KES 2014
18th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems
15-17 September 2014
Gdynia, Poland

CONFERENCE PROGRAMME
Contents

Welcome Message .................................................. 2
Conference Chairs .................................................. 3
Keynote Speakers ................................................... 4
Conference Venue ................................................... 6
Programme Overview ............................................... 8
Detailed Programme ............................................... 11
Social Events ......................................................... 25
Additional Information ............................................ 27
About the Tri-City ................................................... 28
Welcome Message

Welcome to the Eighteenth KES International Conference. The conference is organized by Gdynia Maritime University in Poland with KES International and in cooperation with Pomeranian Science and Technology Park in Gdynia, Poland.

The main aim of the KES conferences is to provide a forum for the dissemination of research accomplishments and to provide an internationally respected forum for scientific research in the technologies and applications of intelligent information and knowledge-based systems.

The conference attracted a substantial number of researchers and practitioners from all over the world who submitted their papers for 11 main tracks and numerous special sessions on specific topics. Accepted and presented papers highlight the new trends and challenge of intelligent and knowledge-based 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 186 best papers have been selected for oral presentation and publication in the KES 2014 proceedings.

We would like to express our sincere thanks to the Honorary Patron: Mayor of Gdynia, Dr. Wojciech Szczurek. Our special gratitude goes to the Honorary Chairs, Prof. Janusz Kacprzyk, Polish Academy of Sciences, Poland and Prof. Lakhmi C. Jain, University of South Australia, Australia, for their support. We also would like to express our thanks to the Keynote Speakers - Prof. Ernesto Damiani, Dr. Ulle Endriss, Prof. Bogdan Gabrys, Prof. Ngoc Thanh Nguyen and Prof. Petra Perner. We also thank co-organizer Pomeranian Science and Technology Park in Gdynia, Poland, for helping to host the event.

Our special thanks go to the Local Organizing Committee. Thanks are due to the Programme Co-chairs, General Track Programme Chairs, Special Sessions Programme Chair, all Programme 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 KES2014 significantly contributes to fulfillment of the academic excellence and leads to even greater successes of KES events in the future.

Piotr Jędrzejowicz  
Lakhmi C. Jain  
Robert J. Howlett  
Ireneusz Czarnowski
Honorary Patronage

Dr. Wojciech Szczurek
Lord Mayor of the City of Gdynia

Honorary Chairs

Prof. Janusz Kacprzyk
Polish Academy of Sciences, Poland

Prof. Lakhmi C. Jain
University of South Australia, Australia

General Chair

Prof. Piotr Jędrzejowicz
Gdynia Maritime University, Poland
Executive Chair

Prof. Robert J. Howlett
University of Bournemouth, UK
Executive Chair KES International

Keynote Speakers

Prof. Ernesto Damiani
University of Milan, Italy
**Speech Title**: Process Analysis Meets Big Data

Dr. Ulle Endriss
University of Amsterdam, The Netherlands
**Speech Title**: Collective Annotation: From Crowdsourcing to Social Choice

Prof. Bogdan Gabrys
Bournemouth University, UK
**Speech Title**: Robust Adaptive Predictive Modeling and Data Deluge

Prof. Ngoc Thanh Nguyen
Wroclaw University of Technology, Poland
**Speech Title**: Processing Inconsistency in Determining Knowledge of a Collective
Prof. Petra Perner
Institute of Computer Vision and Applied Computer Sciences, Germany

Speech Title: Mining Big and Sparse Data by Case-Based Reasoning

Programme Chairs
Ireneusz Czarnowski, Gdynia Maritime University, Poland
Cecilia Zanni-Merk, National Institute of Applied Science, France
Edward Szczerbicki, University of Newcastle, Australia

General Track Programme Chairs
Ireneusz Czarnowski, Gdynia Maritime University, Poland
Dariusz Barbucha, Gdynia Maritime University, Poland

Special Sessions Programme Chair
Cecilia Zanni-Merk, National Institute of Applied Science, France

Local Organizing Chair
Dariusz Barbucha, Gdynia Maritime University, Poland

Publicity Chair
Izabela Wierzbowska, Gdynia Maritime University, Poland
Ewa Ratajczak-Ropel, Gdynia Maritime University, Poland

KES Conference Series
KES 2014 is part of the KES Conference Series

KES International
The organization and operation of KES 2014 is the responsibility of KES International
Conference Venue

