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2nd IEEE International Conference on Cybernetics

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Welcome to the 2nd IEEE International Conference on Cybernetics (CYBCONF 2015). The CYBCONF 2015 held in Gdynia, Poland, June 24-26, 2015, was organized by Gdynia Maritime University, IEEE Systems, Man, and Cybernetics Society (SMC), IEEE Poland Section, IEEE SMC Technical Committee on Computational Collective Intelligence, in cooperation with Gdynia Maritime University's Students and Alumni Foundation, and Pomeranian Science and Technology Park, Gdynia, Poland. Scientific patrons of the Conference include Committee on Informatics of the Polish Academy of Sciences and the Polish Society of the Artificial Intelligence.

The CYBCONF conference has been originated to strengthen a tradition of the IEEE SMC Conferences organized periodically with three main components including Systems Engineering, Human-Machine Systems and Cybernetics. The first edition of the IEEE CYBCONF series was held in 2013 in Lausanne.

The main aim of the CYBCONF conference is to provide a premier international forum for researchers and practitioners to report the latest innovations, summarize the state-of-the-art, and exchange ideas and advances in all aspects of Cybernetics. Apart of the main track it includes special sessions and plenary talks by invited eminent speakers.

The CYBCONF 2015 conference attracted a substantial number of researchers and practitioners from all over the world who submitted their papers for several main tracks and special sessions, including Control Systems and Robotics, Artificial Intelligence, Knowledge-Based Systems, Machine Learning, Machine Vision, Computational Intelligence, Swarm Intelligence, Cognitive Systems, Neural Networks, Medical and Health Informatics and Smart Applications. The conference provided also an opportunity to present research results covering specialized subjects, during 7 special sessions organized by renown researchers.

Accepted and presented papers highlight the new trends and challenge of intelligent and complex systems. Each paper was peer reviewed by at least two members of the International Program Committee and International Reviewer Board. Out of a large number of submissions, only 91 best papers have been selected for oral presentation and publication in the CYBCONF 2015 proceedings.

We would like to express our sincere thanks to the Honorary Patron of the Conference Mayor of Gdynia, Dr. Wojciech Szczurek. Our special gratitude goes to the IEEE SMC Vice President Cybernetics, Prof. Vladimir Marik, Czech Technical University, Czech Republic, and to the President of IEEE Poland Section, Prof. Ryszard Jachowicz, Warsaw University of Technology, Poland, for their support. We also would like to express our thanks to the Keynote Speakers - Prof. Jun Wang, The Chinese University of Hong Kong, China, Prof. Fabio Roli, University of Cagliari, Italy, Prof. Edward Szczerbicki, The University of Newcastle, Newcastle, Australia,

and Prof. David Camacho, Universidad Autonoma de Madrid, Spain. We also thank co-organizer Pomeranian Science and Technology Park in Gdynia, Poland, for helping to host the event, and Gdynia Maritime University's Students and Alumni Foundation for helping to organize the event.

Our special thanks go to the Local Organizing Committee with the Local Arrangements Co-Chairs. Thanks are due to the Program Co-Chairs, Special Sessions Co-Chairs, Publication Co-Chair, Publicity Co-Chairs, all Program and Reviewer Committee members and all the additional reviewers for their valuable efforts in the review process which helped us to guarantee the highest quality of the selected papers for the conference. We cordially thank the organizers and chairs of special sessions which essentially contribute to the success of the conference.

Finally, we cordially thank all the authors, presenters and delegates for their valuable contribution to this successful event. The conference would not have been possible without their support.

We hope and intend that CYBCONF 2015 significantly contributes to fulfillment of the academic excellence and leads to even greater successes of CYBCONF events in the future.

June, 2015

Piotr Jędrzejowicz
Ngoc Thanh Nguyen
Tzung-Pei Hong
Ireneusz Czarnowski

CONFERENCE CHAIRS
2nd IEEE International Conference on Cybernetics

Honorary Patronage

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Mayor of Gdynia

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Czech Technical University, Czech Republic
IEEE SMC Vice President Cybernetics

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Gdynia Maritime University, Poland

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IEEE Systems, Man, and Cybernetics Society

IEEE SMC TC on Computational Collective Intelligence

Pomeranian Science and Technology Park in Gdynia, Poland

Gdynia Maritime University's Students and Alumni Foundation, Poland

Scientific Patronage

SPECIAL SESSIONS

2nd IEEE International Conference on Cybernetics

IPPR 2015: Image Processing and Pattern Recognition
- Chairs: Prof. Yuan Yan Tang, Prof. Lina Yang

InWebTech 2015: Innovations in Web Technologies
- Chairs: Dr. Jolanta Mizera-Pietraszko, Prof. Bogdan Trawiński, Dr. Maciej Huk

CYBERSEC 2015: Cyber Security
- Chairs: Prof. Marcin Szpyrka, Prof. Bartosz Jasiul

SCMC 2015: Application of Soft Computing Methods to Motion Control of Electrical Drives
- Chairs: Prof. Stefan Brock, Prof. Krzysztof Szabat, Prof. Stephen Dodds

VICML 2015: Visual Information Coding Meets Machine Learning: Large-Scale Challenges
- Chairs: Dr. Marcin Korytkowski, Prof. Taras Holotyak, Prof. Rafal Scherer, Prof. Slava Voloshynovskiy

