

CG Week 2017: Overall Programme

	Wed 3 July	Tue 4 July	Wed 5 July	Thu 6 July	Fri 7 July
08.50 – 09.20			SoCG Session 2A <i>Room 63–358</i>	SoCG Session 4A <i>Room 07–222</i>	SoCG Session 7A <i>Room 63–358</i>
09.20 – 10.10		Welcome Best paper YRF preview Multimedia preview <i>Room 63–358</i>	SoCG Session 2B <i>Room 63–360</i>	SoCG Session 4B <i>Room 07–234</i>	SoCG Session 7B <i>Room 63–360</i>
10.10 – 10.40			Coffee <i>Building 67, level 2 (SLC)</i>	Coffee Multimedia displays <i>Building 67, level 2 (SLC)</i>	Coffee <i>Building 67, level 2 (SLC)</i>
10.40 – 11.20		Coffee <i>Building 67, level 2 (SLC)</i>	SoCG Session 3A <i>Room 63–358</i>	SoCG Session 5A <i>Room 07–222</i>	SoCG Session 8A <i>Room 63–358</i>
11.20 – 11.40		SoCG Session 1A <i>Room 63–358</i>	SoCG Session 3B <i>Room 63–360</i>	SoCG Session 5B <i>Room 07–234</i>	SoCG Session 8B <i>Room 63–360</i>
11.40 – 12.00		SoCG Session 1B <i>Room 63–360</i>	Break	Break	Break
12.00 – 13.00			SoCG Invited talk 1 <i>Room 63–358</i>	SoCG Session 6A <i>Room 07–222</i> SoCG Session 6B <i>Room 07–234</i>	SoCG Invited talk 2 <i>Room 63–358</i>
13.00 – 14.30		Lunch <i>On your own</i>	Lunch <i>On your own</i>	Lunch <i>On your own</i>	Lunch <i>On your own</i>
14.30 – 16.00		Workshops: YRF <i>Room 63–358</i> Materials Science <i>Room 69–110</i> Graph Drawing <i>Room 63–360</i>	Workshops: YRF <i>Room 63–358</i> Materials Science <i>Room 69–110</i> Computational Topology <i>Room 63–360</i>	Workshops: Practical Comp. Geom. <i>Room 07–222</i> Machine Learning <i>Room 07–326</i> Computational Topology <i>Room 07–234</i>	Workshops: Medial Axis <i>Room 63–358</i> Prob. Graphical Models <i>Room 63–360</i>
16.00 – 16.30		Coffee <i>Building 67, level 2 (SLC)</i>	Coffee <i>Building 67, level 2 (SLC)</i>	Coffee <i>Building 67, level 2 (SLC)</i>	Coffee <i>Building 67, level 2 (SLC)</i>
16.30 – 18.00		Workshops continued	Workshops continued	Workshops continued	Workshops continued
Evening	Welcome reception 19:00 for 19:15 Finish ~21:00 <i>St John's College Dining hall</i>		Dinner cruise Boarding at 18:30 Departure at 19:00 Return at 22:00 <i>Kookaburra Queen Eagle St Pier, City</i>	Business meeting 18:15 – 19:45 <i>Room 63–348</i> Drinks, nibbles & karaoke 20:00 – late <i>Red Room</i>	

Venues

Physiology Lecture Theatres (Building 63)	63–358, 63–360, 63–348	The lecture theatres are above ground level, on top of the student cafe. There is an entry ramp between buildings 62 and 63, on the west side (facing building 61 and the 412 bus)
Parnell Building (Building 07)	07–222, 07–234, 07–326	The north entry (facing the Great Court) is at level 2, directly in front of theatres 222 and 234. The south entry (facing the coffee room) is in level 1 – enter the door, climb up the stairs, and walk around the circular corridor to the other side of the building.
Priestley (Building 67)	67, level 2 (SLC)	This is the Science Learning Centre. The north entry (facing the Great Court) is at level 2, directly in front of the coffee room. The south entry (facing the tall grey building) is at level 1, and you will need to climb up the stairs.
Building 69	69–110	This is one level below the coffee room. Access via the outdoor staircase between building 67 and 69.
Red Room		This is the student pub. Walk to the UQ Student Union Complex, and go down the outdoor staircase next to the pizza cafe.