Pomeranian Science and Technology Park in Gdynia
(Pomorski Park Naukowo-Technologiczny w Gdyni)
Aleja Zwycięstwa 96/98
81 - 451 Gdynia, Poland
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room C</th>
<th>Room D</th>
<th>Room E</th>
<th>Room G</th>
<th>Room H</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30-17:00</td>
<td>Registration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:45-09:15</td>
<td>Opening ceremony</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15-10:30</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00-12:10</td>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:20-14:20</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:20-14:40</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:20-15:30</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:40-17:00</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00-18:15</td>
<td>Welcome Reception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:30-21:30</td>
<td>Welcome Reception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Programme Overview**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room C</th>
<th>Room D</th>
<th>Room E</th>
<th>Room G</th>
<th>Room H</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15-10:30</td>
<td>Intelligent Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>Knowledge Discovery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00-12:10</td>
<td>Data Mining</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:20-14:20</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:20-14:40</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:20-15:30</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:40-17:00</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Room C</td>
<td>Room D</td>
<td>Room E</td>
<td>Room G</td>
<td>Room H</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>08:00-17:00</td>
<td>Registration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08:30-10:00</td>
<td><strong>G11</strong>: Intelligent Systems Applications and Miscellaneous Topics</td>
<td><strong>G03</strong>: Knowledge Based and Expert Systems</td>
<td><strong>IS32</strong>: Web and Social Intelligence for Supporting Creative Human Activities</td>
<td><strong>IS31</strong>: Intelligent Network and Service</td>
<td><strong>IS29</strong>: Human Factors for Communication &amp; Intelligent Systems</td>
<td></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30-11:30</td>
<td>Plenary session</td>
<td><strong>Collective Annotation: From Crowdsourcing to Social Choice</strong></td>
<td>Dr. Ulle Endriss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chair: Prof. Edward Szczepicki</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Room C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30-11:40</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:40-13:00</td>
<td><strong>G08</strong>: Knowledge Management</td>
<td><strong>G10</strong>: E-Learning, E-Business and E-Commerce</td>
<td><strong>IS17</strong>: Knowledge-Based Intelligent System and Application</td>
<td><strong>IS06</strong>: Chance Discovery and Market of Data</td>
<td><strong>G09</strong>: Intelligent Vision, Image Processing and Signal Processing <strong>IS03</strong>: Advances in Visual Intelligent Systems</td>
<td></td>
</tr>
<tr>
<td>13:00-14:00</td>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:00-15:00</td>
<td>Plenary session</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Process Analysis Meets Big Data</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof. Ernesto Damiani</td>
<td></td>
<td>Chair: Prof. Margarita Favorskaya</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Room C</td>
<td></td>
<td>Room C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:00-15:20</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:20-17:10</td>
<td><strong>G11</strong>: Intelligent Systems Applications and Miscellaneous Topics</td>
<td><strong>G03</strong>: Knowledge Based and Expert Systems</td>
<td><strong>G05</strong>: Knowledge Discovery and Data Mining</td>
<td><strong>IS12</strong>: Intelligent Data Analysis in Applications</td>
<td><strong>IS24</strong>: Immunity-Based Systems: Resilient Computing</td>
<td></td>
</tr>
<tr>
<td>19:00-22:00</td>
<td>Conference dinner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Room C</td>
<td>Room D</td>
<td>Room E</td>
<td>Room G</td>
<td>Room H</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>08:00-14:00</td>
<td>Registration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08:30-10:00</td>
<td><strong>G07</strong>: Natural Language Processing</td>
<td><strong>IS27</strong>: Complex systems</td>
<td><strong>IS19</strong>: Skill Acquisition and Ubiquitous Human-Computer Interaction</td>
<td><strong>IS05</strong>: Knowledge-Based Systems for e-Business</td>
<td><strong>IS18</strong>: E-learning as Cooperation Among Higher Education Institutions</td>
<td></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30-11:30</td>
<td>Plenary session</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Robust Adaptive Predictive Modeling and Data Deluge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof. Bogdan Gabrys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chair: Prof. Ignac Lovrek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Room C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30-11:40</td>
<td>Short break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:40-13:00</td>
<td><strong>G07</strong>: Natural Language Processing</td>
<td><strong>IS33</strong>: Knowledge Sharing Network</td>
<td><strong>IS19</strong>: Skill Acquisition and Ubiquitous Human-Computer Interaction</td>
<td><strong>IS05</strong>: Knowledge-Based Systems for e-Business</td>
<td><strong>ISRP-14</strong>: Intelligent Systems Research Progress Workshop</td>
<td></td>
</tr>
<tr>
<td>13:00-13:30</td>
<td>Closing ceremony</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:30-14:30</td>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:30-20:00</td>
<td>Excursion (optional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Detailed Programme

14 September 2014 (Sunday)

17:00-19:00 - Registration

15 September 2014 (Monday)

7:30-17:00 - Registration

8:45-9:15 - Opening ceremony

9:15-10:15 Plenary session
Mining Big and Sparse Data by Case-Based Reasoning
Prof. Petra Perner
Chair: Prof. Gloria Phillips-Wren
Room C

10:15-10:30 – Group photo session

10:30-11:00 – Coffee break

11:00-12:00 – Parallel Sessions

General Track - Room C
G11: Intelligent Systems Applications and Miscellaneous Topics (part 1)
Chair: Carlos Toro
1. Short term electricity forecasting using individual smart meter data
   Krzysztof Gajowniczek, Tomasz Ząbkowski
2. A smart experience-based knowledge analysis system (SEKAS)
   Peng Wang, Cesar Sanin, Edward Szczebicki
3. Method for suggesting suitable location-words for demand sentences
   Misako Imono, Eriko Yoshimura, Seiji Tsuchiya, Hirokazu Watabe

General Track - Room D
G02 - Nature Inspired Methods and Optimization (part 1)
Chair: Urszula Boryczka
1. Exploration of multi-objective tradeoff during high level synthesis using bacterial chemotaxis and dispersal
   Anirban Sengupta, Saumya Bhadauria
2. Construction of data aggregation tree for multi-objectives in wireless sensor networks through jump particle swarm optimization
   Yao Lua, Jianping Chen, Ioan Comsa, Pierre Kuonen, Beat Hirsbrunner
3. Ant colony optimization algorithm applied to ship steering control
   Mirosław Tomera
General Track - Room E
G01 - Artificial Neural Networks and Machine Learning
Chair: Liya Ding
1. Aliased states discerning in POMDPs and improved anticipatory classifier system
   Tomohiro Hayashida, Ichiro Nishizaki, Ryosuke Sakato
2. Training example generation method for supervised learning agents in sequential scenarios
   Paweł Stobiecki, Bartłomiej Śnieżyński
3. Overfitting problem in a virtual sensor obtained with W–M method
   Przemysław Andrzej Wałęga

Special Session - Room G
IS01: Knowledge-based Learning and Education Support System: Design and Function (part 1)
Chairs: Tomoko Kojiri, Yuki Hayashi, Toyohide Watanabe
1. Improvement of detection for warning students in e-learning using web cameras
   Kenichi Takahashi, Masahiro Ueno
2. Estimation of e-Education system using Virtual Exploratory Learning
   Hiroshi Matsuda, Yoshiaki Shindo
3. Reusing knowledge based on ontology and organizational model
   Achraf Ben Miled

Special Session - Room H
IS02: Security Engineering for Knowledge-based & Intelligent Systems & Applications
Chair: Esmiralda Moradian
1. Extended abstract digital forensics model with preservation and protection as umbrella principles
   Shahzad Saleem, Oliver Popov, Ibrahim Bagilli
2. Biometric identification on android smartphones
   Shah Faisal Darwaisha, Esmiralda Moradiana, Tirdad Rahmanib, Martin Knauer
3. An infrastructure for individualised and intelligent decision-making and negotiation in cyber-physical systems
   Anne Håkansson, Ronald L. Hartung