CABDA 2015: Computational Aspects of Big Data Analysis
- Chairs: Prof. Adel M. Alimi, Prof. Václav Snášel

BIORELIABILITY 2015: Reliable Biometrics
- Chairs: Prof. Krzysztof Ślot, Prof. Adam Czajka

KEYNOTE SPEAKERS

2nd IEEE International Conference on Cybernetics

Prof. **David Camacho**
Universidad Autonoma de Madrid, Spain

Speech Title*:* Bio-inspired Clustering: Basic Features and Future Trends in the Era of Big Data

Prof. **Fabio Roli**
University of Cagliari, Italy

Speech Title: The Rise of Adversarial Patterns in the Cyber-physical Space

Prof. **Edward Szczerbicki**
The University of Newcastle, Newcastle, Australia

Speech Title: Set of Experience and Decisional DNA: Toward "Brains for Machines"

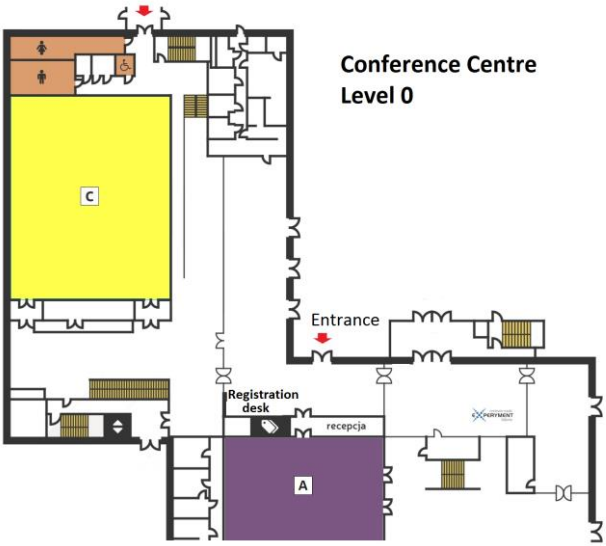
Prof. **Jun Wang**
The Chinese University of Hong Kong, China

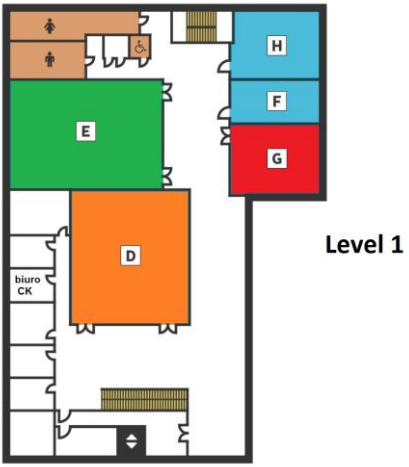
Speech Title: Neurodynamics-based Parallel Data Processing in the Era of Big Data

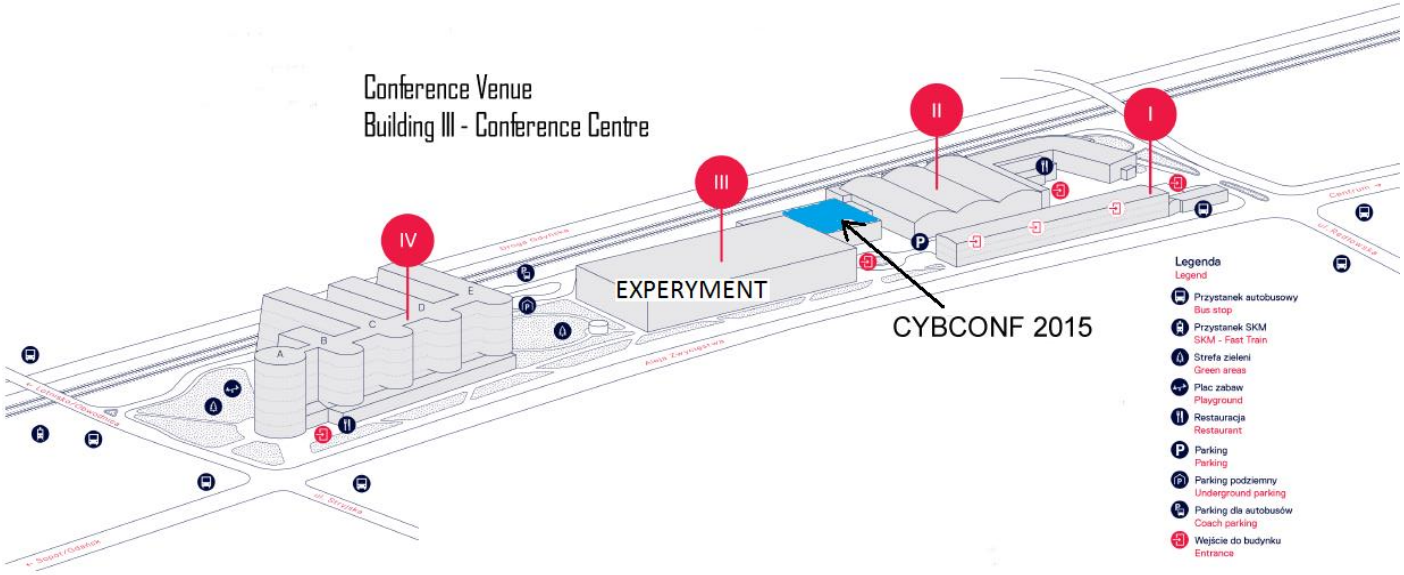
CONFERENCE VENUE

2nd IEEE International Conference on Cybernetics

Address: Pomeranian Science and Technology Park in Gdynia
(Pomorski Park Naukowo-Technologiczny w Gdyni)
Aleja Zwyciestwa 96/98
81 - 451 Gdynia, Poland






