

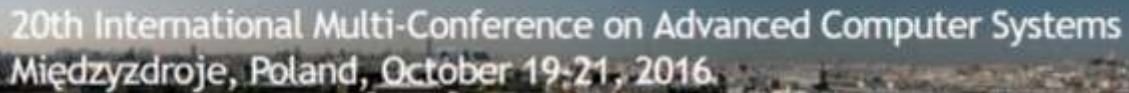
20th International Multi-Conference on Advanced Computer Systems
Międzyzdroje, Poland, October 19-21, 2016

ADVANCED COMPUTER SYSTEMS

October 19-21, 2016, Międzyzdroje, Poland

Conference Programme

Międzyzdroje, October 19-21, 2016



20th International Multi-Conference on Advanced Computer Systems
Międzyzdroje, Poland, October 19-21, 2016

LOCATION

20th International Multi-Conference on Advanced Computer Systems ACS 2016 will be held on October 19-21, 2016 in Międzyzdroje, Poland.

Detailed address:

HOTEL AMBER BALTIC
PL 72-500 Międzyzdroje
Promenada Gwiazd 1
e-mail: info@hotel-amber-baltic.pl
FRONT OFFICE
tel. (+48 91) 322 85 00
fax (+48 91) 328 10 22

THE CURRENT INFORMATION (up to October 14TH)

Faculty of Computer Science and Information Systems
West Pomeranian University of Technology
ZOLNIERSKA 52, 71-210 SZCZECIN, POLAND
Tel. +48 91 449 56 62, e-mail: shardej@wi.zut.edu.pl

SECRETARIAT LOCATION (on October 19-21, 2016)

HOTEL AMBER BALTIC, PL 72-500 Międzyzdroje, Promenada Gwiazd Str. 1,
tel. (+48 91) 322 85 00

Time schedule of ACS 2016

First Day

WEDNESDAY, OCTOBER 19, 2016	
9:00-15:00	Registration
11:00-12:15	Welcome Greetings: Rector, Honorary Chairs, Dean Keynotes: <i>Akira IMADA (Belarus) Is AlphaGo who beat human champion intelligent like human? - What is human intelligence?</i> <i>Anna M. BARTKOWIAK (Poland) Sparse Non-negative Matrix Factorisation in Applications</i>
12:15-12:30	Tea/Coffee Break
12:30-14:30	Oral Presentations I: Artificial Intelligence I
14:30-15:15	Lunch
15:15-17:15	Oral Presentations II: Design of Information Systems
19:00-23:00	The Fort Gerhard visitation and barbecue party

Time schedule of ACS 2016

Second Day

THURSDAY OCTOBER 20, 2016	
9:00-15:00	Registration
9:00-10:30	Keynotes Larysa GLOBA (Ukraine) <i>An Approach to Big Data Processing for Telecom Operator</i> Gisella FACCHINETTI (Italy) <i>Fuzzy logic-based decision modeling in economics and social sciences</i> Khalid SAEED (Poland) <i>Behaviometrics: A Solution to Biometrics Spoofing Problems</i>
10:30-12:30	Oral Presentations III: Software Technologies
12:30-12:45	Tea/Coffee Break
12:45-14:45	Oral Presentations IV: Artificial Intelligence II
14:45-15:45	Lunch
15:45-17:45	Oral Presentations V: Multimedia Systems
17:45-18:30	Poster Session: Artificial Intelligence, Software Technologies, Information Technology Security, Multimedia Systems and Design of Information Systems
19:30-23:00	Conference Banquette and ACS 20th anniversary celebration

Time schedule of ACS 2016

Third Day

FRIDAY, OCTOBER 21, 2016	
9:00-10:00	Keynote Jacek POMYKAŁA (Poland) Provable security and reductions in cryptology Arkadiusz ORŁOWSKI (Poland) <i>Reversible computing: from universal logic gates to cryptographic applications</i>
10:00-10:30	Tea/Coffee Break
10:30-12:30	Oral Presentations VI: Information Technology Security
12:30 – 13:00	Concluding Meeting
13:00-14:30	Lunch

Wednesday 19 Oct 2016

Registration, 09:00-15:00.