Tuesday, July 4

9:15-9:25	Welcome	
9:25-9:45	Best paper: Computing the Geometric Intersection Number of Curves Vincent Despré and Francis Lazarus	
9:45-10:05	YRF preview	
10:05-10:40	MM preview	
10:40-11:20	Coffee break	
	Session 1A Chair: Peyman Afshani	Session 1B Chair: Erin Chambers
11:20-11:40	A Superlinear Lower Bound on the Number of 5-Holes Oswin Aichholzer, Martin Balko, Thomas Hackl, Jan Kynčl, Irene Parada, Manfred Scheucher, Pavel Valtr and Birgit Vogtenhuber	Topological Analysis of Nerves, Reeb Spaces, Mappers, and Multiscale Mappers Tamal Dey, Facundo Mémoli and Yusu Wang
11:40-12:00	Disjointness Graphs of Segments János Pach, Gábor Tardos and Géza Tth	Barcodes of Towers and a Streaming Algorithm for Persistent Homology Hannah Schreiber and Michael Kerber
12:00-12:20	From Crossing-Free Graphs on Wheel Sets to Embracing Simplices and Polytopes with Few Vertices Alexander Pilz, Emo Welzl and Manuel Wettstein	Declutter and Resample: Towards Parameter Free Denoising Mickaël Buchet, Tamal Dey, Jiayuan Wang and Yusu Wang
12:20-12:40	On the Number of Ordinary Lines Determined by Sets in Complex Space Abdul Basit, Zeev Dvir, Shubhangi Saraf and Charles Wolf	Topological Data Analysis with Bregman Divergences Herbert Edelsbrunner and Hubert Wagner
12:40-13:00	Covering Lattice Points by Subspaces and Counting Point-Hyperplane Incidences Martin Balko, Josef Cibulka and Pavel Valtr	Ham Sandwich is Equivalent to Borsuk-Ulam Karthik C. S. and Arpan Saha
13:00-14:30	Lunch	

Wednesday, July 5

Wednesday, July 5		
	Session 2A Chair: Matthew Katz	Session 2B Chair: David Mount
8:50-9:10	Maximum Volume Subset Selection for Anchored Boxes Karl Bringmann, Sergio Cabello and Michael Emmerich	Voronoi Diagrams for a Moderate-Sized Point-Set in a Simple Polygon Eunjin Oh and Hee-Kap Ahn
9:10-9:30	Faster Algorithms for the Geometric Transportation Problem Pankaj Agarwal, Kyle Fox, Debmalya Panigrahi, Kasturi Varadarajan and Allen Xiao	Constrained Triangulations, Volumes of Polytopes, and Unit Equations Michael Kerber, Robert Tichy and Mario Weitzer
9:30-9:50	TSP With Locational Uncertainty: The Adversarial Model Gui Citovsky, Tyler Mayer and Joseph Mitchell	Anisotropic Triangulations via Discrete Riemannian Voronoi Diagrams Jean-Daniel Boissonnat, Mael Rouxel-Labbé and Mathijs Wintraecken
9:50-10:10	Minimum Perimeter-Sum Partitions in the Plane Mikkel Abrahamsen, Mark de Berg, Kevin Buchin, Mehran Mehr and Ali Mehrabi	Implementing Delaunay Triangulations of the Bolza Surface Jordan Jordanov and Monique Teillaud
10:10-10:40	Coffee break	
	Session 3A Chair: Maarten Löffler	Session 3B Chair: Boris Aronov
10:40-11:00	Adaptive Planar Point Location Siu-Wing Cheng and Man-Kit Lau	Shallow Packings, Semialgebraic Set Systems, Macbeath Regions and Polynomial Partitioning Kunal Dutta, Arijit Ghosh, Bruno Jartoux and Nabil Mustafa
11:00-11:20	Range-Clustering Queries Mikkel Abrahamsen, Mark de Berg, Kevin Buchin, Mehran Mehr and Ali Mehrabi	Erdős-Hajnal Conjecture for Graphs with Bounded VC-Dimension Jacob Fox, János Pach and Andrew Suk
11:20-11:40	Dynamic Geodesic Convex Hulls in Dynamic Simple Polygons Eunjin Oh and Hee-Kap Ahn	Finding Small Hitting Sets in Infinite Range Spaces of Bounded VC-dimension Khaled Elbassioni
11:40-12:00	Break	
12:00-13:00	Invited talk: The Algebraic Revolution in Combinatorial and Computational Geometry: State of the Art Micha Sharir	
13:00-14:30	Lunch	