Conference Venue
Building III - Conference Centre
IV
III
II
I
EXPERYMENT
CYBCONF 2015
Legenda
Legend
Przystanek autobusowy
Bus stop
Przystanek SKM
SKM - Fast Train
Strefa zieleni
Green areas
Plac zabaw
Playground
Restauracja
Restaurant
Parking
Parking
Parking podziemny
Underground parking
Parking dla autobusów
Coach parking
Wejście do budynku
Entrance

June 24, 2015 (Wednesday)

	Room D	Room E	Room G	Room H
08:00	**Registration**			
09:00 - 09:30	**Opening ceremony – Room C**			
09:30 - 10:30	Plenary session **Neurodynamics-based Parallel Data Processing in the Era of Big Data** Prof. Jun Wang Chair: Prof. Petra Perner Room C			
10:30 - 10:45	**Group photo session**			
10:45 - 11:15	**Coffee break**			
11:15 - 13:00	Smart Applications	Control Systems and Robotics	IPPR 2015 Image Processing and Pattern Recognition	InWebTech 2015 Innovations in Web Technologies
13:00 - 14:00	**Lunch**			
14:00 - 15:00	Plenary session **Set of Experience and Decisional DNA: Toward "Brains for Machines"** Prof. Edward Szczerbicki Chair: Prof. Ngoc Thanh Nguyen Room C			
15:00 - 15:30	**Coffee break**			
15:30 - 17:00	CYBERSEC 2015 Cyber Security	Machine Vision	IPPR 2015 Image Processing and Pattern Recognition	Computational Intelligence
19:00 - 21:00	**Welcome reception** Place: Faculty of Navigation, Gdynia Maritime University			

June 25, 2015 (Thursday)

	Room D	Room E	Room G	Room H
08:30	**Registration**			
09:00 - 10:00	Plenary session **The Rise of Adversarial Patterns in the Cyber-physical Space** Prof. Fabio Roli Chair: Prof. Kang-Hyun Jo Room C			
10:00 - 10:30	**Coffee break**			
10:30 - 11:30	SCMC 2015 Application of Soft Computing Methods to Motion Control of Electrical Drives	Medical and Health Informatics	Neural Networks and Applications	CABDA 2015 Computational Aspects of Big Data Analysis
11:30 - 11:40	**Short break**			
11:40 - 13:00	SCMC 2015 Application of Soft Computing Methods to Motion Control of Electrical Drives	Machine Learning	Cognitive Systems	VICML 2015 Visual Information Coding Meets Machine Learning: Large-Scale Challenges
13:00 - 14:00	**Lunch**			
14:00 - 15:00	Plenary session **Bio-inspired Clustering: Basic Features and Future Trends in the Era of Big Data** Prof. David Camacho Chair: Prof. Qiangfu Zhao Room C			
15:00 - 15:30	**Coffee break**			
15:30 - 17:00	Smart Applications	Swarm Intelligence	Knowledge-Based Systems	
19:00 - 22:00	**Conference dinner** Place: Nadmorski Hotel, Gdynia			

June 26, 2015 (Friday)

	Room D	Room E	Room G	
08:30	**Registration**			
09:00 - 10:00	BIORELIABILITY 2015 Reliable Biometrics	Control Systems and Robotics	SCMC 2015 Application of Soft Computing Methods to Motion Control of Electrical Drives	
10:00 - 10:30	**Coffee break**			
10:30 - 11:30	BIORELIABILITY 2015 Reliable Biometrics	Medical and Health Informatics	Neural Networks and Applications	
11:30 - 12:00	**Closing ceremony – Room C**			
12:00 - 13:00	**Lunch**			
13:00 - 19:00	**Excursion to Gdańsk**			

June 24, 2015 (Wednesday)

8:00 - 17:00 - Registration

9:00 - 9:30 - Opening ceremony

9:30 - 10:30 **Plenary session – Room C**

Neurodynamics-based Parallel Data Processing in the Era of Big Data
Prof. Jun Wang
Chair: Prof. Petra Perner

10:30 - 10:45 – Group photo session

10:45 - 11:15 – Coffee break

11:15 - 13:00 – Parallel Sessions

Special Session – Room D
Smart Applications (part 1)
Chair: Prof. Dariusz Barbucha

1. Design and Development of a Lightweight Multi-UAV Simulator
   Víctor Rodríguez-Fernández, Héctor Menéndez and David Camacho
2. Multi-Agent Signal Filtering for Electrical Energy Demand Management
   Artur Opaliński
3. Network Resource Allocation in Distributed Systems: A Global Optimization Framework
   Zbigniew Wesołowski
4. Tool Health Monitoring Using Airborne Acoustic Emission and a PSO-optimized Neural Network
   Tayyab Zafar, Khurram Kamal, Rohit Kumar, Zakaullah Sheikh, Senthan Mathavan and Usman Ali
5. Grade Analysis for Energy Usage Patterns Segmentation Based on Smart Meter Data
   Tomasz Ząbkowski, Krzysztof Gajowniczek and Ryszard Szupiluk