12:00-12:10 – Short break

12:10-13:20 – Parallel Sessions

General Track - Room C
G06: Web Intelligence
IS31: Intelligent Network and Service (part 1)
Chairs: Dariusz Król, Takaya Yuizono, Motoki Miura, Jun Munemori
1. Possi-OWL 2: Possibilistic Extension of OWL 2 for an uncertain geographic ontology
   Safia Bal-Bourai, Aicha Mokhtari
2. Extended content-boosted matrix factorization algorithm for recommender systems
   Oleksandr Krasnoshchok, Yngve Lamo
3. Learning system using simple electroencephalograph feedback effect during memory work
   Kouji Yoshida, Fumiyasu Hirai, Isao Miyaji
4. Next generation of embedded system on cloud computing
   Tetsuo Furuichi, Kunihiro Yamada

General Track - Room D
G02: Nature Inspired Methods and Optimization (part 2)
Chair: Urszula Boryczka
1. A surrounding world knowledge acquiring by using a low-cost ultrasound sensors
   Boguslaw Szlachetko, Michal Lower
2. A hybrid of bacterial foraging and differential evolution-based distance of sequences
   Muhammad Marwan Muhammad Fuad
3. Island-based differential evolution algorithm for the discrete-continuous scheduling with
   continuous resource discretisation
   Piotr Jędrzejowicz, Aleksander Skakovski
4. Arabic textual images compression approach
   Jassem Mtimet, Hamid Amiri

**General Track - Room E**

**G05: Knowledge Discovery and Data Mining (part 1)**

**Chair: Dariusz Barbucha**

1. Pruning statistically insignificant association rules in the presence of high-confidence rules in web
   usage data
   Maja Dimitrijevic, Zita Bosnjak
2. Soft approach to identification of cohesive clusters in two gene representations
   Michal Kozielski, Aleksandra Gruca
3. Spatial internet traffic load forecasting with using estimation method
   Anna Kamińska-Chuchmała
4. RELIEF-based selection of decision rules
   Urszula Stańczyk

**Special Session - Room G**

**IS28: Data Science for Big Data (part 1)**

**Chairs: Katsutoshi Yada, Takahira Yamaguchi**

1. Consumer purchasing behavior extraction using statistical learning theory
   Yi Zuo, A B M Shawkat Ali, Katsutoshi Yada
2. Bayesian estimations with isotropic and anisotropic matrices for a multinomial logit model
   Nozomi Matsumoto, Takeshi Kurosawa
3. Evaluation of price elasticity and brand loyalty in milk products
   Natsuki Sano, Syusuke Tamura, Katsutoshi Yada, Tomomichi Suzuki
4. Prediction model using micro-clustering
   Takanobu Nakahara, Takeaki Uno, Yukinobu Hamuro

**Special Session - Room H**

**IS16: Application of semantic Technologies to Decision Making**

**Chairs: Cecilia Zanni-Merk, Colette Faucher**

1. Description of a semantic-based navigation model to explore document collections in the maritime
   domain
   Valentina Dragos
2. A semantic layered architecture for analysis and diagnosis of SME
   Nathalie Gartiser, Cecilia Zanni-Merk, Lucas Boulosa, Ana Casal
3. Hybrid fuzzy-ontological project framework of a team work simulation system
   Cezary Orłowski, Irena Bach-Dąbrowska, Paweł Kapłański, Włodzimierz Wysocki
4. The hybrid fuzzy - SOEKS approach to the Polish Internet mortgage market
   Aleksander Orłowski, Edward Szczerbicki

**13:20-14:20 – Lunch**

**14:20-15:20 Plenary session**

**Processing Inconsistency in Determining Knowledge of a Collective**

Prof. Ngoc Thanh Nguyen
Chair: Prof. Colette Faucher
Room C
**15:20-15:30 – Short break**

**15:30-16:40 – Parallel Sessions**

**General Track - Room C**  
**G11: Intelligent Systems Applications and Miscellaneous Topics (part 2)**  
**Chair: Carlos Toro**

1. Unscheduled public transport intelligent navigation system  
   José Sendra Salcedo, Osvaldo Cairó Battistuti
2. Hybrid data in the multiobjective evaluation of investments  
   Bogdan Rębiasz, Andrzej Macioul
3. Computational intelligence methods of a safe ship control  
   Józef Lisowski
4. Implementing Virtual Engineering Objects (VEO) with the Set of Experience Knowledge Structure (SOEKS)  
   Syed Imran Shafiq, Cesar Sanin, Edward Szczerbicki, Carlos Toro

**General Track - Room D**  
**G05: Knowledge Discovery and Data Mining (part 2)**  
**Chair: Marcin Blachnik**

1. Sequential classification by exploring levels of abstraction  
   Tomasz Łukaszewski, Szymon Wilk
2. A privacy preserving technique to prevent sensitive behavior exposure in semantic location-based service  
   Yuna Oh, Kangsoo Jung, Seog Park
3. Tightening upper bounds to the expected support for uncertain frequent pattern mining  
   Carson K. Leung, Richard Kyle MacKinnon, Syed K. Tanbeer
4. Effectively and efficiently mining frequent pattern from dense graph streams on disk  
   Peter Braun, Juan J. Cameron, Alfredo Cuzzocrea, Fan Jiang, Carson K. Leung

**Special Session - Room E**  
**IS13: Modelling with Qualitative and Quantitative Pairwise Comparisons (part 1)**  
**Chairs: Ryszard Janicki, Konrad Kułakowski**

1. Tender with success - the pairwise comparisons approach  
   Konrad Kułakowski, Jacek Szybowski, Ryszard Tadeusiewicz
2. The new triad based inconsistency indices for pairwise comparisons  
   Konrad Kułakowski, Jacek Szybowski
3. Fair ranking in competitive bidding procurement: A case analysis  
   Michael Soltys

**Special Session - Room G**  
**IS28: Data Science for Big Data (part 2)**  
**IS08: Recent Advances in Knowledge Engineering and Soft Data Paradigms**  
**Chairs: Katsutoshi Yada, Takahira Yamaguchi, Mika Sato-Ilic, Lakhmi C. Jain**