Room: Hotel Hall
Chaired by Sylwia Hardej

**Welcome Greetings: Rector, Honorary Chairs, Dean,
11:00-11:15**

Room: Kalman Room
Chaired by Jerzy Pejaś

Keynotes, 11:15-12:15

Room: Kalman Room
Chaired by Jerzy Pejaś

1. Is AlphaGo who beat human champion intelligent like human? - What is human intelligence?
Akira Imada (Brest State Technical University, Belarus)
2. Sparse Non-negative Matrix Factorisation in Applications
Anna M. Bartkowiak (University of Wroclaw, Poland)

Tea/Coffee Break, 12:15-12:30

Room: Hall
Chaired by Sylwia Hardej

Wednesday 19 Oct 2016

Oral Presentations I: Artificial Intelligence I

12:30-14:30

Room: Kalman Room

Chaired by prof. Anna Bartkowiak (Poland) and prof. Andrzej Piegat (Poland)

1. On fuzzy RDM-arithmetic
Andrzej Piegat and Marek Landowski (West Pomeranian University of Technology in Szczecin, Poland)
2. Opinion acquisition: an experiment on numeric, linguistic and color coded rating scale comparison
Olga Pilipczuk (University of Szczecin, Poland), Galina Cariowa (West Pomeranian University of Technology in Szczecin, Poland)
3. Comparison of RDM Complex Interval Arithmetic and Rectangular Complex Arithmetic
Marek Landowski (Maritime University of Szczecin, Poland)
4. Homogeneous Ensemble Selection - Experimental Studies
Robert Burduk and Paulina Heda (Wroclaw University of Technology, Poland)
5. Deterministic method for the prediction of time series
Walery Rogoza (West Pomeranian University of Technology in Szczecin, Poland)
6. A Study on Directionality in the Ulam Square with the Use of the Hough Transform
Leszek Chmielewski, Arkadiusz Orłowski and Maciej Janowicz (Warsaw University of Life Sciences (SGGW), Poland)

Lunch, 14:30-15:15

Room: Hotel Restaurant

Chaired by Sylwia Hardej

Wednesday 19 Oct 2016

Oral Presentations II: Design of Information Systems

15:15-17:15

Room: Kalman Room

Chaired by prof. Akira Imada (Belarus) and prof. Leszek Chmielewski (Poland)

1. Ontological approach towards semantic data filtering in the interface design and dialogue organization for the “Robot-aircraft designer” informational system
Nikolay Borgest and Maksim Korovin (Samara State University, Samara, Russia)
2. Subject-specific methodology in the frequency scanning phase of SSVEP-based BCI
Izabela Rejer and Łukasz Cieszyński (West Pomeranian University of Technology in Szczecin, Poland)
3. Evaluation of Influence Exerted by a Malicious Group’s Various Aims in the External Grid
Kosuke Yamaguchi, Tsutomu Inamoto, Keiichi Endo, Yoshinobu Higami and Shinya Kobayashi (Ehime University, Japan)
4. How human perceive an application error? Error potential study
Krzysztof Moskwa and Izabela Rejer (West Pomeranian University of Technology in Szczecin, Poland)
5. Intelligent Support System for E-Health
Larisa Globa, Andrii Zakharchuk and Ivan Ishchenko (National Technical University of Ukraine «Kyiv Polytechnic Institute, Ukraine)

The Fort Gerhard visitation, 19:00-23:00

Location: Fort Gerhard (Świnoujście)

Chaired by Sylwia Hardej

Thursday 20 Oct 2016

Keynote, 09:00-10:30

Room: Kalman Room
Chaired by Jerzy Pejaś

1. *An Approach to Big Data Processing for Telecom Operator*
Larysa Globa (National Technical University of Ukraine, Ukraine)
2. *Fuzzy logic-based decision modeling in economics and social sciences*
Gisella Facchinetti (University of Salento, Italy)
3. *Behaviometrics: A Solution to Biometrics Spoofing Problems*
Khalid Saeed (Bialystok University of Technology and Warsaw University of Technology, Poland)

Thursday 20 Oct 2016

Oral Presentations III: Software Technologies

10:30-12:30

Room: Kalman Room

Chaired by prof. Larysa Globa (Ukraine) and prof. Andriy Luntovskyy (Germany)

1. Performance and Energy Efficiency in Distributed Computing
Andriy Luntovskyy (BA Dresden Univ. of Coop. Education, Germany)
2. The Approach to Web Services Composition
Oleksander Koval, Larisa Globa and Rina Novogradska (National Technical University of Ukraine «Kyiv Polytechnic Institute», Ukraine)
3. Loop Nest Tiling for Image Processing and Communication Applications, Włodzimierz Bielecki and Marek Palkowski (West Pomeranian University of Technology in Szczecin, Poland)
4. Tile Merging Technique to Generate Valid Tiled Code by means of the Transitive Closure of a Dependence Graph
Włodzimierz Bielecki and Piotr Skotnicki (West Pomeranian University of Technology in Szczecin, Poland)
5. Performance Evaluation of Impact of State Machine Transformation and Run-Time Library on a C# Application
Anna Derezińska and Marian Szczykowski (Warsaw University of Technology, Poland)
6. Ontology-Based Approaches to Big Data Analytics
Agnieszka Konys (West Pomeranian University of Technology in Szczecin, Poland)