General Track - Room E
Control Systems and Robotics (part 1)
Chair: Dr. Pavel Krömer

1. Positivity and Stability of Discrete-time Nonlinear Systems
   Tadeusz Kaczorek

2. Formation Control of Autonomous Robots Following Desired Formation During Tracking a Moving Target
   Anh Duc Dang and Joachim Horn
3. Simplicity or Flexibility? Complementary Filter vs. EKF for Orientation Estimation on Mobile Devices
   Michał Nowicki, Jan Wietrzykowski and Piotr Skrzypczyński
4. Solving Minimal Realisation Problem of Positive Two-Dimensional Hybrid Systems in the Form of Second Fornasini-Marchesini Model
   Konrad Andrzej Markowski and Krzysztof Hryniów

Special Session - Room G
IPPR 2015: Image Processing and Pattern Recognition (part 1)
Chairs: Prof. Yuan Yan Tang, Prof. Lina Yang

1. Simplified and Improved Patch Ordering for Diabetes Mellitus Detection
   Ting Shu, Bob Zhang and Yuan Yan Tang
2. A Forecasting Method Based on Extrema Mean Empirical Mode Decomposition and Wavelet Neural Network
   JianJia Pan, Xianwei Zheng, Lina Yang, Yulong Wang, Haoliang Yuan and Yuan Yan Tang
3. Similarity Analysis based on Sparse Representation for Protein Sequence Comparison
   Lina Yang, Yuan Yan Tang, Yulong Wang, Huiwu Luo, Jianjia Pan, Haoliang Yuan, Xianwei Zheng, Chunli Li and Ting Shu
4. Classification via Atomic Representation
   Yulong Wang, Yuan Yan Tang, Lina Yang, Huiwu Luo, Haoliang Yuan, Xianwei Zheng and Jianjia Pan
5. Join Gabor and Scattering Transform for Urine Sediment Particle Texture Analysis
   Chunli Li, Yuan Yan Tang, Huiwu Luo and Xianwei Zheng

Special Session - Room H
InWebTech 2015: Innovations in Web Technologies
Chairs: Dr. Jolanta Mizera-Pietraszko, Prof. Bogdan Trawiński, Dr. Maciej Huk

1. The model of Possible Web Data Retrieval
   Anna Bryniarska
2. Online Platform to Support Business Analysis and Process Optimization in Transportation Organizations
   Grzegorz Kołaczek, Paweł Świątek, Adam Grzech, Krzysztof Juszczyszyn, Paweł Stelmach, Łukasz Falas, Arkadiusz Sławek and Patryk Schauer
3. Improving Scalability of Web Applications Based on Stability of the Network with the Use of Controller PI
   Jolanta Tańcula
4. Detection of Internet Robots Using a Bayesian Approach
   Grażyna Suchacka and Mariusz Sobków
5. Context-Sensitive Text Mining with Fitness Leveling Genetic Algorithm
   Maciej Huk, Jan Kwiatkowski, Dariusz Konieczny, Michał Kędziora and Jolanta Mizera-Pietraszko

13:00 - 14:00 – Lunch

14:00 - 15:00 Plenary session – Room C

Set of Experience and Decisional DNA: Toward "Brains for Machines"

Prof. Edward Szczerbicki

Chair: Prof. Ngoc Thanh Nguyen

15:00 - 15:30 – Coffee break

15:30 - 17:00 – Parallel Sessions

Special Session - Room D
CYBERSEC 2015: Cyber Security
Chairs: Prof. Marcin Szpyrka, Prof. Bartosz Jasiul

1. Exploitability Analysis using Predictive CyberSecurity Framework
   Subil Abraham and Suku Nair
2. PharmaGuard: Automatic Identification of Illegal Search-Indexed Online Pharmacies
   Igino Corona, Matteo Contini, Davide Ariu, Giorgio Giacinto, Fabio Roli, Michael Lund and Giorgio Marinelli
3. Extracting of temporal patterns from data for hierarchical classifiers construction
   Marcin Szpyrka, Adam Szczur, Jan G. Bazan and Łukasz Dydo
4. Open Source Security Information Management System Supporting IT Security Audit
   Damian Hermanowski

General Track - Room E
Machine Vision
Chair: Prof. Anna Fabijańska

1. Fast Grid-Based Clustering Method for Automatic Calculation of Optimal Parameters of Skin Color Classifier for Head Tracking
   Michał Szkudlarek and Maria Pietruszka
2. Real-Time Lane Marking Detection
   Alexander Filonenko, Danilo Càceres Hernàndez, Laksono Kurnianggoro, Dongwook Seo and Kang-Hyun Jo
3. Pedestrian Action Recognition using Motion Type Classification
   Joko Hariyono and Kang-Hyun Jo
4. 3D Segmentation of the Cerberospinal Fluid from CT Brain Scans using Local Histogram Similarity Map
   Anna Fabijańska and Jarosław Gocławski

Special Session - Room G
IPPR 2015: Image Processing and Pattern Recognition (part 2)
Chairs: Prof. Yuan Yan Tang, Prof. Lina Yang

