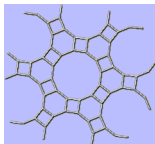


# IAPR TC 18 “Discrete Geometry”



DGCI 2013, March 20-22, 2013

# Facts

## Outgoing Team

Ullrich Koethe (chair), Joost Batenburg (vice-chair), Guillaume Damiand (vice-chair)

## Members

77 on the mailing list

## Administrative considerations

- ▶ last biennial report to the IAPR in November, 2012
- ▶ TC18 Board should be renewed now !

# What happened since DGCI 2011 ?

## Research initiatives

- ▶ Book “Applications of Discrete Geometry and Mathematical Morphology”
  - ▶ from WADGMM 2010
  - ▶ 11 papers from keynote speakers and authors
  - ▶ Springer LNCS Volume 7346
- ▶ Special Issues after DGCI 2011
  - ▶ Discrete Applied Mathematics → ?
  - ▶ Computer Vision and Image Understanding Vol 117, Issue 4, April 2013: 12 papers, 7 are extended versions of DGCI papers
  - ▶ Image Processing Online: joint publication of algorithms and implementations → ?

www.tc18.org



IAPR Technical Committee  
on DISCRETE GEOMETRY (TC18)



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## important dates

November 28-30, 2012  
[The 15th IWCIA workshop](#) will take place in Austin, Texas.  
Join with the 1st GSAA symposium.  
March 20-22, 2013  
[The 17th DGCI conference](#) will take place in Sevilla, Spain.

## last news - [rss feed](#)

- **[1 May 2012], IWCIA/GSAA CIP:** Extended dead line.
- **[30 March 2012], DGCI CIP:** DGCI Call for Papers available.
- **[1 February 2012], IWCIA/GSAA CIP:** IWCIA/GSAA Call for Papers available.
- **[1 September 2010], DGCI 2011 CIP:** Extended dead line.
- **[13 July 2010], IWCIA 2011 CIP:** IWCIA 2011 Call for Papers available.
- **[1 Mar 2010], DGCI 2011 CIP:** DGCI 2011 Call for Papers available.

[Archived news](#)

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## Code

### Libraries

Description	Main Reference	Language	Download
DGtal Digital Geometry Tools and Algorithms	---	C++	<a href="#">go</a>
OLENA Image processing, image recognition, and artificial vision	---	C++	<a href="#">go</a>
ORFEO Optical and Radar Federated Earth Observation	---	C++	<a href="#">go</a>
VIGRA Vision with Generic Algorithms	---	C++	<a href="#">go</a>

See [IPOL](#) (Image Processing On Line) for more references.

### Grid, cells, structures and topology

*and basic libraries to handle discrete objects...*

Description	Main Reference	Language	Download	Snapshots	submitted by
Simplevol a simple and powerful library to manipulate 3D images	---	C++	<a href="#">go</a>	see <a href="#">3D data set web page</a>	<a href="#">D.Cocurjolly</a>
The Npic library provides types and functions in C language to manipulate bitmap images of dimension 2 to 6, and command line tools that give access to the library functions (drawing, distance transforms, medial axis, converting file formats, and more). Some computations are multi-threaded with OpenMP.	---	C	<a href="#">go</a>		<a href="#">E.Thiel</a>
Skeletonization for 2D binary data by curvature	---	C	<a href="#">go</a>		A. Imiya
Boundaries Extraction for 3D binary images by Distance					

# Software resources (1/2)

## Generic C++ Libraries

**DGtal** <http://libdgtal.org> 

Generic, efficient and reliable **digital geometry data structures, algorithms and tools**

- ▶ 10 packages: Geometry, Topology, Shape, Graph, I/O, Arithmetic, Math, etc + ready-to-use binaries (DGtalTools)
- ▶ have a look at the poster !



**Olena/Milena** <http://www.lrde.epita.fr/>

Framework to implement simple, fast, safe, reusable and extensible image processing tool chains.

**VIGRA: Vision with Generic Algorithms**



Customizable algorithms and data structures

- ▶ Images and Arrays, Image processing, filters, segmentation, machine learning, math. tools

# Software resources (2/2)

## IPOL: Image Processing Online

- ▶ publish your algorithm and your source code
- ▶ test published algorithms online on your images




Image Processing On Line

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IPOL is a research journal of image processing and image analysis. Each article contains a text describing an algorithm and source code, with an online demonstration facility and an archive of online experiments. The text and source code are peer-reviewed and the demonstration is controlled. IPOL follows the Open Access and Reproducible Research models.

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### Latest Articles

<ul style="list-style-type: none"><li>• <b>Automatic Color Enhancement (ACE) and Its Fast Implementation</b> 2012-11-06 · Pascal Getreuer</li><li>• <b>Color and Contrast Enhancement by Controlled Piecewise Affine Histogram Equalization</b> 2012-10-17 · José-Luis Lisori, Ana Belen Peto, Catalina Sbert</li><li>• <b>The Flutter Shutter Camera Simulator</b> 2012-10-17 · Yohann Tendo</li></ul>	<ul style="list-style-type: none"><li>• <b>Chan-Vese Segmentation</b> 2012-09-08 · Pascal Getreuer</li><li>• <b>An Analysis and Implementation of the BM3D Image Denoising Method</b> 2012-08-08 · Marc Lebrun</li><li>• <b>Total Variation Deconvolution using Split Bregman</b> 2012-07-30 · Pascal Getreuer</li></ul>
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### By Research Topic

<ul style="list-style-type: none"><li>• 3D</li><li>• Blur</li><li>• Calibration</li><li>• Color and Contrast</li><li>• Computational Photography</li><li>• Demosaicking</li><li>• Denoising</li><li>• Infrared</li></ul>	<ul style="list-style-type: none"><li>• Inpainting</li><li>• Interpolation</li><li>• Image Comparison</li><li>• Optical Flow</li><li>• PDE</li><li>• Segmentation and Edges</li><li>• Texture</li><li>• Other Topics</li></ul>
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### News

<ul style="list-style-type: none"><li>• <b>Workshop on Reproducible Research in Signal, Image and Geometric Processing</b> 2013-07-23</li><li>• <b>IPOL at the SMAI 2013 Congress</b> -----</li></ul>	<ul style="list-style-type: none"><li>• <b>IPOL at the So Data! Conference on Open Science Data</b> 2013-03-14</li><li>• <b>IPOL at FOSDEM: Software as Science</b> 2013-02-02</li></ul>
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# Future directions of TC18

## New board

Isabelle Sivignon + 2 others → who wants to get involved ?

## Main purpose of TC 18

Promote Digital Geometry on an international level

## TC 18 as a catalyst

- ▶ share and spread information
- ▶ share and spread data sets, source codes
- ▶ share and spread material for master courses

## TC 18 as a showcase

- ▶ settles the field in the pattern recognition community



# Future directions of TC 18 (2/2)

How could we do more ?

What **we** could do

- ▶ renovation of the website
- ▶ alerts on PhD, papers in major journals
- ▶ reference to European or national projects, projects with industrial partners, with other research fields
- ▶ organize a summer school with other connected fields (mathematical morphology, TC 15, TC 10) ?

What **you** could do

- ▶ share your material
- ▶ spread your code
- ▶ inform us !