

12th International Symposium On Mathematical Morphology



ISMM 2015

27-29 May 2015, Reykjavik, Iceland

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ISMM at a glance

Tuesday, 26
17:00-18:30
Icebreaker at the University of Iceland



9:00 **plenary speaker 1**

Multiscale analysis of similarities between images on Riemannian manifolds and applications

Coloma Ballester, *Dept de Tecnologies de la Informació i les Comunicacions of the Universitat Pompeu Fabra in Barcelona, Spain*

10:00 Break

10:30 **Oral session 1 - Applications**

Hourglass Shapes In Rank Grey-Level Hit-Or-Miss Transform For Membrane Segmentation In Her2/Neu Images

Wdowiak, Markiewicz, Osowski, Swiderska, Patera, Kozlowski

Automated Digital Hair Removal By Threshold Decomposition And Morphological Analysis

Koehoorn, Sobiecki, Boda, Diaconeasa, Doshi, Paisey, Jalba, Telea

Portal Extraction Based On An Opening Labeling For Ray Tracing

Noel, Biri

Evaluation of morphological hierarchies for supervised segmentation

Perret, Cousty, Rivera Ura, Guimarães

Inner-Cheeger Opening and Applications

Velasco-Forero

12:10 Lunch

13:30 **Oral session 2 - Color and multivalued morphology**

N-ary Mathematical Morphology

Chevallier, Chevallier, Angulo

Sponges for Generalized Morphology

Van de Gronde, Roerdink

A Color Tree of Shapes with Illustrations on Filtering, Simplification, and Segmentation

Carlinet, Géraud

Elementary Morphological Operations on the Spherical CIELab Quantale

Valle, Valente

Spectral ordering assessment using spectral median filters

Deborah, Richard, Hardeberg

15:10 Break

15:40 **Poster sessions 1 - Applications**

Tracking Sub-Atomic Particles Through The Attribute Space

Babai, Kalantar-Nayestanaki, Messchendorp, Wilkinson

A Pansharpening Algorithm Based On Morphological Filters

Restaino, Vivone, Dalla Mura, Chanussot

An automated assay for the evaluation of mortality in fish embryo

Puybareau, Talbot, Léonard

A top-down approach to the estimation of depth maps driven by morphological segmentations

Bricola, Bilodeau, Beucher

A comparison of some morphological filters for improving OCR performance

Mennillo, Cousty, Najman

Local blur estimation based on toggle mapping

ChabardÈs, Marcotegui

Poster sessions 2 - Color and multivalued morphology

Non-Adaptive and Amoeba Quantile Filters for Colour Images

Welk, Kleefeld, Breuss

Ordering on the probability simplex of endmembers for hyperspectral morphological image processing

Franchi, Angulo

Bagging Stochastic Watershed on Natural Color Image Segmentation

Franchi, Angulo

Binary Partition Trees-based spectral-spatial permutation ordering

Veganzones, Dalla Mura, Tochon, Chanussot.

Shape-Based Analysis on Component-Graphs for Multivalued Image Processing

Grossiord, Naegel, Talbot, Passat, Najman

17:40

9:00 **Oral session 3 - Hierarchies****Braids of Partitions**

Kiran, Serra

Segmentation of Multimodal Images based on Hierarchies of Partitions

Tochon, Dalla Mura, Chanussot

New characterizations of minimum spanning trees and of saliency maps based on quasi-flat zones

Cousty, Najman, Kenmochi, Guimaraes

Multi-image Segmentation: A Collaborative Approach Based on Binary Partition Trees

Randrianasoa, Kurtz, Desjardin, Passat

Study of Binary Partition Tree Pruning Techniques for Polarimetric SAR images

Salembier

10:40 Break

11:10 **Oral session 4 - Attribute filters****A Comparison between Extinction Filters and Attribute Filters**

Souza, Rittner, Machado, Lotufo

Cluster Based Vector Attribute Filtering

Kiwanuka, Wilkinson

Viscous-Hyperconnected Attribute Filters: A First Algorithm

Moschini, Wilkinson

Improved Detection of Faint Extended Astronomical Objects through Statistical Attribute Filtering