1. Identifying types of staying facilities from traffic behavior log data  
   Yu Sugawara, Takeshi Morita, Hidenao Abe, Shuichi Matsumoto, Takahira Yamaguchi
2. An analysis of the effects of customers’ migratory behavior in the inner areas of the sales floor in a retail store on their purchase  
   Yoshihiro Ohata, Asako Ohno, Takahiro Yamasaki, Kin-ichiroh Tokiwa
3. A fuzzy clustering method using the relative structure of the belongingness of objects to clusters  
   Tosei Hatori, Mika Sato-Ilic
4. On fuzzy priority weights of AHP for double inner dependence structure
   Shin-ichi Ohnishi, Takahiro Yamanoi

Special Session - Room H
IS24: Immunity-Based Systems: Resilient Computing (part 1)
IS10: Culturally-Aware AI Systems
Chairs: Yoshiteru Ishida, Joerg Rainer Noennig, Colette Faucher
1. Transferring functions of biological immune systems to communication processes in disasters using cellular automata
   Peter Schmiedgen, Sebastian Wiesenhütter, Jörg Rainer Noennig
2. Rigid folding in robotic multi-agent systems
   Benjamin Felbrich, Jörg Rainer Nönnig, Sebastian Wiesenhütter
3. Analogy between immune system and sensor replacement using mobile robots on wireless sensor networks
   Yuji Watanabe, Ei Jyo
4. Detection of hidden laughter for human-agent interaction
   Shiho Tatsumi, Yasser Mohammad, Yoshimasa Ohmoto, Toyoaki Nishida

16:40-17:00 – Coffee break

17:00-18:15 – Parallel Sessions

General Track - Room C
G04: Agent and Multi-Agent Systems
Chair: Ignac Lovrek
1. Signal learning with messages by reinforcement learning
   Kozue Noro, Hiroshi Tennoto, Akimoto Kamiya
2. Ontology based multi agent system for improved procurement process: Application for the handicraft domain
   Rahma Dhaouadi, Achrif Benmiled, Khaled Ghédira
3. Enhancing DisCSP-Netlogo from simulation to real-execution of agents in distributed constraints
   Ionel Muscalăiguia, Popa Horia Emilb, Viorel Negrub
   Hrvoje Maracic, Tihana Miskovic, Mario Kusek, Ignac Lovrek

Special Session - Room D
IS01: Knowledge-based Learning and Education Support System: Design and Function (part 2)
Chairs: Tomoko Kojiri, Yuki Hayashi, Toyohide Watanabe
1. Decision support software for search & rescue operations
   Michał Wysokiński, Robert Marcjan, Jacek Dajda
2. Understanding level estimation using discussion maps for supporting consensus-building
   Hironobu Takagi, Kazutaka Shimada
3. Preliminary evaluation of a problem-posing method in programming classes
   Hisayoshi Kunimine, Masaaki Niimura
4. Modification of past remarks for activating discussion in collaborative learning
   Fumito Natea, Yuki Hayashi, Tomoko Kojiri

Special Session - Room E
IS13: Modelling with Qualitative and Quantitative Pairwise Comparisons (part 2)
Chairs: Ryszard Janicki, Konrad Kulakowski
1. Bonus distribution for employees of a telephone customer service department: a case study based on pairwise comparisons
   Agnieszka Kalinowska, Tadeusz Trzaskalik
2. The consistency of group pairwise comparison matrices and some boundary properties for consistency indices
   Matteo Brunelli, Michele Fedrizzi
3. Inefficient weights from pairwise comparison matrices
   Sándor Bozóki
4. On reducing inconsistency of pairwise comparison matrices below an acceptance threshold
   Atilla Poesz

**Special Session - Room G**

IS30: Artificial Intelligence Methods in Optimization, Scheduling and Planning
*Chairs: Adam Słowiński, Zbigniew Banaszak, Grzegorz Bocewicz, Krzysztof Bażyra*

1. A hybrid multi-agent approach to the solving supply chain problems
   Paweł Sitek, Izabela Ewa Nielsen, Jarosław Wójcik
2. Cyclic scheduling of multimodal processes in crystalline-like network structures
   Grzegorz Bocewicz, Robert Wójcik, Zbigniew Banaszak
3. Optimization model of agile team’s cohesion
   Irena Bach-Dąbrowska, Paweł Pawlewski
4. The use of intelligent systems for planning and scheduling of product development projects
   Marcin Relich, Wojciech Muszyński

**Special Session - Room H**

IS09: Innovation in Automation and Autonomy using Soft Computing Techniques
*Chair: Jeffrey Tweedale*

1. Ant Colony Optimization based navigational decision support system
   Agnieszka Lazarowska
2. Automation in handling uncertainty in semantic-knowledge based robotic task-planning by using markov logic networks
   Ahmed Al-Moadhen, Michael Packianather, Rossi Setchi, and Renxi Qiu
3. Enhancing the degree of autonomy on a ‘Tier 1’ unmanned aerial vehicle using a visual landing framework
   Jeffrey W. Tweedale, Dion Gonano
4. A review of cognitive decision-making within future mission systems
   Jeffrey W. Tweedale

19:30-21:30 – Welcome Reception

16 September 2014 (Tuesday)

8:00-17:00 - Registration

8:30-10:00 – Parallel Sessions

**General Track - Room C**

G11: Intelligent Systems Applications and Miscellaneous Topics (part 3)
*Chair: Carlos Toro*

1. Viability of decisional DNA in robotics
   Carl Sheffer, Cesar Sanin, Edward Szczepicki
2. Ontology based semantic annotation of Urdu language web documents
   Quratulain Rajput
3. Application of a conceptual framework for the modelling and execution of clinical guidelines as networks of concurrent processes
   Nick Lik San Fung, Ing Widya, Tom Broens, Nekane Larburu, Richard Bults, Erez Shalom, Val Jonesa, Hermie Hermens
4. Flow graph approach for studying fuzzy inference systems  
   Alicja Mieszkowicz-Rolka, Leszek Rolka
5. Sports data mining: predicting results for the college football games  
   Carson K. Leung, Kyle W. Joseph

