

# **COGNTIVE 2020**

The Twelfth International Conference on Advanced Cognitive Technologies and Applications

October 25 - 29, 2020

# **COGNITIVE 2020 Editors**

Charlotte Sennersten, CSIRO Mineral Resources, Australia
Oana Dini, IARIA, EU/USA

#### Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2020) by International Academy, Research, and Industry Association (IARIA) Please refer to the Copyright Information page.

Printed with permission by Curran Associates, Inc. (2020)

International Academy, Research, and Industry Association (IARIA) 412 Derby Way Wilmington, DE 19810

Phone: (408) 893-6407 Fax: (408) 527-6351

petre@iaria.org

## 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

Email: curran@proceedings.com Web: www.proceedings.com

## **Table of Contents**

Social Interaction in Knowledge Acquisition: Advanced Curriculum. Critical Review of Studies Relevant to Social Behavior of Infants  Igor Val Danilov	1
Symbiotic Thinking for Cognitive Modeling as Well  Marta Franova and Yves Kodratoff	7
SensAI+Expanse Emotional Valence Prediction Studies with Cognition and Memory Integration Nuno Henriques, Helder Coelho, and Leonel Garcia-Marques	13
Introduction of a Model-Based Approach to Psychology Class: Class Practice for Serial Position Effect Experiments Kazuhisa Miwa, Kazuaki Kojima, Yuki Ninomiya, and Asaya Shimojo	19
On Modeling the Role of Negative Emotions and the Effect of Panic in an Artificial Cognitive System Olga Chernavskaya and Yaroslav Rozhylo	23
Linking Computerized and Perceived Attributes of Visual Complexity  Kanaka Babshet and Vered Aharonson	28
3D SpaceQuantumIndexation and Computation via VoxelNET to Enhance 3D Cognitive Systemisation Charlotte Sennersten and Craig Lindley	34
Induced Acyclic Subgraphs With Optimized Endpoints  Moussa Abdenbi, Alexandre Blondin Masse, and Alain Goupil	44
Reproducing Fine Textures on Touch Displays Using Band-Limited White Noise Vibrations Ugur Alican Alma and Ercan Altinsoy	50
Cognitive Science Approach to Achieve SDGs  Muneo Kitajima	55
The Concept of Resonance: From Physics to Cognitive Psychology  Jerome Dinet and Muneo Kitajima	62
Cognitive Digital Twins for the Process Industry Sailesh Abburu, Arne J. Berre, Michael Jacoby, Dumitru Roman, Ljiljana Stojanovic, and Nenad Stojanovic	68
Hybrid Model Applied to the Vehicles Routing Problem With Simultaneous Pickups and Deliveries – VRPSPD Pedro Pablo Ballesteros Silva, Diana Paola Ballesteros Riveros, and Yanci Viviana Castro Bermudez	74

The Dictionary Game: Toward a Characterization of Lexical Primitives Using Graph Theory and Relational Concept Analysis

Mickael Wajnberg, Jean-Marie Poulin, Alexandre Blondin Masse, and Petko Valtchev