley-Barton; Sean Mcphee, Jamie; Bukowski, Anthony; Leightley, Daniel; Yap, Moi Hoon;
- 774** Mining Phase Evolution for Hot Topics: A Case Study from Multiple Social Media Platforms  
Liu, Ruoran; Li, Qiudan; Wang, can; Wang, lei; Ma, Hongyuan; ZENG, DANIEL
- 845** Temporal functional connectomics in schizophrenia and healthy controls  
Chen, Bo; LI, Xiang
- 907** A Visualization Tool for Observing Metaheuristic Algorithms: Epanel  
Chou, Yao-Hsin; Kuo, Shu-Yu; Lai, Wei-Jie; Lai, Wang-Bin
- 1176** Sleep Stage Classification for Managing Nocturnal Enuresis through Effective Configuration  
Lee, Sangyeop; Moon, Junhyung; Lee, Taeho; Kye, Saewon; Shin, Seung-chul; Lee, Kyoungwoo
- 597** WOI-based Multi-objective Evolutionary Search for Satisficing Concepts  
Farhi, Eliran; Moshaiov, Amiram

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**8MB253f**

**Cyber 11**

**Computational Intelligence II**

**Chair: TBD**

- 210** Firefly Algorithm Using Cluster Information for Superior Solution Set Search  
Wang, Hongran; Tamura, Kenichi; Tsuchiya, Junichi
- 368** Variable Neighborhood based Memetic Algorithm for Just-in-time Distributed Assembly Permutation Flowshop Scheduling  
Wang, Keyao; Liu, Bo; Duan, Wenzhe; Zhengyang, Li  
hu, haixiao; Xu, Yang; Zhang, Yulin; Liu, Ming
- 495** Overlapped Cooperative Co-Evolution for Large Scale Optimization  
Song, An; Chen, Wei-Neng; Luo, Peng-Ting; Gong, Yue-Jiao; Zhang, Jun
- 1085** Ensemble Learning for Forecasting Main Meteorological Parameters  
Karvelis, Petros ;Georgoulas, George; Kolios, Stavros; Stylios, Chrysostomos
- 399** Proactivity Through Equilibrium Maintenance with Fuzzy Desirability  
Grosinger, Jasmin; Pecora, Federico; Saffiotti, Alessandro