Tea/Coffee Break, 12:30-12:45

Room: Hall

Chaired by Sylwia Hardej

Thursday 20 Oct 2016

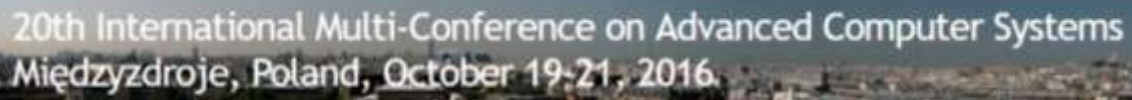
Oral Presentations IV: Artificial Intelligence II

12:45-14:45

Room: Kalman Room

Chaired by prof. Anna Bartkowiak (Poland) and prof. Walery Rogoza

1. Hidden Markov Models with Affix Based Observation in the Field of Syntactic Analysis
Marcin Pietras (West Pomeranian University of Technology in Szczecin, Poland)
2. Mini-model method based on k-means clustering
Marcin Pluciński and Marcin Pietrzykowski (West Pomeranian University of Technology in Szczecin, Poland)
3. A weather forecasting system using intelligent BDI multiagent-based group method of data handling
Walery Rogoza and Michał Zabłocki (West Pomeranian University of Technology in Szczecin, Poland)
4. Line Following Robot with Real-Time Viterbi Track-Before-Detect Algorithm
Grzegorz Matczak and Przemysław Mazurek (West Pomeranian University of Technology in Szczecin, Poland)
5. Ontological modeling of flight preparation manual
Anastasia Orlova and Nikolay Borgest (Samara University, Russia)
6. Real-time system of delivering water-capsule for firefighting
Grzegorz Śmigielski (Casimir the Great University in Bydgoszcz, Poland), Roman Dygdała (Paweł Włodkowic University College in Płock, Poland), Hubert Zarzycki (Wrocław School of Information Technology, Poland) and Damian Lewandowski (Paweł Włodkowic University College in Płock, Poland)



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Lunch, 14:45-15:45

Room: Hotel Restaurant
Chaired by Sylwia Hardej

Thursday 20 Oct 2016

Oral Presentations V: Multimedia Systems

15:45-17:45

Room: Kalman Room

Chaired by prof. Radosław Mantiuk and prof. Izabela Rejer (Poland)

1. Human Face Detection in Thermal Images using Cascade of Classifiers
Pawel Forczmanski (West Pomeranian University of Technology in Szczecin, Poland)
2. Vocal tract resonance analysis using LTAS in the context of the singer's level of advancement
Edward Pótrolniczak and Michał Kramarczyk (West Pomeranian University of Technology in Szczecin, Poland)
3. Accuracy of high-end and self-build eye-tracking systems
Radosław Mantiuk (West Pomeranian University of Technology in Szczecin, Poland)
4. Mouth features extraction for emotion analysis
Robert Staniucha and Adam Wojciechowski (Lodz University of Technology, Poland)
5. Sensitivity of Area-Perimeter Relation for Image Analysis and Image Segmentation Purposes
Dorota Oszutowska-Mazurek (Higher School of Technology and Economics in Szczecin and Pomeranian Medical University, Poland) and Przemysław Mazurek (West Pomeranian University of Technology in Szczecin, Poland)
6. System of Acoustic Assistance in Spatial Orientation for the Blind
Mariusz Kubanek, Filip Depta and Dorota Smorawa (Czestochowa University of Technology, Poland)

Thursday 20 Oct 2016

Poster Session, 17:45-18:30

Room: Kalman Room

Chaired by prof. Aleksandr Cariow (Poland) and prof. Włodzimierz Bielecki

Section: Artificial Intelligence

1. Defuzzification with Optimal Representation Method
Andrzej Piegat and Karina Tomaszewska (West Pomeranian University of Technology in Szczecin, Poland)
2. Application of the k-nearest neighbors method to fuzzy data processing
Marcin Pluciński and Marcin Pietrzykowski (West Pomeranian University of Technology in Szczecin, Poland)
3. RDM Interval Method for Solving Quadratic Interval Equation
Marek Landowski (Maritime University of Szczecin, Poland)
4. EEG of game players - detecting involvement with and without ICA preprocessing
Paweł Górski and Izabela Rejer (West Pomeranian University of Technology in Szczecin, Poland)

