

# **2017 8th IEEE International Conference on Cognitive Infocommunications (CogInfoCom 2017)**

**Debrecen, Hungary  
11-14 September 2017**



**IEEE Catalog Number: CFP1726R-POD  
ISBN: 978-1-5386-1265-1**

**Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1726R-POD
ISBN (Print-On-Demand):	978-1-5386-1265-1
ISBN (Online):	978-1-5386-1264-4
ISSN:	2380-7350

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## TABLE OF CONTENTS

<b>Automatic Estimation of Severity of Parkinson's Disease Based on Speech Rhythm Related Features .....</b>	<b>11</b>
<i>Dávid Sztahó, Miklós Gábor Tulics, István Valálík and Klara Vicsi</i>	
<b>Possibilities of spatial data visualization with web technologies for cognitive interpretation .....</b>	<b>17</b>
<i>Dániel Balla, Tamás Mester, Ágnes Botos, Tibor József Novák, Marianna Zichar, János Rásó and Anita Karika</i>	
<b>Phonetic-class based correlation analysis for severity of dysphonia.....</b>	<b>21</b>
<i>Miklós Gábor Tulics and Klara Vicsi</i>	
<b>A Case Study on Time-Interval Fuzzy Cognitive Maps in a Complex Organization.....</b>	<b>27</b>
<i>Vesa Niskanen, Angela Minzoni and Eleonore Mounoud</i>	
<b>Automatic Detection of Linguistic indicators as a means of early detection of Alzheimer's and of related dementias: A Computational Linguistics analysis .....</b>	<b>33</b>
<i>Rentoumi Vassiliki, Dimitra Arfani, Katerina Fragkopolou, Eva Danasi, Spyros Papadatos, Spyridoula Varlokosta and George Paliouras</i>	
<b>The mathability of word problems as initial computer programming exercises .....</b>	<b>39</b>
<i>Katalin Bubnó and Viktor László Takács</i>	
<b>Blocklino: A Graphical Language for Arduino .....</b>	<b>45</b>
<i>Péter Domokos, Máté Széll and Viktor László Takács</i>	
<b>Phonetic Aspects of Chinese Shaanxi Xi'an Dialect .....</b>	<b>51</b>
<i>László Czap and Lu Zhao</i>	
<b>A Cognitive Model of Sightseeing for Mobile Support System .....</b>	<b>57</b>
<i>Atsushi Ito, Yuko Hiramatsu, Fumihiro Sato, Kazutaka Ueda, Yasunari Harada, Miwa Morishita, Akira Sasaki, Rina Hayashi, Hiroyuki Hatano, Kenji Shoji and Mie Sato</i>	
<b>Executive Functions and Personality Features: a Circular Interpretative Paradigm.....</b>	<b>63</b>
<i>Raffaele Sperandeo, Enrico Moretto, Gesualda Baldo, Silvia Dell'Orco and Nelson Mauro Maldonato</i>	
<b>Assessment of pathological speech prosody based on automatic stress detection and phrasing approaches.....</b>	<b>67</b>
<i>Máté Ákos Tündik, Gábor Kiss, Dávid Sztahó and György Szaszák</i>	
<b>Dynamic resource allocation using combinatorial methods in Cloud: A case study .....</b>	<b>73</b>
<i>Seyed Majid Mousavi, Mohammad Moghadasi and Gabor Fazekas</i>	
<b>Developing cognitive processes for improving inventive thinking in system development using a collaborative virtual reality system .....</b>	<b>79</b>
<i>Gyöngyi Bujdosó, Ovidiu Constantin Novac and Tamás Szimkovics</i>	
<b>Benefits of Exergame Exercise on Physical Functioning of Elderly People .....</b>	<b>85</b>
<i>Niina Katajapuu, Mika Luimula, Aung Pyae, Yin Leng Theng, Tan Phat Pham, Jinhui Li and Keizo Sato</i>	
<b>Mu-Beta Rhythm ERD/ERS Quantification for Foot Motor Execution and Imagery Tasks in BCI Applications.....</b>	<b>91</b>
<i>Madiha Tariq, Lena Uhlenberg, Pavel Trivailo, Khurram Munir and Milan Simic</i>	
<b>Investigation of Cross-lingual Depression Prediction Possibilities Based on Speech Processing.....</b>	<b>97</b>
<i>Gábor Kiss and Klara Vicsi</i>	
<b>Cognitive Infocommunication for Monitoring and Improving Well-being of People .....</b>	<b>103</b>
<i>Anikó Vágner</i>	
<b>A New Fuzzy Statistical Method for Cognitive Maps. Application for Modelling Finnish Dairy Farms' Profitability .....</b>	<b>109</b>
<i>Antti Hyvärinen and Vesa Niskanen</i>	
<b>EEG correlates of speech: examination of event related potentials elicited by phoneme classes.....</b>	<b>115</b>
<i>Annamária Kovács, István Winkler and Klára Vicsi</i>	
<b>A Bilingual Comparison of MaxEnt- and RNN-based Punctuation Restoration in Speech Transcripts.....</b>	<b>121</b>
<i>Máté Ákos Tündik, Balázs Tarján and György Szaszák</i>	

