IWCIA 2022
21ᵗʰ International Workshop on
Combinatorial Image Analysis
Messina, Italy
July 13-15, 2022

Preliminary Program – Subject to Change
(schedule made according to local Rome, Italy time UTC/GMT+2
check https://www.timeanddate.com/worldclock for your respected
time)

Wednesday, July 13

Time	Time	Session
13:00-14:30		Opening Session *Chair:* Valentin E. Brimkov
	13:00-13:30	Opening Addresses
	13:30-14:30	*Keynote:* Bhargab Bhattacharia, Indian Institute of Technology Kharagpur, India *Title:* Digital Geometry in Medical Diagnostics and Biochemistry
14:30-14:40		Break
14:40-15:40		Session I – Digital Geometry and Topology *Chair:* Kálmán Palágyi
	14:40-15:00	Rectangularization of Digital Objects and Its Relation with Straight Skeletons *Anukul Maity, Mousumi Dutt, and Arindam Biswas*
	15:00-15:20	On the Number of 0-Tandems in Simple nD Digital 0-Connected Curves *Lidija Comic*
	15:20-15:40	On Density Extrema for Digital Discs *Nilanjana G. Basu, Partha Bhowmick, and Subhashis Majumder*
15:40-15:50		Break
		Session II – Digital Geometry and Topology
15:50-17:10		*Chair: Tibor Lukic*
	15:50-16:10	Sufficient Conditions for Topology-Preserving Parallel Reductions on the BCC Grid *Kalman Palagyi, Gabor Karai, and Peter Kardos*

	16:10-16:30	On the Construction of Planar Embedding for a Class of Orthogonal Polyhedra *Nilanjana Karmakar, Arindam Biswas, Subhas C. Nadly, and Bhargab B. Bhattacharya*
	16:30-16:50	Extractive Text Summarization using Topological Features *Ankit Kumar and Apurba Sarkar*
	16:50-17:10	Largest Area Parallelogram inside a Digital Object in Triangular grid *Md Abdul Aziz Al Aman, Raina Paul, Apurba Sarkar, and Arindam Biswas*

Thursday, July 14

13:00-14:00		Keynote Talk *Chair: Reneta Barneva*
13:00-14:00		*Keynote: Benedek Nagy*, Eastern Mediterranean University, Famagusta, Cyprus *Title:* Non-traditional 2d Grids in Combinatorial Imaging – Advances and Challenges
14:00-14:10		Break
14:10-15:30		Session I – Picture Languages *Chair: Arindam Biswas*
	14:10-14:30	Weighted Hexagonal Picture Automata *Meenakshi Paramasivan and D. Gnanaraj Thomas*
	14:30-14:50	A Myhill-Nerode Theorem for Finite State Matrix Automata and Finite Matrix Languages *Abhisek Midya and D. Gnanaraj Thomas*
	14:50-15:10	Algebraic Properties of Parikh q-matrices of Two Dimensional Words *Janaki K., Arulprakasam R., Meenakshi Paramasivan, and Rajkumar Dare V.*
	15:10-15:30	Adjunct Partial Array Token Petri Net Structure *Kalyani T., Sasikala K., D. Gnanaraj Thomas, and Bhuvaneswari K.*
15:30-15:40		Break
15:40-17:00		Session II – Theory and Applications *Chair: Lidija Comic*
	15:40-16:00	Tomography Reconstruction Based on Null Space Search *Tibor Lukic and Tamara Kopanja*
	16:00-16:20	Instance Segmentation with BoundaryNet *Teodor Boyadzhiev and Krassimira Ivanova*
	16:20-16:40	Curvature-Based Denoising of Vector-Valued Images *Christian Gapp and Martin Welk*
	16:40-17:00	Face Characterization using Convex Surface Decomposition *Somrita Saha and Arindam Biswas*

Friday, July 15

13:00-14:00		Keynote Talk *Chair: Giorgio Nordo*
13:00-14:00		*Keynote: Jessica Zhang*, Carnegie Mellon University, Pittsburgh, USA *Title:* Machine Learning Enhanced Simulation and PDE-Constrained Optimization for Material Transport Control in Neurons
14:00-14:10		Break
14:10-15:30		Discrete Tomography, Picture Languages *Chair: Partha Bhowmick*
	14:10-14:30	Characterization and Reconstruction of Hypergraphic Pattern Sequences *Michela Ascolese and Andrea Frosini*
	14:30-14:50	The Generalized Microscopic Image Reconstruction Problem for Hypergraphs *Niccolò di Marco and Andrea Frosini*
	14:50-15:10	Weighted Hexagonal Picture Automata *Meenakshi Paramasivan and D. Gnanaraj Thomas*
	15:10-15:30	Lyndon Partial Words and Arrays *Krishna Kumari R., Arulprakasam R., Meenakshi Paramasivan, and Rajkumar Dare V.*
15:30-15:40		Closing