### 13th IEEE International Conference on Cognitive Informatics and Cognitive Computing

**Keyworth Centre, London South Bank University**

**Keyworth Street, London SE1 0AA, UK**

**Monday, August 18, 2014**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 - 09:00</td>
<td>Registration</td>
</tr>
</tbody>
</table>
| 09:00 - 09:30 | Welcome  
  Co-chairs and  
  Prof. Phil Cardew, Pro Vice Chancellor, LSBU, UK  
  Room K2 – VG10 |
| 09:30 - 10:10 | Keynote 1  
  Decision-Making Mechanisms in the Brain  
  Prof. Edmund T Rolls, Oxford University, UK  
  Chair: Dilip Patel  
  Room K2 – VG10 |
| 10:10 - 10:30 | Coffee Break                                                          |
| 10:30 - 12:10 | Parallel Sessions  
  Session A: Room K2 – VG10  
  Session B: Room K2 – VG06  
  **A1 Cognitive Informatics**  
  Chair: Shushma Patel  
  Towards a Differential Diagnostic of PTSD using Cognitive Computing Methods  
  Newton Howard, Louis Jehel, and Romain Arnal (195)  
  Towards a Theory of Fuzzy Probability for Cognitive Computing  
  Yingxu Wang (216)  
  An Evaluation of Integer- and Fractional-Order Controllers for Small Satellites  
  Mohamed Temam Nasri, and Witold Kinsner (35)  
  Towards a Formal Theory of Social Roles in Cognitive Computing and Cognitive Informatics  
  Julia Taylor and Victor Raskin (52)  
  Non-Kolmogorov Probability and its use for Constructing a Model of Human Perception Process  
  Yoshiharu Tanaka, Masanari Asano, Andrei Khrennikov, and Masanori Ohya (130) |
| 12:10 - 13:30 | Lunch  
  Keypoint Café |
| 13:30 - 14:10 | Keynote 2  
  From Information Revolution to Intelligence Revolution  
  Prof. Yingxu Wang, Univ. of Calgary, Canada  
  Chair: Shushma Patel  
  Room K2 – VG10 |
| 14:15 - 15:55 | Parallel Sessions  
  Session A: Room K2 – VG10  
  Session B: Room K2 – VG06  
  **A2 Cognitive Computing**  
  Chair: Dilip Patel  
  **B1 Autonomous Agents and Symbiotic Computing**  
  Chair: Shigeru Fujita  
  An Application of an Agent Space Connecting Real Space and Digital Space  
  Kenji Sugawara, Yuki Kaeri, Yasuke Manabe, Claude Moulin, and Jean-Paul Barthes (106)  
  Expansion and Evaluation of EAS to Provision Multimedia Communications Services in Heterogeneous Environments  
  Akiko Takahashi, Makoto Oide, Mitsuru Abe, and Tetsuo Kinoshita (105)  
  Design and Production of an Electronic Musical Score System to Reduce the Load of Page Turning for Wind Orchestra  
  Yasue Iijima, Susumu Konno, and Yositomo Fujii (107)  
  Conversational Labeling Method for Sensor Nodes in a Daily Living Environment  
  Hideki Hara and Kenji Sugawara (123)  
  A Flexible Selection of Internet Connections based on Network Expert Knowledge  
  Jin Ito, Asato Edo, Satoru Izumi, Toru Abe, and Takuo Suganuma (177) |
| 16:00 - 18:00 | Poster Session  
  Poster Session |
| 18:00 - 20:00 | Welcome Reception  
  Keyworth Centre |
| 20:00 - 22:00 | Technical Tour  
  Keyworth Centre |
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position Update Mechanisms for Enhanced Particle Swarm Classification</td>
<td>Nabila Nouaouria, Mounir Boukadoum, and Robert Proulx (7)</td>
</tr>
<tr>
<td>Functional Networks of Anatomic Brain Regions</td>
<td>Burak Velioglu, Emre Aksan, Itr Önal, Orhan Firat, Mete Ozay, and Fatıo T. Yarman Yural (47)</td>
</tr>
<tr>
<td>Cognitive Identification of Systems using Nonlinear Dynamics</td>
<td>Xiaoxiang Liu, Tarikul Sabbir, and Henry Leung (18)</td>
</tr>
<tr>
<td>Psychologically-Based Personalised Modelling of Emotions</td>
<td>Aladdin Ayesh, Miguel Arevalillo-Herráez, and Francesc J. Ferri (125)</td>
</tr>
<tr>
<td>A Bio-Inspired Architecture of the Vestibular System for Body Balance</td>
<td>Ory Medina, Sergio Vargas, Daniel Madrigal, Félix Ramos, and Gustavo Torres (133)</td>
</tr>
<tr>
<td>Rank Level Fusion of Multimodal Cancelable Biometrics</td>
<td>Padma Polash Paul and Marina Gavrilova (136)</td>
</tr>
<tr>
<td>On Efficient Quantum Algorithm using Classical Amplification Process</td>
<td>Satoshi Iriyama and Masanori Ohyya (87)</td>
</tr>
<tr>
<td>A Cognitive Approach for Texture Analysis using Neighbors-Based Binary Patterns</td>
<td>Izem Hamouchene and Saliha Aouat (113)</td>
</tr>
<tr>
<td>A Chaotic Measure for Cognitive Machine Classification of Denial of Service Attacks</td>
<td>Muhammad Salman Khan, Ken Ferens, and Witold Kinsner (45)</td>
</tr>
<tr>
<td>Analyzing Medical Contexts in Ubiquitous Computing Home Environments</td>
<td>John Sarivougioukas and Aristides Vogelatos (112)</td>
</tr>
<tr>
<td>Reduced Problem Space using Bayesian Classification on Semantic Logs</td>
<td>Omair Shafiq, Reda Alhaj, and Jon Rokne (54)</td>
</tr>
<tr>
<td>The Dynamics Model of Public Opinion Diffusion in Online Social Network</td>
<td>Zuqin Chen and Jike Ge (93)</td>
</tr>
<tr>
<td>Distributed Image File System Based on Human Cognition</td>
<td>Xu Zheng (192)</td>
</tr>
<tr>
<td>An Overview about Extracting Static Properties of Vehicle in the Video</td>
<td>Xu Zheng (5)</td>
</tr>
<tr>
<td>Semantic Annotation of Traffic Video Resources</td>
<td></td>
</tr>
<tr>
<td>A Design of the Cognitive Process Model for a Car Driver Considered Quantitatively Expressed Distraction</td>
<td>Taku Harada, Katsuaki Mori, Akira Yoshizawa, and Hirotoshi Iwasaki (48)</td>
</tr>
<tr>
<td>Effects of Non-visual Secondary Tasks on Driver’s Gazing Behavior for Pedestrians</td>
<td>Akira Yoshizawa and Hirotoshi Iwasaki (138)</td>
</tr>
<tr>
<td>A Cognitive Perspective for Information Processing in Bandwidth-Limited Wireless Communications</td>
<td>Xiaoqing Tao, Linhao Dong, Shaoyang Li, Yang Li, Ning Ge, and Jianhua Lu (220)</td>
</tr>
</tbody>
</table>