**General Track - Room D**

**G03: Knowledge Based and Expert Systems (part 1)**

**Chair: Anne Hakansson**

1. Using an improved rule match algorithm in an expert system to detect broken driving rules for an energy-efficiency and safety relevant driving system
   Emre Yay, Natividad Martínez Madrid, Juan Antonio Ortega Ramírez
2. Taiwan stock investment with gene expression programming
   Cheng-Han Lee, Chang-Biau Yang, Hung-Hsin Chen
3. On the belief merging by negotiation
   Trong Hieu Tran, Quoc Bao Vo, Thi Hong Khanh Nguyen
4. On-line modelling and assessment of the state of technosphere and environment objects based on monitoring data
   Tatiana G. Penkova, Anna V. Korobko, Valeriy V. Nicheporchuk, Lyudmila F. Nozhenkova
5. Aspect based summarization of context dependent opinion words
   Hitesh Kansal, Durga Toshniwal

**Special Session - Room E**

**IS32: Web and Social Intelligence for Supporting Creative Human Activities**

**Chairs: Taketoshi Ushiama, Naoto Mukai, Toyohide Watanabe**

1. Computer-supported novel composition, based on externalization
   Toyohide Watanabe, Ryosuke Arasawa
2. Application of detecting blinks for communication support tool
   Ippei Torii, Kaoruko Ohtani and Naohiro Ishii
3. Structure of a prototype system for managing letters
   Hideaki Ito, Kazuki Kasugai, Syouhei Kanamori, Shimpei Kanekasu, Shinsaku Tashiro, Tsuyoshi Taki, Junichi Hasegawa, Kyoko Raita
4. A user sensitive privacy-preserving location sharing system in mobile social networks
   Wei Cherng Cheng, Masayoshi Aritsugi
5. Effective browsing technique based on behavioral collaborative filtering on social streams
   Hong Yan, Taketoshi Ushiama

**Special Session - Room G**

**IS31: Intelligent Network and Service (part 2)**

**Chairs: Takaya Yuizono, Motoki Miura, Jun Munemori**

1. Proposal to sliding window-based support vector regression
   Yuya Suzuki, Hirofumi Ibayashi, Yukimasa Kaneda, Hiroshi Mineno
2. An implementation of concurrency control between batch update and online entries
   Tsukasa Kudo, Yui Takeda, Masahiko Ishino, Kenji Saotome, Nobuhiro Kataoka
3. Intelligent user interface of smartphones for on-vehicle information devices
   Seiji Matsuyama, Takatomo Yamabe, Natsumi Takahashi, Ryozo Kiyohara
4. A text selection technique using word snapping
   Motoki Miura, Kenji Saisho
5. Usage of blogging software for laboratory management to support weekly seminars using research activity reports
   Takaya Yuizono, Jiwei Jiang, Xinbo Zhao, Jun Munemori

**Special Session - Room H**

**IS29: Human Factors for Communication & Intelligent Systems**

**Chairs: Atsuko K. Yamazaki, Hiroshi Hasegawa**

1. Relation between image detection time and thumbnail image size for satellite-based telemedicine
   Takayuki Suga, Kenji Muto, Kazuo Yagi, Kikuo Asai, Kimio Kondo
2. Verification of Kando requirements in the Kando understanding support process using DOE and bioinstrumentation
   Satoshi Takezawa, Yu Yoshizaki, Akari Utsumi, Hiroshi Haseagwa

3. Analysis of the effect of aroma foot care using functional near-infrared spectroscopy
   Kaoru Eto, Atsuko K. Yamazaki, Minoru Mukuda, Yasuo Kabasawa, Hiroko Yoshida, Kiyomi Ito, Michie Ogawa

4. A considerate application prediction system with artificial neural network
   Daichi Hasumi, Eiji Kamioka

5. Similarity index for sound-alikeness of drug names with pitch accents
   Tomoyuki Nagata, Masaomi Kimura, Fumito Tsuchiya

10:00-10:30 – Coffee break

10:30-11:30  Plenary session
            Collective Annotation: From Crowdsourcing to Social Choice
            Dr. Ulle Endriss
            Chair: Prof. Edward Szczersicki
            Room C

11:30-11:40 – Short break

11:40-13:00 – Parallel Sessions

General Track - Room C
G08: Knowledge Management
Chairs: Ron Hartung
1. Lattice-based spatio-temporal ensemble prediction
   Saulius Samulevicius, Yoann Pitarch, Torben Bach Pedersen
2. A method of identifying ontology domain
   Dan Wu, Anne Håkansson
3. Total path length and number of terminal nodes for decision trees
   Shahid Hussain
4. Systematic errors handling with MTE
   Włodzimierz Filipowicz
5. Temporal DL–OrBACδε: temporal context in access control model
   Ouarda Bettaz, Narhimene Boustia, Aicha Mokhtar‡

General Track - Room D
G10: E-Learning, E-Business and E-Commerce
Chairs: Toyohide Watanabe, Tomoko Kojiri
1. Building intelligent tutoring systems immersed in repositories of e-learning content
   Jacek Marciniak
2. Supporting contextualized information finding with automatic excerpt categorization
   Ricardo Kawase, Patrick Siehndel, Bernardo Pereira Nunes
3. The principles and approach support the mapping of the personal study pathway in electronic educational environments
   Taratuhina Julia, Avdeeva Zinaida, Mirishli Denis
4. Extending Moodle functionalities with ontology-based competency management
   Kalthoum Rezgui, Hédia Mhiri, Khaled Ghédira
Special Session - Room E
IS17: Knowledge-Based Intelligent System and Application
Chairs: Yuji Iwahor, Yoshinori Adachi, Nobuhiro Inuzuka
1. Development of system for prevention of solitary death with mobile devices
   Shunki Takami, Ippei Torii, Naohiro Ishii
2. Improvement of the measurement accuracy and speed of pupil dilation as an indicator of comprehension
   Yoshinori Adachi, Masahiro Ozaki, Yuji Iwahor
3. Shadow detection by three shadow models with features robust to illumination changes
   Shuya Ishida, Shinji Fukui, Yuji Iwahor, M. K. Bhuyan, Robert J. Woodham
4. Defect classification of electronic circuit board using SVM based on random sampling
   Hiroaki Hagi, Yuji Iwahor, Shinji Fukui, Yoshinori Adachi, M. K. Bhuyan
5. Transition of local structures of friendship networks
   Tatsuki Ito, Atsuko Mutoh, Nobuhiro Inuzuka**

