Table of Contents

Interface for Communication Between Robotic and Cognitive Systems Through the Use of a Cognitive Ontology 1
Helio Azevedo and Roseli Aparecida Francelin Romero

Flood Event Image Recognition via Social Media Image and Text Analysis 4
Min Jing, Bryan Scotney, Sonya Coleman, Martin McGinnity, Stephen Kelly, Xiubo Zhang, Khurshid Ahmad, Antje Schlaf, Sabine Gr¨under-Fahrer, and Gerhard Heyer

Effect on the Mental Stance of an Agent's Encouraging Behavior in a Virtual Exercise Game 10
Yoshimasa Ohmoto, Takashi Suyama, and Toyoaki Nishida

Evolving a Facade-Servicing Quadrotor Ensamble 16
Sebastian von Mammen, Patrick Lehner, and Sven Tomforde

Predictive ACT-R (PACT-R) Using A Physics Engine and Simulation for Physical Prediction in a Cognitive Architecture 22
David Pentecost, Charlotte Sennersten, Robert Ollington, Craig Lindley, and Byeong Kang

Self-Organized Potential Competitive Learning to Improve Interpretation and Generalization in Neural Networks 32
Ryotaro Kamimura, Ryozo Kitajima, and Osamu Uchida

Measuring Cognitive Loads Based on the Mental Chronometry Paradigm 38
Kazuhisa Miwa, Kazuaki Kojima, Hitoshi Terai, and Yosuke Mizuno

On Possibility to Imitate Emotions and a “Sense of Humor” in an Artificial Cognitive System 42
Olga Chernavskaya and Yaroslav Rozhylo

Uncovering Major Age-Related Handwriting Changes by Unsupervised Learning 48
Gabriel Marzinotto, Jose C. Rosales, Mounim A. El-Yacoubi, Sonia Garcia-Salicetti, Christian Kahindo, Helene Kerherve, Victoria Cristancho-Lacroix, and Anne-Sophie Rigaud

Modeling Pupil Dilation as Online Input for Estimation of Cognitive Load in non-laboratory Attention-Aware Systems 55
Benedikt Gollan and Alois Ferscha

Metacognitive Support of Mathematical Abstraction Processes 62
Hans M. Dietz

Modelling Retinal Ganglion Cells Stimulated with Static Natural Images 66
Gautham P. Das, Philip J. Vance, Dermot Kerr, Sonya A. Coleman, and Thomas M. McGinnity

Driven by Caravaggio Through His Painting, an Eye-Tracking Study 72

Barbara Balbi, Federica Protti, and Roberto Montanari

Refining Receptive Field Estimates using Natural Images for Retinal Ganglion Cells 77
Philip Vance, Gautham P. Das, Dermot Kerr, Sonya A. Coleman, and Thomas M. McGinnity

Temporal Coding Model of Spiking Output for Retinal Ganglion Cells 83
Philip Vance, Gautham P. Das, Dermot Kerr, Sonya A. Coleman, and Thomas M. McGinnity

Single Trial Classification of EEG in Predicting Intention and Direction of Wrist Movement: Translation Toward Development of Four-Class Brain Computer Interface System Based on a Single Limb 90
Syahrull Hi Fi Syam Ahmad Jamil, Heba Lakany, and Bernand A Conway

Improved Willshaw Networks with Local Inhibition 96
Philippe Tigreat, Vincent Gripon, and Pierre-Henri Horrein

Applying Pairing Support Vector Regression Algorithm to GPS GDOP Approximation 102
Pei-Yi Hao and Chao-Yi Wu

Using Brain and Bio-Signals to Determine the Intelligence of Individuals 108
Amitash Ojha, Giyoung Lee, Jun-Su Kang, and Minho Lee

Hamlet and Othello Wandering in the Web: Inferences from Network Science on Cognition 110
Francesca Bertacchini, Patrizia Notaro, Mara Vigna, Antonio Procopio, Pietro Pantano, and Eleonora Bilotta

Towards Regaining Mobility Through Virtual Presence for Patients with Locked-in Syndrome 120
Simone Eidam, Jens Garstka, and Gabriele Peters

A Mobile Virtual Character with Emotion-Aware Strategies for Human-Robot Interaction 124
Caetano M. Ranieri, Humberto Ferasoli Filho, and Roseli A. F. Romero

KMI-IWS: Towards a Framework for a Knowledge Management Initiative Intelligent Work-Flow System 129
Ricardo Anderson and Gunjan Mansingh

Voxelnet - An Agent Based System for Spatial Data Analytics 133
Charlotte Sennersten, Andrew Davie, and Craig Lindley