Tuesday, August 19, 2014

09:10 - 9:50

**Keynote 3**

*Synthetic Intelligence Meets Medical Needs*

Prof. Newton Howard, MIT, USA

Chair: Witold Kinsner

Room K2 – VG10

9:55 - 10:20

Coffee Break

**Parallel Sessions**

<table>
<thead>
<tr>
<th>Session A: Room K2 – VG10</th>
<th>Session B: Room K2 – VG06</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A4 Cognitive Learning</strong></td>
<td><strong>B4 Computational Intelligence (I)</strong></td>
</tr>
<tr>
<td>Chair: Victor Raskin</td>
<td>Chair: Henry Leung</td>
</tr>
<tr>
<td>Duane Shell, Leen-Kiat Soh, and Vlad Chiriacescu (49)</td>
<td>Jike Ge, Jun Peng, and Zuqin Chen (20)</td>
</tr>
<tr>
<td>Learning Algorithm and Neurocomputing Architecture for NDS Neurons</td>
<td>A Cognitive Architecture for Virtual Entities with Attentional Modulation of Pain Perception</td>
</tr>
<tr>
<td>Mario Aoun and Mounir Boukadoum (17)</td>
<td>Cynthia Avila-Contreras, Daniel Madrigal, Gustavo Torres,</td>
</tr>
</tbody>
</table>
Learning through Explaining Observed Inconsistencies
*Du Zhang (194)*

Using Storytelling Methods to Improve Emotion, Motivation and Attitude of Students Writing Scientific Papers and Theses
*Marcus Birkenkrahe (141)*

Design of a Human Interaction Proof (HIP) using Human Cognition in Contextual Natural Conversation
*Mir Tafseer Nayeem, Md Mamunur Rashid Akand, Nazmus Sakib, and Md. Wasi Ul Kabir (132)*

A Chaos-Based Block Cipher with Feistel Structure
*Jun Peng, Liang Lei, Qi Han, and Rong Jia (103)*