Special Session - Room G
IS06: Chance Discovery and Market of Data
Chairs: Akinori Abe, Yukio Ohsawa
1. The function of facilitator in risk/chance management: action research in the stricken area of the Great East Japan Earthquake
   Yumiko Nara
2. Data jackets for externalizing use value of hidden datasets
   Yukio Ohsawa, Chang Liu, Teruaki Hayashi, Hiroyuki Kido
3. Discovering design concept for immovable objects
   Jun Nakamura
4. Model oriented system design on big-data
   Noriyuki Kushiro, Shodai Matsuda, Kunio Takahara
5. Critical points in conversations from the perspective of chance discovery
   Masumi Kubo, Akinori Abe

General Track - Room H
G09: Intelligent Vision, Image Processing and Signal Processing
IS03: Advances in Visual Intelligent Systems
Chairs: Tuan Pham, Margarita N. Favorskaya, Lakhmi Jain
1. Robust anisotropic diffusion scheme for image noise removal
   Tudor Barbu
2. Semantic modelling of interactive 3D content with domain-specific ontologies
   Jakub Flotyński
3. Image projection in immersive 3D visualization laboratory
   Adam Mazikowski, Jacek Lebiedź
4. Distributed system for crossroads traffic surveillance with prediction of incidents
   Margarita Favorskaya, Euvgenii Kazmiruk, Aleksei Popov
5. Image inpainting based on self-organizing maps by using multi-agent implementation
   Margarita Favorskaya, Lakhmi C. Jain, Andrey Bolgov

13:00-14:00 – Lunch

14:00-15:00 Plenary session
Process Analysis Meets Big Data
Prof. Ernesto Damiani
Chair: Prof Margarita Favorskaya
Room C
15:00-15:20 – Coffee break

15:20-17:10 – Parallel Sessions

**General Track - Room C**

**G11: Intelligent Systems Applications and Miscellaneous Topics (part 4)**

**Chair: Carlos Toro**

1. Rough-Fuzzy classifier modeling using data repository sets
   Jiri Krupka, Pavel Jirava
2. An evaluation of mouse and keyboard interaction indicators towards non-intrusive and low cost affective modeling in an educational context
   Sergio Salmeron-Majadas, Olga C. Santos, Jesus G. Boticario
3. Building knowledge from social networks on what is important to drivers in constrained road infrastructure
   Panraphee Raphiphan, Arkady Zaslavsky, Maria Indrawan-Santiago
4. Generating groups of products using graph mining techniques
   Sebastian A. Rios, Ivan F. Videla–Cavieres
5. A benchmark on automatic obstructive sleep apnea screening algorithms in children
   Lili Erazo, Sebastian A. Riosa
6. Online detection of shutdown periods in chemical plants: A case study
   Manuel Martin Salvador, Bogdan Gabrys, Indre Zliobaite

**General Track - Room D**

**G03: Knowledge Based and Expert Systems (part 2)**

**Chair: Anne Hakansson**

1. A case-based reasoning system to support the global software development
   Rodrigo G. C. Rocha, Ryan R. Azevedo, Ygor Cesar Sousa, Eduardo de A. Tavares, Silvio Meira
2. A fault fuzzy-ontology for large scale fault-tolerant wireless sensor networks
   Yazid Benazzouz, Oum-El-keir Aktouf, Ioannis Parissis
3. An ontology-based personalized retrieval model using case base reasoning
   Amir Zidi, Amna Bouhana, Mourad Abed, Afef Fekih
4. A tree-based algorithm for mining diverse social entities
   Peter Braun, Alfredo Cuzzocrea, Carson K. Leung, Richard Kyle MacKinnon, Syed K. Tanbeer
5. Experience based reasoning system coupled with real world knowledge
   Ronald L. Hartung, Anne Hakansson
6. Representing knowledge in DL ALC from text
   Ryan Ribeiro de Azevedo, Fred Freitas, Rodrigo Rocha, José Antônio Alves de Menezes,
   Cleytton Mário de Oliveira Rodrigues, Mikaela Campos Gomes

**General Track - Room E**

**G05: Knowledge Discovery and Data Mining (part 3)**

**Chair: Ireneusz Czarnowski**

1. The branch-and-bound method, genetic algorithm, and dynamic programming to determine a safe ship trajectory in fuzzy environment
   Mohamed-Seghir Mostefa
2. Parallel learning and classification for rules based on formal concepts
   Nida Meddouri, Hela Khoufi, Mondher Maddouri
3. Minimization of decision tree average depth for decision tables with many-valued decisions
   Mohammad Azad, Mikhail Moshkov
4. Comparison of heuristics for inhibitory rule optimization
   Fawaz Alsolami, Igor Chikalov, Mikhail Moshkov
5. Ensembles of instance selection methods based on feature subset
   Marcin Blachnik
6. Ensemble classifier for mining data streams
   Ireneusz Czarnowski, Piotr Jędrzejowicz

