

Contents

Invited Speakers

Progress in Persistence for Shape Analysis (Extended Abstract)	3
<i>Massimo Ferri</i>	
Homology Computation During an Incremental Construction Process	7
<i>Pascal Lienhardt and Samuel Peltier</i>	

Main Contributions

Persistence-Based Pooling for Shape Pose Recognition	19
<i>Thomas Bonis, Maks Ovsjanikov, Steve Oudot, and Frédéric Chazal</i>	
Bijectivity Certification of 3D Digitized Rotations.	30
<i>Kacper Pluta, Pascal Romon, Yukiko Kenmochi, and Nicolas Passat</i>	
Morse Chain Complex from Forman Gradient in 3D with \mathbb{Z}_2 Coefficients . . .	42
<i>Lidija Čomić</i>	
Parallel Homology Computation of Meshes	53
<i>Guillaume Damiand and Rocio Gonzalez-Diaz</i>	
Computing the Overlaps of Two Maps	65
<i>Jean-Christophe Janodet and Colin de la Higuera</i>	
Topological Descriptors for 3D Surface Analysis	77
<i>Matthias Zeppelzauer, Bartosz Zieliński, Mateusz Juda, and Markus Seidl</i>	
Towards a Topological Fingerprint of Music	88
<i>Mattia G. Bergomi, Adriano Baratè, and Barbara Di Fabio</i>	
Topological Comparisons of Fluvial Reservoir Rock Volumes Using Betti Numbers: Application to CO ₂ Storage Uncertainty Analysis	101
<i>Asmae Dahrabou, Sophie Viseur, Aldo Gonzalez-Lorenzo, Jérémy Rohmer, Alexandra Bac, Pedro Real, Jean-Luc Mari, and Pascal Audigane</i>	
Topological Analysis of Amplicon Structure in Comparative Genomic Hybridization (CGH) Data: An Application to ERBB2/HER2/NEU Amplified Tumors.	113
<i>Sergio Ardanza-Trevijano, Georgina Gonzalez, Tyler Borrman, Juan Luis Garcia, and Javier Arsuaga</i>	

Fast, Simple and Separable Computation of Betti Numbers on Three-Dimensional Cubical Complexes	130
<i>Aldo Gonzalez-Lorenzo, Mateusz Juda, Alexandra Bac, Jean-Luc Mari, and Pedro Real</i>	
Computation of Cubical Steenrod Squares	140
<i>Marek Krčál and Paweł Pilarczyk</i>	
On Homotopy Continuation for Speech Restoration.	152
<i>Darian M. Onchis and Pedro Real</i>	
Finding Largest Rectangle Inside a Digital Object.	157
<i>Apurba Sarkar, Arindam Biswas, Mousumi Dutt, and Arnab Bhattacharya</i>	
Shape Matching of 3D Topologically Segmented Objects.	170
<i>Nilanjana Karmakar and Arindam Biswas</i>	
Construction of an Approximate 3D Orthogonal Convex Skull	180
<i>Nilanjana Karmakar and Arindam Biswas</i>	
Designing a Topological Algorithm for 3D Activity Recognition	193
<i>Maria-Jose Jimenez, Belen Medrano, David Monaghan, and Noel E. O'Connor</i>	
Robust Computations of Reeb Graphs in 2-D Binary Images	204
<i>Antoine Vacavant and Aurélie Leborgne</i>	
The Coherent Matching Distance in 2D Persistent Homology	216
<i>Andrea Cerri, Marc Ethier, and Patrizio Frosini</i>	
Persistent Homology on Grassmann Manifolds for Analysis of Hyperspectral Movies	228
<i>Sofya Chepushtanova, Michael Kirby, Chris Peterson, and Lori Ziegelmeier</i>	
Persistence Based on LBP Scale Space	240
<i>Ines Janusch and Walter G. Kropatsch</i>	
On Some Local Topological Properties of Naive Discrete Sphere	253
<i>Nabhasmita Sen, Ranita Biswas, and Partha Bhowmick</i>	
DIG: Discrete Iso-contour Geodesics for Topological Analysis of Voxelized Objects.	265
<i>Gurman Bhalla and Partha Bhowmick</i>	
Solving Distance Geometry Problem with Inexact Distances in Integer Plane	277
<i>Piyush K. Bhunre, Partha Bhowmick, and Jayanta Mukhopadhyay</i>	

Segmentation and Classification of Geoenvironmental Zones of Interest in
Aerial Images Using the Bounded Irregular Pyramid 290
Mariletty Calderón, Rebeca Marfil, and Antonio Bandera

Author Index 303

Computational Topology in Image Context
6th International Workshop, CTIC 2016, Marseille,
France, June 15-17, 2016, Proceedings
Bac, A.; Mari, J.-L. (Eds.)
2016, XI, 303 p. 130 illus., Softcover
ISBN: 978-3-319-39440-4