Teeninga, Moschini, Trager, Wilkinson

Automatic Threshold Selection for Profiles of Attribute Filters Based on Granulometric Characteristic Functions

Cavallaro, Falco, Dalla Mura, Bruzzone, Atli Benediktsson

12:50 Lunch

14:10 **plenary speaker 2**Yann Lecun, *NYU / FaceBook AI Research*

15:10 Break

15:40 **Poster sessions 3 - Hierarchies****Scale-Space representation based on levelings through hierarchies of level sets**

Alves, Morimitsu, Hashimoto

Intelligent object detection using trees

Urbach

GraphBPT: An Efficient Hierarchical Data Structure for Image Representation and Probabilistic Inference

Al-Dujaili, Merciol, LefÈvre

Constrained Optimization on Hierarchies and Braids

Serra, Kiran

Poster sessions 4 - Algorithms and implementation**Fast Evaluation of the Robust Stochastic Watershed**

Selig, Malmberg, Luengo Hendriks

Fast Computation of Greyscale Path Openings

Van de Gonde, Schubert, Roerdink

Exact Linear Time Euclidean Distance Transforms of Grid Line Sampled Shapes

Lindblad, Sladoje

Fast estimation of intrinsic volumes in 3D gray value images

Godehardt, Jablonski, Wirjadi, Schladitz.

Incremental and Efficient Computation of Families of Component Trees

Morimitsu, Alves, Hashimoto

Efficient Computation of Attributes and Saliency Maps on Tree-Based Image Representations

Xu, Carlinet, Géraud, Najman

A watershed algorithm progressively unveiling its optimality

Meyer

17:40

9:00 **plenary speaker 3**

Sabine Süsstrunk, *Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*

10:00 Break

10:30 **Oral session 5 - Optimization and topology**

When Convex Analysis Meets Mathematical Morphology on Graphs

Najman, Pesquet, Talbot

(max,min)-convolution and mathematical morphology

Angulo

A 3D sequential thinning scheme based on critical kernels

Coupric, Bertrand

Hausdorff distances between distributions using optimal transport and mathematical morphology

Bloch, Atif

How to Make nD Functions Digitally Well-Composed in a Self-Dual Way

Boutry, Géraud, Najman

12:10 Lunch

13:30 **Oral session 6 - Segmentation**

Part-Based Segmentation by Skeleton Cut Space Analysis

Feng, Jalba, Telea

Probabilistic hierarchical morphological segmentation of textures

Jeulin

The waterfall hierarchy on weighted graphs

Meyer

Learning Watershed Cuts Energy Functions

Porter, Oyen, Zimmer

Spatial Repulsion Between Markers Improves Watershed Performance

Machairas, Decencière, Walter

15:10 Break

15:40 **Poster sessions 5 - Discrete geometry**

Self-duality and digital topology: Links between the morphological tree of shapes and well-composed gray-level images

Géraud, Carlinet, Crozet

A Combinatorial 4-Coordinate System for the Diamond Grid

Comic, Nagy

Wiener Index on Lines of Unit Cells of the Body-Centered Cubic Grid

Mujahed, Nagy

Poster sessions 6 - Image analysis

Local 2D Pattern Spectra as Connected Region Descriptors

Bosilj, Wilkinson, Kijak, Lefevre

Ranking Orientation Responses of Path Operators: Motivations, Choices and Algorithmics

Merveille, Talbot, Najman, Passat

The power laws of geodesics in some random sets with dilute concentration of inclusions

Willot

Morphological PDE and dilation/erosion semigroups on length spaces

Angulo

An Approach to Adaptive Quadratic Structuring Functions Based on the Local Structure Tensor

Landström

Adaptive Hit or Miss Transform

Curic, Lefevre, Luengo Hendriks

Elementary Morphology for SO(2)- and SO(3)-Orientation Fields

Kleefeld, Meyer-Baese, Burgeth

17:40