<b>Performance Evaluation of Finite-Source Cognitive Radio Networks with Collision Using Simulation .....</b>	<b>127</b>
<i>Hamza Nemouchi and Sztrik Janos</i>	
<b>SuSy: Surveillance System for Hospitals.....</b>	<b>131</b>
<i>Dominika Palivcova, Miroslav Macik and Zdenek Mikovec</i>	
<b>Sprego Virtual Collaboration Space .....</b>	<b>137</b>
<i>Gábor Csapó</i>	
<b>Sprego Virtual Collaboration Space: Improvement Guidelines for the MaxWhere Seminar System.....</b>	<b>143</b>
<i>Gábor Csapó</i>	
<b>Improving Reverse Geocoding: Localization of Blind Pedestrians Using Conversational UI .....</b>	<b>145</b>
<i>Vojtech Gintner, Jan Balata, Jakub Boksansky and Zdenek Mikovec</i>	
<b>Gender differences in the language of the Map Task dialogues .....</b>	<b>151</b>
<i>Carl Vogel, Milena Ribeiro Lopes and Anna Esposito</i>	
<b>How can ICT help the visually impaired older adults in residential care institutions: The everyday needs survey .....</b>	<b>157</b>
<i>Miroslav Macik, Ivo Maly, Jan Balata and Zdenek Mikovec</i>	
<b>Denormalized Quantum Density Operators for Encoding Semantic Uncertainty in Cognitive Agents .....</b>	<b>165</b>
<i>Ingo Schmitt, Ronald Römer, Günther Wirsching and Matthias Wolff</i>	
<b>Numerical analysis of a network evolution model.....</b>	<b>171</b>
<i>Attila Perecsényi, István Fazekas and Bettina Porvázsnyik</i>	
<b>Differences between hearing and deaf subjects in assessing foreign emotional faces .....</b>	<b>175</b>
<i>Anna Esposito, Antonietta Maria Esposito, Mauro Maldonato and Carl Vogel</i>	
<b>Implementation of a Geographic Information System with Big Data Environment on Common Data Model .....</b>	<b>181</b>
<i>David Sik, Kristof Csorba and Peter Ekler</i>	
<b>Introduction of a Multi-leveled E-learning Environment with Community Contribution .....</b>	<b>185</b>
<i>David Sik</i>	
<b>János Arany's Meeting with Harry Potter .....</b>	<b>189</b>
<i>Gabriella Kiss, Veronika Takács and Viktor László Takács</i>	
<b>Perception of Delay Tolerant Network Behavior with Cognitive Sonification Controller.....</b>	<b>191</b>
<i>Mohamed Amine Korteby and Zoltan Gal</i>	
<b>Data-structure validator; An application of the HY-DE model .....</b>	<b>197</b>
<i>Maria Csernoch and Erzsébet Dani</i>	
<b>Task-based Evaluation for Improving Natural Language Understanding in Human-Robot Rescue Teams .....</b>	<b>203</b>
<i>Fereshta Yazdani, Matthias Scheutz and Michael Beetz</i>	
<b>Hungarian web archiving pilot project in the National Széchényi Library .....</b>	<b>209</b>
<i>Marton Nemeth and László Drótos</i>	
<b>Comparison of read and spontaneous speech in case of Automatic Detection of Depression .....</b>	<b>213</b>
<i>Gábor Kiss and Klara Vicsi</i>	
<b>A prosody inspired RNN approach for punctuation of machine produced speech transcripts to improve human readability.....</b>	<b>219</b>
<i>Anna Moró and György Szaszák</i>	
<b>First year students' attitude to computer problem solving.....</b>	<b>225</b>
<i>Maria Csernoch and Piroska Biró</i>	
<b>Explorations into ICT Usage and Behavior in Travel Related Activities of Wheelchair Users.....</b>	<b>231</b>
<i>Anna Kutiková, Jan Balata and Zdenek Mikovec</i>	
<b>Values Derived from Virtual Reality Shopping Experience among Generation Z .....</b>	<b>237</b>
<i>Kapusy Katalin and Lógó Emma</i>	
<b>Research questions on integrating user experience approaches into software development processes .....</b>	<b>243</b>
<i>Balint Szabo and Karoly Hercegfí</i>	