1. Hyperspectral Image Classification using One Dimensional Manifold Embedding with Spectral-Spatial based Affinity Metric
   Huiwu Luo, Yuan Yan Tang, Yulong Wang, Chunli Li, Jianzhong Wang, Tingbo Hu and Hong Li
2. Content-based Image Retrieval Using Local Texture-Based Color Histogram
   Bingfei Nan, Ye Xu, Zhichun Mu and Long Chen
3. Redundant Graph Fourier Transform
   Xianwei Zheng, Yuanyan Tang, Jiantao Zhou, Lina Yang, Haoliang Yuan, Yulong Wang and Chunli Li

General Track - Room H
Computational Intelligence
Chair: Prof. Qiangfu Zhao

1. Aware System, Aware Unit and Aware Logic
   Qiangfu Zhao
2. Problem of Efficient Initialization of Large Self-Organizning Maps Implemented in the CMOS Technology
   Marta Kolasa, Rafał Długosz and Witold Pedrycz
3. Predictive Clustering for Performance Stability in Collaborative Filtering Techniques
   O-Joun Lee, Jason J. Jung and You Eunsoon

19:00 - 21:00 – Welcome Reception
Place: Faculty of Navigation, Gdynia Maritime University

June 25, 2015 (Thursday)

8:30 - 17:00 - Registration

9:00 - 10:00	**Plenary session – Room C** **The Rise of Adversarial Patterns in the Cyber-physical Space** Prof. Fabio Roli Chair: Prof. Kang-Hyun Jo

10:00 - 10:30 – Coffee break

10:30 - 11:30 – Parallel Sessions

Special Session - Room D
SCMC 2015: Application of Soft Computing Methods to Motion Control of Electrical Drives (part 1)
Chairs: Prof. Stefan Brock, Prof. Krzysztof Szabat, Prof. Stephen Dodds

1. Application of an Internal Model Speed Control for PMSM with variable mechanical parameters
   Tomasz Pajchrowski
2. Fuzzy Modeling of LuGre-type Friction
   Jacek Kabziński and Marcin Jastrzębski
3. Position Estimation at Zero Speed for PMSM Using Probabilistic Neural Network
   Konrad Urbanski

General Track - Room E
Medical and Health Informatics (part 1)
Chair: Prof. Jan Bohacik

1. Linguistic Variable Elimination for a Heart Failure Dataset
   Jan Bohacik, Karol Matiasko and Miroslav Benedikovic
2. Inferring Similarity between Time-Series Microarrays: A Content based Approach
   Duygu Dede Şener and Hasan Oğul
3. Minimizing Sensors for System Monitoring - A Case Study with EEG Signals
   Goutam Chakraborty, Shigeki Horie, Hikaru Yokoha and Zbigniew Kokosiński

General Track - Room G
Neural Networks and Applications (part 1)
Chair: Prof. Ireneusz Czarnowski

1. Multi-stage Safe Ship Control with Neural State Constraints
   Józef Lisowski
2. Extreme Learning Machine for Function Approximation – Interval Problem of Input Weights and Biases
   Grzegorz Dudek
3. Cluster-Dependent Rotation-Based Feature Selection for the RBF Networks Initialization
   Ireneusz Czarnowski and Piotr Jędrzejowicz

Special Session - Room H
CABDA 2015: Computational Aspects of Big Data Analysis
Chairs: Prof. Adel M. Alimi, Prof. Václav Snášel

1. Traditional and Self-Adaptive Differential Evolution for the p-median Problem
   Pavel Krömer, Jan Platoš and Václav Snášel
2. Solving Nearest Neighbors Problem on GPU to Speed up the Fruchterman-Reingold Graph Layout Algorithm
   Vojtěch Uher, Petr Gajdoš and Tomáš Ježowicz
3. Combining Nearest Neighbour Classifiers Based on Small Subsamples for Big Data Analytics
   Bartosz Krawczyk and Michał Woźniak

10:00 - 10:30 – Short break

11:40 - 13:00 – Parallel Sessions

Special Session - Room D
SCMC 2015: Application of Soft Computing Methods to Motion Control of Electrical Drives (part 2)
Chairs: Prof. Stefan Brock, Prof. Krzysztof Szabat, Prof. Stephen Dodds

1. Single Node Recursions in Adaptive Neuro-Fuzzy Controller
   Piotr Derugo
2. Multilayer Soft Switchable Predictive Speed Controller for the Drive with Elastic Coupling
   Karol Wróbel
3. Fuzzy Adaptive PID Control for Two-Mass Servo-Drive System with Elasticity and Friction
   Dmitry V. Lukichev, Galina L. Demidova and Stefan Brock

General Track - Room E
Machine Learning
Chair: Prof. Michał Woźniak

1. Adapting MultiBoost Ensemble for Class Imbalanced Learning
   Ghulam Mustafa, Zhendong Niu and Jie Chen
2. Memory Efficient Factored Abstraction for Reinforcement Learning
   Coşkun Şahin, Erkin Çilden and Faruk Polat
3. Analysis of Correlation Structure of Data Set for Efficient Pattern Classification
   Saptarsi Goswami, Amlan Chakrabarti and Basabi Chakraborty
4. Reacting to Different Types of Concept Drift with Adaptive and Incremental One-Class Classifiers
   Bartosz Krawczyk and Michał Woźniak

