GETCO 2015, AALBORG UNIVERSITY
April 7-10 2015

Lecture Hall: Niels Jernes Vej 14 Auditorium 4-117, Aalborg University

In recent years, topological methods and "ideology" have been used successfully to analyze and attack a number of problems in theoretical computer science and data analysis.

The workshop GETCO 2015 focuses on Applications of Algebraic Topology in Computer Science and Data Analysis. It aims to bring together mathematicians and computer scientists working in or interested in these subjects. Special emphasis will be given to:

- Topological methods in Concurrency Theory.
- Persistent homology and data analysis
- Topological methods in Distributed computing
- Directed algebraic topology.


Local organizers: Lisbeth Fajstrup and Martin Raussen, Department of Mathematical Sciences. Scientific Committee: Dmitry Feichtner-Kozlov (Univ. Bremen), Éric Goubault (École Polytechnique, Palaiseau), Lisbeth Fajstrup and Martin Raussen

We would like to invite researchers and PhD-students at Aalborg University to participate in the conference lectures.

Thanks to our sponsors:

- The European Science Foundation Network, ACAT.
- The Carlsberg Foundation.
- The Department of Mathematical Sciences, Aalborg University.
Tuesday, April 7, 2015
11:00-11:45 Registration (Niels Jernes Vej 14, room 4.117)
11:45-12:45 Lunch break (NOVI canteen, Niels Jernes Vej 10)
12:45 Opening
13:00-13:40 Krzysztof Ziemianski: *Spaces of directed paths on semi-cubical sets*
13:50-14:30 Philippe Malbos: *Oriented Syzygies for Monoids*
14:30-15:00 Coffee break
15:00-15:40 Ulrich Bauer: *Induced Matchings and the Algebraic Stability of Persistence Barcodes*
15:50-16:30 Pawel Dlotko: "*Applied computational topology, where we should go now?*"

Wednesday, April 8, 2015
09:00-09:40 Sergio Rajsbaum: *Introduction to distributed computing analysis using combinatorial topology*
09:50-10:30 Armando Castañeda: *Computing independent set in an asynchronous distributed fault-tolerant environment*
10:30-11:00 Coffee break
11:00-11:40 Rick Jardine: *Path categories and algorithms*
11:50-12:30 Sanjeevi Krishnan: *Dynamic Sensor Networks (joint work with Rob Ghrist)*
12:30-14:00 Lunch break (NOVI canteen, Niels Jernes Vej 10)
14:00-14:40 Neza Mramor: *On perfect discrete Morse functions*
14:50-15:30 Primoz Skraba: *Sheaves and Global Sections*
15:30-17:00 Poster session & reception

Thursday, April 9, 2015
09:00-09:40 Marian Mrozek: *Morse-Forman-Conley theory for combinatorial multivector fields*
09:50-10:30 Hubert Wagner: *Generalized similarity measure for texts*
10:30-10:50 Coffee break
10:50-11:30 Steve Oudot: *Reflections in quiver and persistence theories*
11:30-13:00 Lunch break (NOVI canteen, Niels Jernes Vej 10)
13:00-13:40 Emmanuel Haucourt: *Directions from Vector Fields*
13:50-14:30 Damien Imbs: Untangling Partial Agreement: Iterated $\delta$-Consensus Simulations
15:30-18:30 Excursion - guided tour (Danish Distillers)
18:30 Conference dinner (*Prinses Juliana*)
Friday, April 10, 2015

09:00-09:40 Claudia Landi: Reducing Complexes in Multidimensional Persistent Homology
09:50-10:30 Patrizio Frosini: Geometric shape comparison via G-invariant non-expansive operators and G-invariant persistent homology
10:30-11:00 Coffee break
11:00-11:40 Petr Kuznetsov: "Generalized Asynchronous Computability Theorem"
11:50-12:30 Thomas Nowak: Point-Set Topology for Impossibility Results in Distributed Computing
12:30-14:00 Lunch break (NOVI canteen, Niels Jernes Vej 10)
14:00-14:40 Samuel Mimram: Dihomotopy and the cube property
14:50-15:30 Thomas Kahl: "Reduction of higher-dimensional automata"

GETCO 2015 is supported by:
List of registered participants:

Armando Castaneda  Intituto de Matemáticas, UNAM, Mexico
Claudia Landi  Università di Modena e Reggio Emilia, Italy
Damien Imbs  University of Bremen, Germany
Daniele Toller  University of Camerino, Italy
Deborah Olayide  University of Ibadan, Nigeria
Dmitry Feichtner-Kozlov  University of Bremen, Germany
Emmanuel Haucourt  LIX, École Polytechnique, France
Eric Finster  LIX, École Polytechnique, France
Eric Goubault  LIX, Ecole Polytechnique
Fabian Romero  Intituto de Matemáticas, UNAM, Mexico
Grzegorz Jablonski  Jagiellonian University, Poland
Hubert Wagner  IST Austria
Iver Ottosen  Aalborg University, Denmark
Jan Felix Senge  University of Bremen, Germany
Jan-Philipp Litza  University of Bremen, Germany
Jeremy Dubut  LSV, ENS Cachan, France
Jose-Carlos Gomez-Larrañaga  CIMAT, Mexico
Krzysztof Ziemianski  University of Warsaw, Poland
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Maria Jose Jimenez  University of Seville, Spain
Marian Mrozek  Jagiellonian University, Poland
Martin Raussen  Aalborg University, Denmark
Natalia Garcia-Colin  INFOTEC, Mexico
Neza Mramor  University of Ljubljana, Slovenia
Nicolas Ninin  CEA List,Ecole Polytechnique, France
Nina Otter  University of Oxford, UK
Patrizio Frosini  University of Bologna, Italy
Pawel Dlotko  University of Pennsylvania, USA
Petr Kuznetsov  Telecom ParisTech - INFRES, France
Philippe Malbos  Université Claude Bernard Lyon 1, France
Primoz Skraba  Jožef Stefan Institute, Slovenia
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Roman Bruckner  University of Bremen, Germany
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Sergio Rajsbaum  UNAM, Mexico
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Tim Haga  University of Bremen, Germany
Ulrich Bauer  Technische Universität München, Germany