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 → ?
Website

www.tc18.org

IAPR Technical Committee on DISCRETE GEOMETRY (TC18)

Contents

- Scope
- Purpose
- Organization
  - For members
  - How to become a member?
  - List of members
- Educational
  - Getting started
  - Subfields and related lectures
  - Materials (books, journals, conferences)
  - Open problems
- Image and cod data base
  - Data sets
  - Code
  - Challenges
- Events on IAPR-TC18
  - TC18 newsletters
  - DGCI: Conference on Discrete Geometry for Computer Imagery
- Related topics
- Announcements for positions

Important dates

November 28-30, 2012
The 15th IWCLA 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], IWCLA/GSAA CIP: Extended deadline.
- [30 March 2012], DGCI CIP: DGCI Call for Papers available.
- [1 February 2012], IWCLA/GSAA CIP: IWCLA/GSAA Call for Papers available.
- [1 September 2010], DGCI 2011 CIP: Extended deadline.
- [13 July 2010], IWCLA 2011 CIP: IWCLA 2011 Call for Papers available.
- [1 Mar 2010], DGCI 2011 CIP: DGCI 2011 Call for Papers available.

Contact information IAPR-TC18

<table>
<thead>
<tr>
<th>Ulrich Koethe, Chair</th>
<th>Joost Batenburg, Vice-Chair</th>
<th>Guillaume Demont, Vice-Chair</th>
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<tbody>
<tr>
<td>Heidelberg Collaboratory for Image Processing</td>
<td>Vision Lab</td>
<td>Laboratoire LRIS</td>
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<td>University of Heidelberg</td>
<td>University of Antwerp</td>
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<tr>
<td>Germany</td>
<td>Belgium</td>
<td>France</td>
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## Website

[www.tc18.org](http://www.tc18.org)

## IAPR Technical Committee on DISCRETE GEOMETRY (TC18)

## Code

### Libraries

<table>
<thead>
<tr>
<th>Description</th>
<th>Main Reference</th>
<th>Language</th>
<th>Download</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGtal Digital Geometry Tools and Algorithms</td>
<td>---</td>
<td>C++</td>
<td>go</td>
</tr>
<tr>
<td>OLENA Image processing, image recognition, and artificial vision</td>
<td>---</td>
<td>C++</td>
<td>go</td>
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<tr>
<td>ORFEO Optical and Radar Federated Earth Observation</td>
<td>---</td>
<td>C++</td>
<td>go</td>
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<tr>
<td>VIGRA Vision with Generic Algorithms</td>
<td>---</td>
<td>C++</td>
<td>go</td>
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See [IPOL](http://www.ipol.im) (Image Processing On Line) for more references.

### Grid, cells, structures and topology

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Main Reference</th>
<th>Language</th>
<th>Download</th>
<th>Snapshots</th>
<th>submitted by</th>
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</thead>
<tbody>
<tr>
<td>Simplevol a simple and powerful library to manipulate 3D images</td>
<td>---</td>
<td>C++</td>
<td>go</td>
<td>see 3D data set web page</td>
<td>D. Coeurjolly</td>
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<tr>
<td>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</td>
<td>---</td>
<td>C</td>
<td>go</td>
<td>E. Thié</td>
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<tr>
<td>Skeletonization for 2D binary data by curvature</td>
<td>---</td>
<td>C</td>
<td>go</td>
<td>A. Imiya</td>
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<tr>
<td>Boundary Detection for 2D binary image by Distance</td>
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Software resources (1/2)

Generic C++ Libraries

**DGtal**  [http://libdgtal.org](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/](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 ressources (2/2)

IPOL: Image Processing Online

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

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.

Latest Articles

- Automatic Color Enhancement (ACE) and Its Fast Implementation
  2012-11-06 - Pascalgetreuer
- Color and Contrast Enhancement by Controlled Piecewise Affine Histogram Equalization
  2012-10-17 - Jose-Luis Lisani, Ana-Belen Petro, Carolina Sbert
- The Flutter Shutter Camera Simulator
  2012-10-17 - Yohann Tendro
- Chan-Vese Segmentation
  2012-08-30 - Pascalgetreuer
- An Analysis and Implementation of the BM3D Image Denoising Method
  2012-06-05 - Marc Lebrun
- Total Variation Deconvolution using Split Bregman
  2012-07-30 - Pascalgetreuer

By Research Topic

- 3D
- Blur
- Calibration
- Color and Contrast
- Computational Photography
- Demosaicking
- Denoising
- Infrared
- Inpainting
- Interpolation
- Image Comparison
- Optical Flow
- PDE
- Segmentation and Edges
- Texture
- Other Topics

News

- Workshop on Reproducible Research in Signal, Image and Geometric Processing
  2013-07-23
- IPOL at the SMAI 2013 Congress
- IPOL at the So Data! Conference on Open Science Data
  2013-03-14
- IPOL at FOSSDEM: Software as Science
  2013-02-20
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!