# IWCIA 2017
# 17th International Workshop on
# Combinatorial Image Analysis
# Plovdiv, Bulgaria, June 19-21, 2017

**The opening will be held at Balabanov House Museum, Konstantin Stoilov St. 57.**
**All other sessions will be held at Seven Hills Hotel conference room, Pl. Zhiten Pazar 6**

## Sunday, June 18th

| 19:30~ | Dinner at Seven Hills Restaurant |
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## Monday, June 19th

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| 07:30~ | | Breakfast at Seven Hills for the participants accommodated at Seven Hills Hotel |
| 08:00-8:30 | | Registration in the Lobby of Seven Hills Hotel |
| 8:35-8:55 | | Walking to Balabanov House Museum, Konstantin Stoilov St. 57 |
| 09:00-11:30 | | Opening Session<br>*Chair:* Valentin E. Brimkov |
| | 09:00-9:45 | Opening Addresses |
| | 9:45-10:20 | Visiting Balabanov House Museum and Hindiljan Museum |
| | 10:20-10:25 | Picture in front of Balabanov House |
| | 10:30-11:30 | *Keynote:* Alfred Bruckstein, Technion, IIT, Israel<br>*Title:* Probabilistic Ant Pursuits and Grid Geometry |
| 11:30-12:30 | | Digital Geometry and Topology<br>*Chair:* Pétér Balazs |
| | 11:30-11:50 | A Relational Generalization of the Khalimsky Topology<br>*Josef Slapal* |
| | 11:50-12:10 | A 3D Curve Skeletonization Method<br>*Nilanjana Karmakar, Sharmistha Mondal, and Arindam Biswas* |
| | 12:10-12:30 | Construction of Thinnest Digital Ellipsoid Using Inverse Projection and Recursive Integer Intervals<br>*Papia Mahato and Partha Bhowmick* |
| 12:30-12:40 | | Walking to *Seven Hills Restaurant* |
| 12:40-13:40 | | Lunch at *Seven Hills Restaurant* |

| 13:40-15:00 | | Computational and Combinatorial Geometry<br>*Chair:* <u>Kálmán Palágyi</u> |
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| | 13:40-14:00 | Algorithms for Stable Matching and Clustering in a Grid<br>*David Eppstein, Michael T. Goodrich, and <u>Nil Mamano</u>* |
| | 14:00-14:20 | Construction of Persistent Voronoi Diagram on 3D Digital Plane<br>*<u>Ranita Biswas</u> and Partha Bhowmick* |
| | 14:20-14:40 | On Sets of Line Segments Featuring a Cactus Structure<br>*<u>Boris Brimkov</u>* |
| | 14:40-15:00 | Trajectories and Traces on Non-Traditional Regular Tessellations of the Plane<br>*<u>Benedek Nagy</u> and Arif Akkeles* |
| 15:00-16:00 | | Poster Session and Exhibition.<br>Refreshments |
| 16:00-17:00 | | Keynote Talk<br>*Chair:* <u>Arindam Biswas</u> |
| | 16:00-17:00 | *Keynote:* <u>Marc van Kreveld</u>, Utrecht University, The Netherlands<br>*Title:* Onto the Grid and Off the Grid: on Measures and Picture Puzzles |
| 17:00-18:40 | | Theory and Applications<br>*Chair:* <u>Benedek Nagy</u> |
| | 17:00-17:20 | Topological Data Analysis for Self-organization of Biological Tissues<br>*<u>M. J. Jimenez</u>, M. Rucco, P. Vicente-Munuera, P. Gómez-Gálvez, and L. M. Escudero* |
| | 17:20-17:40 | Distance Between Vector-valued Representations of Objects in Images with Application in Object Detection and Classification<br>*Natasa Sladoje and <u>Joakim Lindblad</u>* |
| | 17:40-18:00 | Image Segmentation via Weighted Carving Decompositions<br>*<u>Derek Mikesell</u> and Illya V. Hicks* |
| | 18:00-18:20 | An Image Texture Analysis Method for Minority Language Identification<br>*<u>Darko Brodic</u>, Alessia Amelio, and Zoran N. Milivojevic* |
| | 18:20-18:40 | Reconstruction of Nearly Convex Colored Images<br>*Fethi Jarray and <u>Ghassen Tlig</u>* |
| 19:30-21:00 | | Welcome Party<br>*Summer Garden of Restaurant Philippopolis,* Saborna St. 29 |