General Track - Room G
Cognitive Systems
Chair: Prof. Grzegorz Nalepa

1. Holistic Integration of Enactive Entities into Cyber Physical Systems
   Benjamin Hadorn, Michèle Courant and Béat Hirsbrunner
2. Information Extraction Methods for Text Documents in a Cognitive Integrated Management Information System
   Marcin Hernes
3. A Chinese Dishes Recommendation Algorithm Based on Personal Taste
   Ningxuan He, Mengyuan Liu and Fang Zhao
4. Cognitive Enhancement: How to Increase Chance of Survival in the Jungle?
   Krzysztof Kutt, Artur Gunia and Grzegorz J. Nalepa

Special Session - Room H
VICML 2015: Visual Information Coding Meets Machine Learning: Large-Scale Challenges
Chairs: Dr. Marcin Korytkowski, Prof. Taras Holotyak, Prof. Rafal Scherer, Prof. Slava Voloshynovskiy

1. Face Recognition: A Multivariate Mutual Information Based Approach
   Hammad Dilpazir, Hasan Mahmood and Hafiz Malik
2. Simulation of Parallel Similarity Measure Computations for large data sets
   Paweł Czarnul, Paweł Rościszewski, Mariusz Matuszek and Julian Szymański
3. Bag-of-Features Image Indexing and Classification in Microsoft SQL Server Relational Database
   Marcin Korytkowski, Rafal Scherer, Paweł Staszewski and Piotr Woldan

13:00 - 14:00 – Lunch

14:00 - 15:00 Plenary session – Room C
Bio-inspired Clustering: Basic Features and Future Trends in the Era of Big Data
Prof. David Camacho
Chair: Prof. Qiangfu Zhao

15:00-15:30 – Coffee break

15:30-17:00 – Parallel Sessions

Special Session - Room D
Smart Applications (part 2)
Chair: Prof. Józef Lisowski

1. Translation of MathML Formulas to Polish text, Example Applications in Taching the Blind
   Andrzej Salamonczyk and Jolanta Brzostek-Pawłowska
2. Linguistically Motivated Tied-state Triphones for Polish Speech Recognition
   Piotr Żelasko, Bartosz Ziółko, Tomasz Jadczyk and Tomasz Pędzimąż
3. A New Online Clustering Approach for Data in Arbitrary Shaped Clusters
   Richard Hyde and Plamen Angelov
4. Study on Time-Dependent Analysis of Departure Process in a Finite-Buffer Queueing Model with BMAP-type Input Stream
   Wojciech M. Kempa

General Track - Room E
Swarm Intelligence
Chair: Prof. Goutam Chakraborty

1. Swarm Intelligence Applied to Identification of Nonlinear Ship Steering Model
   Mirosław Tomera
2. Parameters Influence on the Performance of the Ant Algorithm for Safe Ship Trajectory Planning
   Agnieszka Lazarowska

3. Dynamic Migration in Multiple Ant Colonies
   Tzung-Pei Hong, Ling-I Huang, Wen-Yang Lin, Yu-Yang Liu and Goutam Chakraborty
4. A Discrete Flower Pollination Algorithm for Graph Coloring Problem
   Meriem Bensouyad and Djamel Eddine Saidouni

General Track - Room G
Knowledge-Based Systems
Chair: Prof. Grzegorz J. Nalepa

1. Contextual Approach to Reasoning with Rules
   Aleksander Waloszek and Wojciech Waloszek
2. Framework for Ontology Evolution Based on A Multi-Attribute Alignment Method
   Marcin Pietranik and Ngoc-Thanh Nguyen
3. A Conception for Use of User Profile to Prediction Learning Effects in Intelligent Tutoring Systems
   Adrianna Kozierkiewicz-Hetmańska and Jarosław Bernacki
4. Indoor Microlocation with BLE Beacons and Incremental Rule Learning
   Szymon Bobek, Olgierd Grodzki and Grzegorz J. Nalepa

19:00 - 22:00 – Conference dinner
Place: Nadmorski Hotel, Gdynia

June 26, 2015 (Friday)

8:30 - 12:00 – Registration

9:00 - 10:00 – Parallel Sessions

Special Session - Room D
BIORELIABILITY 2015: Reliable Biometrics (part 1)
Chairs: Prof. Krzysztof Ślot, Prof. Adam Czajka

1. Statistical Analysis of Multiple Presentation Attempts in Iris Recognition
   Adam Czajka and Kevin W. Bowyer
2. Face 3D Biometrics Goes Mobile: Searching for Applications of a Portable Depth Sensor in Face Recognition
   Weronika Gutfeter and Andrzej Pacut
3. Database of Iris Images Acquired in the Presence of Ocular Pathologies and Assessment of Iris Recognition Reliability for Disease-Affected Eyes
   Mateusz Trokielewicz, Adam Czajka and Piotr Maciejewicz

General Track - Room E
Control Systems and Robotics (part 2)
Chair: Prof. Robert Sparrow

1. Model-based Controller for Ship Track-keeping Using Neural Network
   Krzysztof S. Kula

2. Scheduling Access to Common Resources in Periodic Discrete Processes
   Lech Jamroż and Jerzy Raszka
3. Balancing Throughput and Latency for an Aerial Robot over a Wireless Secure Communication Link
   Robert Sparrow, Andrew Adekunle, Robert Berry and Richard Farnish

Special Session - Room G
SCMC 2015: Application of Soft Computing Methods to Motion Control of Electrical Drives (part 3)
Chairs: Prof. Stefan Brock, Prof. Krzysztof Szabat, Prof. Stephen Dodds