HCN Production Process Modeling and Optimization Based on Artificial Neural Networks and Genetic Algorithm
*Yi Jun, Rui Zhang, Huang Di, Li Taifu, Peng Jun, and Su Yingying (92)*

Using Storytelling Methods to Improve Emotion, Motivation and Attitude of Students Writing Scientific Papers and Theses
*Marcus Birkenkrahe (141)*

Formal Verification for Embedded Software with Environment Modeling
*Qingdi Meng, Lianyi Zhang, and G.M Luo (14)*

A New Biological Visual Cognitive Behavioural Modeling for Video Energy Computing
*Li Zuojin, Chen Liukui, Ren Zhiyong, and Sreenivas S. Tirumala (186)*

Body Boundary Changes in Person-Centered Psychotherapy
*Laura Cariola (126)*

The Grounding of Computational Psychoanalysis: A Comparative History of Culture Overview of Matte Blanco Bilogic
*Giuseppe Iurato (102)*

The Operationalization of the Unconscious — From Matte Blanco’s Bi-Logic to Computation
*Marco Tonti (131)*

Formal Approaches in the Age of Mirror Neurons: Hints from Psychoanalytic Theories and Practice
*Rosapia L. Grotto (110)*

The Overview of Big Data Storage and Management
*Xu Zheng (181)*

Penetration Overload Signal Adaptive Cognitive Filtering Model
*Maimitili Nimaiti and Izumi Yamamoto (121)*

**Keynote 4**

**Technology Support for Healthy Living and Minimising Cognitive Impairment**
*Prof. Dilip Patel, LSB University, UK*
*Chair: Witold Kinsner*
*Room K2 – VG10*

**Poster Session**

**Co-Chairs:** Félix Ramos and Xing Wu

<table>
<thead>
<tr>
<th>Session A: Room K2 – VG10</th>
<th>Session B: Room K2 – VG06</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A5 Computational Psychoanalysis</strong>&lt;br&gt;Chair: Fionn Murtagh</td>
<td><strong>B5 Computational Intelligence (II)</strong>&lt;br&gt;Chair: Du Zhang</td>
</tr>
<tr>
<td>Determining Vestiges of the Subconscious through Ultradynamic Component Analysis&lt;br&gt;<em>Fionn Murtagh (96)</em></td>
<td>Modeling Two Effects of Superlative Expressions in eWOM Messages on Consumer Evaluative Inferences&lt;br&gt;<em>Kazunori Fujimoto (134)</em></td>
</tr>
<tr>
<td>Body Boundary Changes in Person-Centered Psychotherapy&lt;br&gt;<em>Laura Cariola (126)</em></td>
<td>Optimizing Symbolic Model Checking of Component-Based Systems by Variable Information&lt;br&gt;<em>Lianyi Zhang, Qingdi Meng, and Guiming Luo (13)</em></td>
</tr>
<tr>
<td>The Operationalization of the Unconscious — From Matte Blanco’s Bi-Logic to Computation&lt;br&gt;<em>Marco Tonti (131)</em></td>
<td>Image Retrieval based on 4096-Tree and Memetic Algorithm&lt;br&gt;<em>Liang Lei, Jun Peng, and Bo Yang (182)</em></td>
</tr>
<tr>
<td>Formal Approaches in the Age of Mirror Neurons: Hints from Psychoanalytic Theories and Practice&lt;br&gt;<em>Rosapia L. Grotto (110)</em></td>
<td>A Kind of Topology Control Algorithm Aimed at Extending the Life Cycle of the WSN&lt;br&gt;<em>Xiang Yi, Ying Wu, and Jun Peng (188)</em></td>
</tr>
<tr>
<td>Correlates of Overt and Covert Attention in Visual Search&lt;br&gt;<em>Ulrich Engelke, Anthony Zeater, and Andreas Duenser (33)</em></td>
<td>Enhanced Particle Swarm Optimization Algorithm with Reuse Guided Retrieval Capabilities&lt;br&gt;<em>Nabilah Nouaouria, Mourir Boukadoum, and Robert Proulx (8)</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16:15 - 16:40</th>
<th>Coffee Break</th>
<th>Keypoint Café</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:40 - 17:40</td>
<td><strong>Poster Session</strong></td>
<td>Keyworth Building</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12:00 - 13:30</th>
<th>Lunch</th>
<th>Keypoint Café</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authors</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Denis Shirnin and Denis Zampunieris (31)</td>
<td>Study of Variable Spray Control System based on Machine Vision</td>
<td>31</td>
</tr>
<tr>
<td>Rui Zhang and Lepeng Song (36)</td>
<td>Towards a Social Interaction-based Cognition Model: An Analysis of Spatial Data Infrastructure</td>
<td>36</td>
</tr>
<tr>
<td>Luis Reynoso, Eduardo Grosclaude, Laura Sánchez, and Mabel Álvarez (39)</td>
<td>Photoelectricity Property of Micro Device Based on Carbon Nanotubes</td>
<td>39</td>
</tr>
<tr>
<td>Ying Wu and Junjie Bai (95)</td>
<td>The Application of Distributed and Cooperation Computing in Logistics Transportation</td>
<td>95</td>
</tr>
<tr>
<td>Huang Guibin and Teng Shaohua (109)</td>
<td>AIR-space: Cognitive Cooperation Space for Active Information Resources based Network Management System</td>
<td>109</td>
</tr>
<tr>
<td>Sazai Kazuto, Hideyuki Takahashi, Gen Kitagata, and Tetsuo Kinoshita (117)</td>
<td>Based on Wavelet Analysis</td>
<td>117</td>
</tr>
<tr>
<td>Haifeng Zhao, Yan Guo and Ya Zhang (184)</td>
<td>A Software Frame of Elevator Signal Amplifier Network with Self-Diagnosis</td>
<td>184</td>
</tr>
<tr>
<td>Guorong Chen, Juli Deng, and Jianxiong Yi (185)</td>
<td>A Pattern Recognition for Group Abnormal Behaviors Based on Markov Random Fields Energy</td>
<td>185</td>
</tr>
<tr>
<td>Li Zuojin, Chen Liukui, Ren Zhiyong, and Sreenivas S. Tirumala (187)</td>
<td>Symmetry in Sequent Calculus and Matte Blanco's Bi-logic</td>
<td>187</td>
</tr>
<tr>
<td>Giulia Battilotti (190)</td>
<td>Chinese Text Sentiment Analysis Based on Fuzzy Semantic Model</td>
<td>190</td>
</tr>
</tbody>
</table>