# Tuesday, June 20th

| 08:30-9:00 | | Registration |
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| 9:00-10:00 | | Keynote Talk<br>*Chair:* Reneta Barneva |
| | 9:00-10:00 | *Keynote:* Edwin Hancock, University of York, UK<br>*Title:* Quantum Graphs, the Edge-based Laplacian and Shape |
| 10:00-11:00 | | Digital Geometry and Topology<br>*Chair:* Phuc Ngo |
| | 10:00-10:20 | Simplifier Points in 2D Binary Images<br>*Kálmán Palágyi* |
| | 10:20-10:40 | Toward Parallel Computation of Dense Homotopy Skeletons for nD Digital Objects<br>*Pedro Real, Fernando Diaz-del-Rio, and Darian Onchis* |
| | 10:40-11:00 | Verification of Hypotheses Generated by Case-Based Reasoning Object Matching<br>*Petra Perner* |
| 11:00-11:20 | | Coffee break |
| 11:20-12:40 | | Digital Geometry and Topology<br>*Chair:* D.G. Thomas |
| | 11:20-11:40 | Extension of a One-Dimensional Convexity Measure to Two Dimensions<br>*Sara Brunetti, Péter Balázs, and Péter Bodnár* |
| | 11:40-12:00 | Inscribing Convex Polygons in Star-Shaped Objects<br>*Nikolay M. Sirakov and Nona Nikolaeva Sirakova* |
| | 12:00-12:20 | On the Chamfer Polygons on the Triangular Grid<br>*Hamid Mir-Mohammad-Sadeghi and Benedek Nagy* |
| | 12:20-12:40 | On Characterization and Decomposition of Isothetic Distance Functions for 2-Manifolds<br>*Piyush K. Bhunre, Partha Bhowmick, and Jayanta Mukhopadhyay* |
| 12:40-13:50 | | Lunch at *Seven Hills Restaurant* |
| 13:50-16:00 | | Guided Tour of the Old Town |
| 16:00-17:00 | | Keynote Talk<br>*Chair:* Josef Slapal |
| | 16:00-17:00 | *Keynote:* Christian Ronse, Université de Strasbourg, France<br>*Title:* Orders on Partial Partitions for Image Segmentation, Filtering and Reduction |
| 17:00-18:40 | | Theory and Applications<br>*Chair:* Maria-Jose Jimenez |
| | 17:00-17:20 | A Statistical-Topological Feature Combination for Recognition of |

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| | | Isolated Hand Gestures from Kinect Based Depth Images<br>*Soumi Paul, <u>Hayat Nasser</u>, Mita Nasipuri, Phuc Ngo, Subhadip Basu, and Isabelle Debled-Rennesson* |
| | 17:20-17:40 | JPEG Quantization Table Optimization by Guided Fireworks Algorithm<br>*Eva Tuba, <u>Milan Tuba</u>, Dana Simian, and Raka Jovanovic* |
| | 17:40-18:00 | Gradient and Graph Cuts Based Method for Multi-level Discrete Tomography<br>*Tibor Lukic and <u>Marina Marceta</u>* |
| | 18:00-18:20 | Shape Matching for Rigid Objects by Aligning Sequences Based on Boundary Change Points<br>*Abdullah N. Arslan and <u>Nikolay M. Sirakov</u>* |
| | 18:20-18:40 | A Greedy Algorithm for Reconstructing Binary Matrices with Adjacent 1s<br>*Fethi Jarray and <u>Ghassen Tlig</u>* |
| 19:30-22:00 | | Banquet<br>*Art Center and Restaurant "Philippopolis",* Saborna St. 29, Plovdiv |

# Wednesday, June 21<sup>st</sup>

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| 9:00-10:00 | | Picture Grammars<br>*Chair:* Joakim Lindblad |
| | 9:00-9:20 | Template-based Pattern Matching in Two-dimensional Arrays<br>*Yo-Sub Han and <u>Daniel Prusa</u>* |
| | 9:20-9:40 | Polynomial Time Algorithm for Inferring Subclasses of Parallel Internal Column Contextual Array Languages<br>*Abhisek Midya, <u>D.G. Thomas</u>, Alok Kumar Pani, Saleem Malik, and Shaleen Bhatnagar* |
| | 9:40-10:00 | Parallel Contextual Array Insertion Deletion P System<br>*S. James Immanuel, <u>D.G. Thomas</u>, Robinson Thamburaj, and Atulya K. Nagar* |
| 10:00-11:00 | | Keynote Talk<br>*Chair:* Petra Perner |
| | 10:00-11:00 | *Keynote:* <u>Günter Rote</u>, Freie Universität Berlin, Germany<br>*Title:* Congruence Testing in 4-Space |
| 11:00-11:15 | | Closing |
| 11:30-12:30 | | Lunch at *Seven Hills Restaurant* |
| 12:30-18:00 | | Conference trip |
| 18:00-19:30 | | Tour of the pedestrian area of Plovdiv: Roman road, park, antique theater |
| 19:30-21:30 | | Farewell Dinner at *Hebros Restaurant,* Konstantin Stoilov St. 51 |