1. Speed Controller for Four-Mass Mechanical System with Two Drive Units
   Dominik Łuczak, Przemysław Siwek and Krzysztof Nowopolski
2. Estimation of the Mechanical State Variables of the Two-Mass System Using Fuzzy Adaptive Kalman Filter – Experimental Study
   Krzysztof Dróżdż
3. Polynomial Speed Control of Electric Drive with Flexible Coupling: Preliminary Experiments
   Stephen J. Dodds, Jacob L. Pedersen, Piotr Derugo and Krzysztof Szabat

10:00 - 10:30 – Coffee break

10:30 - 11:30 – Parallel Sessions

Special Session - Room D
BIORELIABILITY 2015: Reliable Biometrics (part 2)
Chairs: Prof. Krzysztof Ślot, Prof. Adam Czajka

1. Binarization of Spectral Histogram Models: an Application to Efficient Biometric Identification
   Anika Pflug, Christian Rathgeb, Ulrich Scherhag and Christoph Busch
2. Modifications of Most Expressive Feature Reordering Criteria for Supervised Kernel Principal Component Analysis
   Krzysztof Adamiak, Piotr Duch, Dominik Żurek and Krzysztof Ślot
3. Printed Steganography Applied for the Authentication of Identity Photos in Face Verification
   Wlodzimierz Kasprzak, Maciej Stefańczyk and Artur Wilkowski

General Track - Room E
Medical and Health Informatics (part 2)
Chair: Prof. Petra Perner

1. Data Mining Using SPECT Can Predict Neurological Symptom Development in Parkinson's Patients
   Artur Szymański, Stanislaw Szlufik, Justyna Dutkiewicz, Dariusz M. Koziorowski, Marek Cacko, Michał Nieniecki, and Andrzej W. Przybyszewski
2. Image Segmentation Based on Evaluation of Candidate Regions
   Paweł Tracz and Piotr S. Szczepaniak

3. Standardization in IRIS Diagnosis
   Petra Perner

General Track - Room G
Neural Networks and Applications (part 2)
Chair: Prof. Grzegorz Dudek

1. Improving Learning Efficiency of Deep Belief Network With Prior Label Training
   Yifu Xu, Bin Yan, Jian Chen and Lei Zeng
2. Noise Reduction in Regression Tasks with Distance, Instance, Attribute and Density Weighting
   Mirosław Kordos, Andrzej Rusiecki and Marcin Blachnik
3. Using Passive Neural Networks to Solve TSP
   Andrzej Luksza and Wieslaw Sienko

11:30 - 12:00 - Closing ceremony

12:00 - 13:00 – Lunch

13:00 - 19:00 – Excursion to Gdańsk

Group Photo Session

All participants of the CYBCONF 2015 conference will be invited for a group photo session.

Date: Wednesday, 24 June 2015
Time: 10:30 – 10:45 (10:30 am – 10:45 am)
Place: the lawn in front of PPNT

Welcome Reception

At the close of the first day of the conference all participants are invited for light snacks. The welcome reception will be held in the hall of the Faculty of Navigation, Gdynia Maritime University.

Date: Wednesday, 24 June 2015
Time: 19:00 – 21:00 (07:00 pm – 09:00 pm)
Place: Faculty of Navigation, Gdynia Maritime University

Address
Faculty of Navigation, Gdynia Maritime University
Al. Jana Pawła II 3
81-345 Gdynia

Conference Dinner

On Thursday at the Hotel Nadmorski will be held a gala dinner. The Hotel Nadmorski is located by the white beach of Gdansk Bay and the Seaside Boulevard - walking and cycling route along the coast. Over a meal and drinks, there will be the excellent opportunity to renew old acquaintances and build new ones.

Date: Thursday, 25 June 2015
Time: 19:00 – 22:00 (07:00 pm – 10:00 pm)
Place: Restaurant at Hotel Nadmorski

Address
Hotel Nadmorski
81-409 Gdynia
ul. Ejsmonda 2

Excursion to Gdańsk

After the conference a tour to the European Solidarity Centre and the Old Town in Gdansk will be organized (with an English tour guide) for the conference participants.

European Solidarity Centre (ECS) is located on Solidarity Square with the historical Gate of Gdansk Shipyard, where the Solidarity movement was born. Its main mission is to commemorate, maintain and popularise the heritage and message of the Solidarity movement and the anti-communist democratic opposition in Poland and throughout the world. The center popularizes and inspires to new cultural, civic, trade union, local government, national and European initiatives with a universal dimension.

In Gdansk - Hanseatic tousand-year-old town - we will show you the most famous Gdansk monuments located near the heart of its Old Town district, around the Long Street and the quayside. You will walk the Long Street and the Market Square and admire the Main Town Hall, the famous Neptune Fountain, the Golden House, the Court of Artus and the beautiful XVI – XVII century houses. At the end of the Market Square you will find the Green Gate. Next, you will see the picturesque old quayside by the Motlava River. Then you will have a chance to see another great monument – the Crane. Later, we will take you to the charming Mariacka Street with the largest red-brick gothic church in Europe – St. Mary's Church. The Mariacka Street hosts also the famous Gdansk amber manufacturers with their gorgeous handicraft.

On our way back to Gdynia, we will stop in Sopot to see the longest wooden pier in Europe.