<b>Improving SSVEP-BCI Performance Using Pre-Trial Normalization Methods .....</b>	<b>247</b>
<i>James Henshaw, Wei Liu and Daniela Romano</i>	
<b>Pilot Corpus of Child-Robot Interaction in Therapeutic Settings .....</b>	<b>253</b>
<i>Milan Gnjatović, Jovica Tasevski, Dragiša Mišković, Srđan Savić, Branislav Borovac, Aleksandra Mikov and Rastislava Krasnik</i>	
<b>Bringing Cognitive Infocommunications to small language communities.....</b>	<b>259</b>
<i>Graham Wilcock and Kristiina Jokinen</i>	
<b>Are You Stressed? Detecting High Stress from User Diaries.....</b>	<b>265</b>
<i>Arindam Ghosh, Evgeny Stepanov, Morena Danieli and Giuseppe Riccardi</i>	
<b>Smart Campus Service Link: Adaptation and Interaction Planes for Campus and University Environments .....</b>	<b>271</b>
<i>Attila Adamkó</i>	
<b>Ethical Responsibilities of Researchers and Participants in the Development of Multimodal Interaction Corpora.....</b>	<b>277</b>
<i>Maria Koutsombogera and Carl Vogel</i>	
<b>Virtual Reconstruction of a Medieval Church .....</b>	<b>283</b>
<i>Attila Gilányi, Gyöngyi Bujdosó and Marianna Bálint</i>	
<b>Three-dimensional connection visualization based on tabular data .....</b>	<b>289</b>
<i>György Papp, Ildikó Papp and Roland Kunkli</i>	
<b>Measurement of team mental model as a part of a new team usability testing method: A proposed research agenda.....</b>	<b>291</b>
<i>Dalma Geszten, Balázs Péter Hámornik and Károly Hercegfı</i>	
<b>On Architecture and Performance of LIRKIS CAVE System.....</b>	<b>295</b>
<i>Marián Hudák, Štefan Korečko and Branislav Sobota</i>	
<b>Learning Socio-Cultural Behavioral Norms in Uncertain and Changing Contexts .....</b>	<b>301</b>
<i>Vasanth Sarathy, Matthias Scheutz and Bertram Malle</i>	
<b>The use of mythological content in virtual learning environment .....</b>	<b>307</b>
<i>István Károly Boda, Erzsébet Tóth, István Csont and László T. Nagy</i>	
<b>Cognitively-Inspired Symbolic Framework for Knowledge Representation .....</b>	<b>315</b>
<i>Srđan Savić, Milan Gnjatovic, Dragiša Mišković, Jovica Tasevski and Nemanja Maček</i>	
<b>How to develop serious games for Cognitive Competence of Children with Learning Difficulties.....</b>	<b>321</b>
<i>Cecilia Sik-Lanyi, Veronika Szucs, Tibor Guzsvinecz, Shervin Shirmohammadi, Boris Abersek, Karel Van Isacker Karel Van Isacker and Andrean Lazarov</i>	
<b>{Prediction of Audience Response from Spoken Sequences, Speech Pauses and Co-speech Gestures in Humorous Discourse by Barack Obama .....</b>	<b>327</b>
<i>Costanza Navarretta</i>	
<b>Economical Aspects of 3D Virtual Collaboration.....</b>	<b>333</b>
<i>Ferenc Erdős and Kallos Gabor</i>	
<b>Interaction-dependent e-Health hub-software adaptation to cloud-based electronic health records.....</b>	<b>339</b>
<i>Abel Garai, Istvan Pentek and Attila Adamko</i>	
<b>Classification of Cognitive Load Using Voice Features: A Preliminary Investigation .....</b>	<b>345</b>
<i>Igor Mijić, Marko Šarlija and Davor Petrinović</i>	
<b>Cognitive workload classification using cardiovascular measures and dynamic features .....</b>	<b>351</b>
<i>Eydis Huld Magnúsdóttir, Kamilla R. Johannsdóttir, Christian Bean, Brynjar Olafsson and Jon Guðnason</i>	
<b>Joint Acquisition of Word Order and Word Referent in a Memory-Limited and Incremental Learner .....</b>	<b>357</b>
<i>Sepideh Sadeghi and Matthias Scheutz</i>	
<b>Possibility analysis of danger factors visualization in the construction environment based on Virtual Reality Model .....</b>	<b>363</b>
<i>Radosław Idzikowski, Konrad Kluwak, Tomasz Nowobilski, Tomasz Zamojski and Ryszard Klempous</i>	
<b>An MPEG-4 based talking head for real time voice chatting on Android platform .....</b>	<b>369</b>
<i>Jonathán Ozsváth, Bence Erős, Ákos Tóth and Roland Kunkli</i>	