19:00 - 21:30  
Banquet and Award  
(TBD)

Wednesday, August 20, 2014

9:00 - 9:40  
**Keynote 5**  
**Polyscale Analysis and Fractional Operators for Cognitive Systems**  
Prof. Witold Kinsner, University of Manitoba, Canada  
Chair: Gabriele Fariello  
Room K2 – VG10

9:40 - 10:40, Parallel Sessions

<table>
<thead>
<tr>
<th>Session A: Room K2 – VG10</th>
<th>Session B: Room K2 – VG06</th>
</tr>
</thead>
</table>
| **A6 Fuzzy Cognitive Systems**  
Chair: Virendrakumar C. Bhavsar  
A Fuzzy Structure Similarity Algorithm for Attributed Generalized Trees  
*Mahsa Kiani, Virendrakumar C. Bhavsar, and Harold Boley* (90)  
α-cut-Based Backward Fuzzy Interpolation  
*Shangzhu Jin, Ren Diao, and Qiang Shen* (101)  
A Rough-Fuzzy Perception-Based Computing for a Vision-Based Wall-Following Robot  
*Tong Duan and Witold Kinsner* (6) | **B6 Cognitive Granular Computing**  
Chair: Shusaku Tsumoto  
Category Evaluation Method for Business Intelligence using a Hierarchical Bayes Model  
*Natsuki Sano, Katsutoshi Yada, and Tomomichi Suzuki* (28)  
Incremental Rule Induction based on Updates of Statistical Indices  
*Shusaku Tsumoto and Shoji Hirano* (50)  
Formal Analysis of Leave-One Out Method based on Incremental Sampling Scheme  
*Shusaku Tsumoto and Shoji Hirano* (116) |

10:40 - 10:55  
Coffee Break  
Keypoint Café

10:55 - 11:50  
**Plenary Panel**  
Room K2 – VG10  
**Perspectives on Cognitive Computing and Cognitive Systems**  
Chair: Yingxu Wang  
**Panelists**  
Virendra Bhavsar, Gabriele Fariello, Newton Howard, Giuseppe Iurato, Witold Kinsner, Henry Leung, Fumio Mizoguchi, Fionn Murtagh, Dilip Patel, Shushma Patel, Victor Raskin, Edmund Rolls, Duane Shell, Kenji Sugawara, and Du Zhang

11:50 - 12:00  
**Introduction to ICCI’CC’15, Tsinghua University, Beijing, China**  
Prof. Ning Ge  
Room K2 – VG10