Date: Friday, 26 June 2015
Time: 13:00 – 19:00 (01:00 pm – 09:00 pm)
Meeting place: at the entrance to PPNT

We hope that you will enjoy this trip!

Please contact the Conference help desk on June 24 or 25, if you are interested in participation.

Conference help desk

Opening hours:

24 June 2015 (Wednesday) 08:00 – 17:00 (08:00 am – 05:00 pm)
25 June 2015 (Thursday) 08:30 – 17:00 (08:30 pm – 05:00 pm)
26 June 2015 (Friday) 08:30 – 13:00 (08:30 pm – 01:00 pm)

Moving around the city of Gdynia and the Tricity area

Bus/trolley-bus

Gdynia has a very well developed bus network. Each part of the city can be easily reached by bus or trolley-bus. One ticket costs from 3,00 PLN to 4 PLN (about 0.70 -1 EUR) and can be bought directly from the bus driver and then should be punched. You may have to buy a set of four tickets and you can pay only in PLN.

Commuter Train (SKM)

A commuter train, known as SKM (Fast City Train), runs constantly between Gdynia, Sopot and Gdansk from 5 am till midnight, stopping at a dozen intermediate stations. The trains run every 5 to 10 minutes (not so frequently in the evening) and the trip to Gdansk takes about 35-40 minutes. You buy tickets at ticket offices in the stations or some newsstands and validate them in the yellow machines at the platform entrance. The fare depends on the distance. When buying a ticket, say the name of station you want to go to.

TAXI

City Taxi Plus, phone: + 48 58 668 00 00
Auto-Taxi-Nord, phone: + 48 58 629 11 11
Euroschool Taxi, phone: + 48 58 629 80 00
Halo Express Taxi, phone: + 48 58 623 18 18
Non-Stop Taxi-Radio, phone: + 48 58 625 01 01
Merc Taxi, phone: + 48 58 624 17 17

Make sure that the taxi driver can confirm the price before you start the journey.

Useful telephone numbers

The country area code for Poland: +48

Emergency services:

112 – the access number for all emergency services: police, ambulance and fire department (a mobile phone connection)
997 – Police
998 – Fire department
999 – Ambulance

The cities of Gdynia, Sopot and Gdansk are called "Tricity Complex" and are seldom visited apart from each other. Although each bears its own distinct identity they have become identified together. Those enjoying long walks may try to reach Gdansk (starting from Gdynia through Sopot) along the beach.

GDYNIA

Having received its city rights in 1926, Gdynia is one of the youngest Polish cities and has about 251,000 inhabitants. With its very big and famous harbour, Gdynia is the sea capital of Poland. No other Polish town and only few European cities have such a long seafront and easy access to the sea. It is 12.5 km long, excluding the port area. Gdynia offers a great variety of tourist attractions. Its Music Theatre attracts culture friends from all over Poland. The Municipal Theatre is perhaps a little more "sepias", although also involved in music since it houses jazz events. Every summer at Gdynia, theatre lovers may watch the shows without leaving the beach since there are theatre performances on the so-called "Summer Stage". Fascinating items from the time when Gdynia was a little village are displayed in the "Museum of Gdynia". Visiting this museum, it is hard to believe that this forgotten village became "the Polish New York" (National Geographic) after only 13 years of development. Luxury shops, located next to large markets such as the famous Market Place (Hala Targowa), offer an excellent selection of goods. Open-air-events, such as New Years Eve, street basketball, may picnic, sea days, regatta and motor-cross tournaments attract thousands of inhabitants and visitors from other places. Politicians, social and business activists often choose Gdynia as place of their meetings.

SOPOT

Neighbouring Sopot is a seaside health resort with unusual microclimate. Beautiful wide beaches, a breezy boardwalk, elegant hotels with full amenities and a rich cultural program attract visitors from Poland and Europe.

GDAŃSK

Gdansk had a tumultuous history, with citizens from Germany, Poland and other countries contributing to its cosmopolitan air. After being overrun by the Teutonic Knights, Gdansk joined the Hanseatic League in the 14th century. In the 17th century, it was one of the few Polish cities to withstand the Swedish invasion. After World War I, it was declared the Free City of Gdansk/Danzig. On September 1, 1939, the first shots of World War II were fired at Westerplatte, a Polish garrison outside the city. The city was nearly levelled during the war and meticulously rebuilt for the next twenty years. In 1970, a massive demonstration against the Communist regime originated in the Gdansk Shipyard. Ten years later, another shipyard protest led to the creation of the Solidarity Labour Union. In 1990, former shipyard worker and Solidarity leader Lech Wałęsa was elected President of newly Democratic Poland.

In the Old Town, visitors can once again be impressed by the authentically restored city hall, the Neptune Fountain, the Arthur's Court, the Golden Gate, Green Gate and the gothic church of the Holy Virgin Mary. Along the waterfront the Old Crane, today a maritime museum, dominates the skyline. Westerplatte obelisk just outside the city, where the World War II began, and the Monument of Murdered Shipyard Workers, dedicated to the workers who died during anti-Communist demonstrations, are mementoes of the city's modern history. Also near Gdansk is the suburb of Oliwa, the site of an immense cathedral whose impeccable acoustics capture the magnificent sounds of the great organ during public recitals.

The city's most famous citizens include astronomer Johannes Hevelius, physicist Gabriel Fahrenheit, philosopher Arthur Schopenhauer, writer Gunter Grass and, most recently, Lech Wałęsa.