<b>The impact of virtual and augmented learning environments on the teaching and learning process in secondary and higher education .....</b>	<b>371</b>
<i>György Molnár Dr., Kinga Biró, Dalma Pap and Zoltán Szűts Dr.</i>	
<b>Presentation of a Medieval Church in MaxWhere.....</b>	<b>377</b>
<i>Attila Gilányi, Gyöngyi Bujdosó and Marianna Bálint</i>	
<b>The IT device demand of edu-coaching in the higher education of engineering .....</b>	<b>379</b>
<i>Ildiko Horvath</i>	
<b>Teaching electrical machines in a 3D virtual space .....</b>	<b>385</b>
<i>Zoltán Kvasznicza</i>	
<b>The application opportunities of green roof, as an interactive educational space.....</b>	<b>389</b>
<i>Anita Dolgosne Kovacs</i>	
<b>Linguistic Repetitions, Task-based Experience and A Proxy Measure of Mutual Understanding.....</b>	<b>395</b>
<i>Justine Reverdy and Carl Vogel</i>	
<b>Perception Changes With and Without a Video Channel: A Study from a Speech-to-Speech, Machine Translation Mediated Map Task.....</b>	<b>401</b>
<i>Akira Hayakawa, Carl Vogel, Nick Campbell and Saturnino Luz</i>	
<b>Examine the Effect of Different Web-based Media on Human BrainWaves .....</b>	<b>407</b>
<i>Jozsef Katona, Tibor Ujbanyi, Gergely Sziladi and Attila Kovari</i>	
<b>The analysis of hand gesture based cursor position control during solve an IT related task.....</b>	<b>413</b>
<i>Gergely Sziladi, Tibor Ujbanyi, Jozsef Katona and Attila Kovari</i>	
<b>Application of E-diary to analyze the effectiveness of learning .....</b>	<b>419</b>
<i>Elod Gogh, Attila Kovacs and Gergely Sziladi</i>	
<b>Assessment of wetlands by the methods of waterchemistry and bioindication .....</b>	<b>425</b>
<i>Pécz Tibor</i>	
<b>Mathability and Coaching.....</b>	<b>427</b>
<i>Katarzyna Chmielewska and Damian Matuszak</i>	
<b>Cluttered centres: interaction between eccentricity and clutter in attracting visual attention of readers of a 16th century map .....</b>	<b>433</b>
<i>Ágoston Török, Zsolt Győző Török and Borbála Tölgyesi</i>	
<b>Multimodal Dialogue System with NAO and VoiceXML Dialogue Manager .....</b>	<b>439</b>
<i>Stanislav Ondas, Jozef Juhar, Matus Pleva, Peter Fercak and Rastislav Husovsky</i>	
<b>Multi TP model transformation for Functions with Different Numbers of Variables.....</b>	<b>445</b>
<i>Péter Baranyi</i>	
<b>Cognitive and Spiritual Revolution of the Tenth Century – Constantine Porphyrogenitus and his Hidden World Part I. ....</b>	<b>451</b>
<i>Péter Várlaki, Péter Baranyi</i>	
<b>Cognitive and Spiritual Revolution of the Tenth Century – Constantine Porphyrogenitus and his Hidden World Part II. ....</b>	<b>473</b>
<i>Péter Várlaki, Péter Baranyi</i>	
<b>Imaginative and Interpretative ‘Cognitive Revolution’ of W. Pauli Collaborating with C. G. Jung and Constantine Porphyrogenitus’ Hidden World .....</b>	<b>497</b>
<i>Péter Várlaki, Péter Baranyi</i>	
<b>‘Hermeneutical and Cognitive Experiments’ of the “Explicit Name of God’s Crown of Number-Archetype 137 in the Book Bahir Compared with the “Fine Structure” of the Related Medieval Artistic Works .....</b>	<b>511</b>
<i>Péter Várlaki, Péter Baranyi</i>	
<b>Virtual proximity in distance education – The usage of a three-dimensional software .....</b>	<b>529</b>
<i>Júlia Szőke, Petra Kecskés</i>	
<b>Teaching Coaching Using 3D/VR Technology in the Light of Intercultural Knowledge.....</b>	<b>530</b>
<i>Attila Pongrácz, Judit Sipos</i>	
<b>Additional Paper:</b>	
<b>Teaching Pupular culture 3D/VR Technology.....</b>	<b>531</b>
<i>Adel Vehre</i>	