Section: Multimedia systems

5. Acceleration of touchless typing with head movements by limiting the set of potential characters
Adam Nowosielski (West Pomeranian University of Technology in Szczecin, Poland)
6. An algorithm for the Vandermonde matrix-vector multiplication with reduced multiplicative complexity
Aleksandr Cariow and Galina Cariowa (West Pomeranian University of Technology in Szczecin, Poland)
7. The use of the objective digital image quality assessment criterion indication to create panoramic photographs
*Jakub Peksinski (West Pomeranian University of Technology in Szczecin, Poland),
Grzegorz Mikolajczak (West Pomeranian University of Technology in Szczecin, Poland)
and Janusz Kowalski (Pomeranian Medical University, Poland)*
8. Parallel Facial Recognition System Based on 2DHMM
Janusz Bobulski (Czestochowa University of Technology, Poland)

Thursday 20 Oct 2016

Poster Session, 17:45-18:30

Room: Kalman Room

Chaired by prof. Aleksandr Cariow (Poland) and prof. Włodzimierz Bielecki

Section: Software Technologies

9. A Hardware-oriented Algorithm for Complex-valued Constant Matrix-vector Multiplication
Aleksandr Cariow and Galina Cariowa (West Pomeranian University of Technology in Szczecin, Poland)
10. A low-budget stimulation system for evoking SSVEP built on Arduino/Genuino platform
Izabela Rejer and Tomasz Zawisłak (West Pomeranian University of Technology in Szczecin, Poland)

Section: Design of Information Systems and Information Technology Security

11. Wavelet transform in detection of the subject specific frequencies for SSVEP-based BCI
Izabela Rejer (West Pomeranian University of Technology in Szczecin, Poland)
12. IDEA key schedule evaluation based on cluster analysis
Michał Apolinarski (Poznań University of Technology, Poland)
13. An approach to evaluation of S-boxes
Krzysztof Bucholc (Poznań University of Technology, Poland)
14. An operation-centered approach to fault detection in key scheduling module of cipher
Ewa Idzikowska (Poznań University of Technology)
15. Using Markovitz' idea to the valuable estimation of the IT projects risk
Magdalena Kieruzel, Leonard Rozenberg (West Pomeranian University of Technology in Szczecin, Poland)
16. The method of ontoloating the usability of the website based on logs and user preferences
Luiza Fabisiak (University of Szczecin, Poland)

Conference Banquette, 19:30-23:00

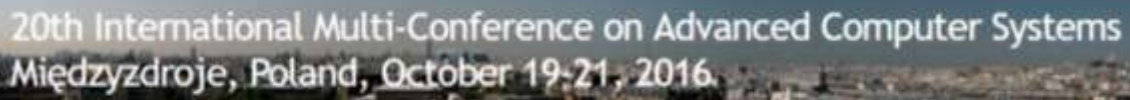
Room: Hotel Restaurant
Chaired by Sylwia Hardej

Friday 21 Oct 2016

Keynote, 09:00-10:00

Room: Kalman Room
Chaired by Jerzy Pejaś

1. Provable security and reductions in cryptology
Jacek POMYKAŁA (Warsaw University, Poland)
2. Reversible computing: from universal logic gates to cryptographic applications
Arkadiusz Orłowski (Warsaw University of Life Sciences SGGW, Poland)



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Tea/Coffee Break, 10:00-10:30

Room: Hall

Chaired by Sylwia Hardej

Friday 21 Oct 2016

Oral Presentations VI: Information Technology

Security, 10:30-12:30

Room: Kalman Room

Chaired by prof. Jacek Pomykała (Poland) and prof. Arkadiusz Orłowski (Poland)

1. S-boxes cryptographic properties from a statistical angle *Anna Grocholewska-Czurylo (Poznan University of Technology, Poland)*
2. Data scheme conversion proposal for information security monitoring systems *Tomasz Klasa (TK Systems Security, Poland) and Imed El Fray (West Pomeranian University of Technology in Szczecin, Poland)*
3. New Challenges in Network Security *Tomasz Bilski (Poznań University of Technology, Poland)*
4. Biometrics as an Authentication Method in a Public Key Infrastructure *Anna Grocholewska-Czurylo and Marek Retinger (Poznan University of Technology, Poland)*
5. Non-standard Certification Models for Public Key Cryptography *Tomasz Hyla and Jerzy Pejaś (West Pomeranian University of Technology in Szczecin, Poland)*

Concluding Meeting, 12:30-13:00

Room: Kalman Room

Chaired by Jerzy Pejaś

Lunch, 13:00-14:30

Room: Hotel Restaurant

Chaired by Sylwia Hardej