<table>
<thead>
<tr>
<th>Special Session - Room G</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS12: Intelligent Data Analysis in Applications</td>
</tr>
<tr>
<td>Chairs: Urszula Stańczyk, Michał Kozieński</td>
</tr>
<tr>
<td>1. A personalized recommender system from probabilistic relational model and users' preferences</td>
</tr>
<tr>
<td>Rajani Chulyadyo, Philippe Leray</td>
</tr>
<tr>
<td>2. Towards accurate eye tracker calibration – methods and procedures</td>
</tr>
<tr>
<td>Katarzyna Harezlak, Paweł Kasprowski, Mateusz Stasch</td>
</tr>
<tr>
<td>3. Exploratory clustering and visualization</td>
</tr>
<tr>
<td>Agnieszka Nowak-Brzezińska, Tomasz Xięski</td>
</tr>
<tr>
<td>4. Graphical models of psychosocial factors in chronic somatic diseases</td>
</tr>
<tr>
<td>Anita Galuszka, Adam Galuszka</td>
</tr>
<tr>
<td>5. Determining life cycles of evolving groups</td>
</tr>
<tr>
<td>Anna Zygmunt, Jarosław Koźlak, Edward Nawarecki, Adam Mika</td>
</tr>
<tr>
<td>6. Influence of data discretization on efficiency of Bayesian classifier for authorship attribution</td>
</tr>
<tr>
<td>Grzegorz Baron</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Session - Room H</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS24: Immunity-Based Systems: Resilient Computing (part 2)</td>
</tr>
<tr>
<td>Chairs: Yoshiteru Ishida, Joerg Rainer Noennig</td>
</tr>
<tr>
<td>1. Towards knowledge ecosystems: modelling knowledge dynamics in environmental systems</td>
</tr>
<tr>
<td>Jörg Rainer Noennig, Anna-Maria Scheler, Katarzyna Piskorek, Jan Barski</td>
</tr>
<tr>
<td>2. A note on mapping a matching problem to a majority network as a Lyapunov function: Problem solving by synchronization</td>
</tr>
<tr>
<td>Yoshiteru Ishida, Yu-Ichiro Yamanaka</td>
</tr>
<tr>
<td>3. Asymmetry in diagrams of stable marriage problems: Stable manifolds mapped from stable matchings</td>
</tr>
<tr>
<td>Yoshiteru Ishida, Takumi Sato</td>
</tr>
<tr>
<td>4. Clustering inventory locations to improve the performance of disaster relief operations</td>
</tr>
<tr>
<td>Nur Budi Mulyono, Yoshiteru Ishida</td>
</tr>
<tr>
<td>5. Stable marriage problem mapped to Lotka-Volterra model: Stable equilibria mapped from stable matchings</td>
</tr>
<tr>
<td>Yoshikazu Hata, Yoshiteru Ishida</td>
</tr>
<tr>
<td>6. A mathematical study of combined use of anti-HIV drugs and a mutagen</td>
</tr>
<tr>
<td>Kouji Harada</td>
</tr>
</tbody>
</table>

19:00-22:00 – Conference dinner

17 September 2014 (Wednesday)

8:00-14:00 - Registration

8:30-10:00 – Parallel Sessions

<table>
<thead>
<tr>
<th>General Track - Room C</th>
</tr>
</thead>
<tbody>
<tr>
<td>G07: Natural Language Processing (part 1)</td>
</tr>
<tr>
<td>Chair: Michał Ptaszyński</td>
</tr>
<tr>
<td>1. An economic approach to big data in a minority language</td>
</tr>
<tr>
<td>Šandor Dembitz, Gordan Gledec, Mladen Sokele</td>
</tr>
</tbody>
</table>
2. Topic segmentation for textual document written in Arabic language
Anja Habacha Chaibi, Marwa Naili, Samia Sammoud
3. A Text To Speech system for Fon language using Multisyn algorithm
Théophile K. Dagba, Charbel Boco
4. Incident related tweet extraction with density ratio estimation
Hidekazu Yanagimoto, Suguru Isaji

**Special Session - Room D**
**IS27: Complex systems**
**Chair: Roman Šperka**
1. MAREA - from an agent simulation application to the social network analysis
   Dominik Vymětal, Roman Šperka
2. Self-learning bayesian networks in diagnosis
   Petr Suchánek, Franciszek Marecki, Robert Bucki
3. Trading agents' negotiation in business management using demand functions: simulation experiments with binomial distribution
   Roman Šperka, Marek Spišák
4. Improving strategy in robot soccer game by sequence extraction
   Vaclav Svaton, Jan Martinovic, Katerina Slaninova, Tomas Bures
5. Microsoft Excel as a tool for solving multicriteria decision problems
   Radomír Perzina, Jaroslav Ramík

**Special Session - Room E**
**IS19: Skill Acquisition and Ubiquitous Human Computer Interaction (part 1)**
**Chairs: Hirokazu Taki, Masato Soga**
1. The effects of light blue and white backgrounds on the brain activity of Web-based English tests' takers
   Atsuko K. Yamazaki, Shinji Koizumia, Hitomi Shimadaa, Kaoru Eto
2. Classification of haptic tasks based on electroencephalogram frequency analysis
   Hirokazu Miura, Junki Kimura, Noriyuki Matsuda, Masato Soga, Hirokazu Taki
3. An relationship between stress-less and comfortable acoustic information, and asymmetry changes in hemoglobin concentrations
   Taizo Miyachi, Daisaku Kurita, Saiko Iga, Takashi Furuhata
4. Fluid data compression and ROI detection using run length method
   Shota Ishikawa, Haiyuan Wu, Chongke Bi, Qian Chen, Hirokazu Taki, Kenji Ono
5. Analysis and identification of the EEG signals from visual stimulation
   Mineyuki Tsuda, Yankun Lang, Haiyuan Wu

**Special Session - Room G**
**IS05: Knowledge-Based Systems for e-Business (part 1)**
**Chairs: Kazuhiro Tsuda, Nobuo Suzuki, Masakazu Takahashi**
1. Improvement of terminology extraction method for specific patent search
   Kyoko Yanagihori, Koji Tanaka, Kazuhiro Tsuda
2. A study on accuracy improvement of knowledge extraction from the medical package inserts
   Takashi Ikoma, Masakazu Takahashi, Kazuhiko Tsuda
3. Evaluation of communication and travel behavior extraction with latent topics
   Nobuo Suzuki, Kazuhiro Tsuda
4. Study on web analytics utilizing segmentation knowledge in business to business manufacturer site
   Akiyuki Sekiguchi, Kazuhiro Tsuda
Special Session - Room H
IS18: E-learning as Cooperation Among Higher Education Institutions
Chairs: Hideyuki Kanematsu, Kazunori Nishino, Yoshimi Fukumura
1. Introducing eye blink of a student to the virtual world and evaluating the affection of the eye blinking during the e-Learning
   Asanka D. Dharmawansa, Yoshimi Fukumura, Hideyuki Kanematsu, Toshiro Kobayashi, Nobuyuki Ogawa, Dana M. Barry
2. An e-portfolio system that enables cooperation between institutes
   Yoshimitsu Miyasawa, Yoshimi Fukumura, Takashi Yukawa
3. Development of learning methods and system to practice problems using digital materials
   Kazuya Suzuki, Hideki Kondo, Shin'nosuke Yamaguchi, Yoshimasa Ohnishi, Shin'ichi Tsumori, Hirotaka Wakana, Kazunori Nishino
4. Virtual STEM class for nuclear safety education in metaverse
   Hideyuki Kanematsu, Toshiro Kobayashi, Dana M. Barry, Yoshimi Fukumura, Asanka Dharmawansa, Nobuyuki Ogawa

10:00-10:30 – Coffee break

10:30-11:30 Plenary session
Robust Adaptive Predictive Modeling and Data Deluge
Prof. Bogdan Gabrys
Chair: Prof. Ignac Lovrek
Room C

11:30-11:40 – Short break

11:40-13:00 – Parallel Sessions

General Track - Room C
G07: Natural Language Processing (part 2)
Chair: Sandor Dembitz
1. Extraction Japanese slang from weblog data based on script type and stroke count
   Kazuyuki Matsumoto, Kyosuke Akita, Xielifuguli Keranmu, Minoru Yoshida, Kenji Kita
2. Econo-ESA reduction scheme and the impact of its index matrix density
   Faisal Rahutomo, Yuki Manabe, Teruaki Kitasuka, Masayoshi Aritsugi
3. Detecting emotive sentences with pattern-based language modelling
   Michal Ptaszyński, Fumito Masui, Rafał Rzepka, Kenji Araki

Special Session - Room D
IS33: Knowledge Sharing Network
IS07: Intelligent Human-Computer Interaction
Chairs: Shuichiro Yamamoto, Kazuhisa Seta
1. A study on maturity model of open source software community to estimate the quality of products
   Yoshitaka Kuwata, Kentaro Takeda, Hiroshi Miura
2. A knowledge integration approach of safety-critical software development and operation based on the method architecture
   Shuichiro Yamamoto
3. Historical Oslo on a handheld device – a mobile augmented reality application
   Weiqin Chen
4. Estimating collaborative attitudes based on non-verbal features in collaborative learning interaction
   Yuki Hayashi, Haruka Morita, Yukiko I. Nakano
Special Session - Room E
IS19: Skill Acquisition and Ubiquitous Human Computer Interaction (part 2)
Chairs: Hirokazu Taki, Masato Soga
1. Classification by EEG frequency distribution in imagination of directions
   Yuki Setoa, Shumpei Ako, Keijiro Sakagami, Hirokazu Miura, Noriyuki Matsuda, Masato Soga, Hirokazu Taki
2. Development of finger motion skill learning support system based on data gloves
   Kazuma Iwasako, Masato Soga, Hirokazu Taki
3. Development of Motion Navigator II enabling integrated motion display of whole body with fingers
   Yuta Sato, Kazuki Hirota, Masato Soga, Hirokazu Taki
4. Development of a gesture learning environment for novices’ erhu bow strokes
   Fumitaka Kikukawa, Masato Soga, Hirokazu Taki

Special Session - Room G
IS05: Knowledge-Based Systems for e-Business (part 2)
Chairs: Kazuhiko Tsuda, Nobuo Suzuki, Masakazu Takahashi
1. Effects of collaborative learning on a complex doubly structured network
   Setsuya Kurahashi, Keisuke Kuniyoshi
2. Classifying homographs in Japanese social media texts using a user interest model
   Tomohiko Harada, Kazuhiko Tsuda
3. An extraction method of ITSS common skill knowledge using Japanese text network analysis
   Koji Tanaka, Kazuhiko Tsuda
4. A study on effect evaluation of payment method change in the mail-order industry
   Masakazu Takahashi, Hiroki Azuma, Kazuhiko Tsuda

ISRP-14: Intelligent Systems Research Progress Workshop - Room H
Chair: Robert J. Howlett

13:00-13:30 - Closing ceremony
13:30-14:30 – Lunch
14:30-20:00 – Excursion (optional)
Social Events

Group Photo Session

All participants of the KES 2014 conference will be invited for a group photo session.

**Date:** Monday, 15 September 2014  
**Time:** 10:15 – 10:30 (10:15 am – 10:30 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 onboard of an old Gdynia Maritime University training sailing ship turned into museum.

**Date:** Monday, 15 September 2014  
**Time:** 19:30 – 21:30 (07:30 pm – 09:30 pm)  
**Place:** Sailing ship Dar Pomorza, Molo Południowe

**Address**  
Statek-muzeum "Dar Pomorza"  
Al. Jana Pawła II  
81-345 Gdynia

Conference Dinner

On Tuesday 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:** Tuesday, 16 September 2014  
**Time:** 19:00 – 22:00 (07:00 pm – 10:00 pm)  
**Place:** Restaurant at Hotel Nadmorski

**Address**  
Hotel Nadmorski  
81-409 Gdynia  
u. Ejsmonda 2
Excursion to Gdansk (optional)

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

In Gdansk - Hanseatic thousand-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. At the end of the tour you will visit the Solidarity Square with the historical Gate of Gdansk Shipyard, where the Solidarity was born.

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

**Date:** Wednesday, 17 September 2014  
**Time:** 14:30 – 20:00 (02:30 pm – 08:00 pm)  
**Meeting place:** at the entrance to PPNT  
**Participants number:** min. 25 - max. 35 persons

*We hope that you will enjoy this trip!*

*Please contact the Conference help desk on September 14 or 15, if you are interested in participation.*
Additional Information

Conference help desk
Opening hours:
14 September 2014 (Sunday) 17:00 – 19:00 (05:00 pm – 07:00 pm)
15 September 2014 (Monday) 07:30 – 17:00 (07:30 am – 05:00 pm)
16 September 2014 (Tuesday) 08:00 – 17:00 (08:00 pm – 05:00 pm)
17 September 2014 (Wednesday) 08:00 – 14:00 (08:00 pm – 02:00 pm)

Moving around the city of Gdynia and the Tri-city 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 3,00 PLN (about 0.70 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:
997 – Police
998 – Fire department
999 – Ambulance
112 – the access number for all emergency services: police, ambulance and fire department (a mobile phone connection)
About The Tri-City

The cities of Gdynia, Sopot and Gdansk are called "Tri-City 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.

GDANSK

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 Walesa 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 Walesa.