Thursday, July 6

	Session 4A Chair: Peyman Afshani	Session 4B Chair: Yoshio Okamoto
8:50-9:10	Subquadratic Algorithms for Algebraic Generalizations of 3SUM Luis Barba, Jean Cardinal, John Iacono, Stefan Langerman, Aurélien Ooms and Noam Solomon	On Bend-Minimized Orthogonal Drawings of Planar 3-graphs Yi-Jun Chang and Hsu-Chun Yen
9:10-9:30	A Nearly Quadratic Bound for the Decision Tree Complexity of k-SUM Esther Ezra and Micha Sharir	On Planar Greedy Drawings of 3-Connected Planar Graphs Giordano Da Lozzo, Anthony D'Angelo and Fabrizio Frati
9:30-9:50	Best Laid Plans of Lions and Men Mikkel Abrahamsen, Jacob Holm, Eva Rotenberg and Christian Wulff-Nilsen	A Universal Slope Set for 1-Bend Planar Drawings Patrizio Angelini, Michael Bekos, Giuseppe Liotta and Fabrizio Montecchiani
9:50-10:10	Lower Bounds for Differential Privacy from Gaussian Width Assimakis Kattis and Aleksandar Nikolov	Towards a Topology-Shape-Metrics Framework for Ortho-Radial Drawings Lukas Barth, Benjamin Niedermann, Ignaz Rutter and Matthias Wolf
10:10-10:40	Coffee break	
	Session 5A Chair: Danny Halperin	Session 5B Chair: Danny Chen
10:40-11:00	Computing the Fréchet Gap Distance Chenglin Fan and Benjamin Raichel	On Optimal 2- and 3-Planar Graphs Michael Bekos, Michael Kaufmann and Chrysanthi Raftopoulou
11:00-11:20	Locality-Sensitive Hashing of Curves Anne Driemel and Francesco Silvestri	A Proof of the Orbit Conjecture for Flipping Edge-Labelled Triangulation Anna Lubiw, Zuzana Masárová and Uli Wagner
11:20-11:40	Computing Representative Networks for Braided Rivers Maarten Kleinans, Marc Van Kreveld, Tim Ophelders, Willem Sonke, Bettina Speckmann and Kevin Verbeek	Algorithmic Interpretations of Fractal Dimension Anastasios Sidiropoulos and Vijay Sridhar
11:40-12:00	Break	
	Session 6A Chair: Matthew Katz	Session 6B Chair: Marc van Kreveld
12:00-12:20	An Approximation Algorithm for the Art Gallery Problem Édouard Bonnet and Tillmann Miltzow	Orthogonal Range Searching in Moderate Dimensions: k-d Trees and Range Trees Strike Back Timothy Chan
12:20-12:40	Irrational Guards are Sometimes Needed Mikkel Abrahamsen, Anna Adamaszek and Tillmann Miltzow	Dynamic Orthogonal Range Searching on the RAM, Revisited Timothy Chan and Konstantinos Tsakalidis
12:40-13:00	Exact Algorithms for Terrain Guarding Pradeesha Ashok, Fedor Fomin, Sudeshna Kolay, Saket Saurabh and Meirav Zehavi	Approximate Range Counting Revisited Saladi Rahul
13:00-14:30	Lunch	

Friday, July 7

Friday, July 7		
	Session 7A Chair: Yoshio Okamoto	Session 7B Chair: Maarten Löffler
8:50-9:10	Quickest Visibility Queries in Polygonal Domains Haitao Wang	A Spectral Gap Precludes Low-Dimensional Embeddings Assaf Naor
9:10-9:30	Reachability in a Planar Subdivision with Direction Constraint Daniel Binham, Pedro Machado Manhães de Castro and Antoine Vigneron	A Quest to Unravel the Metric Structure Behind Perturbed Networks Srinivasan Parthasarathy, David Sivakoff, Minghao Tian and Yusu Wang
9:30-9:50	Bicriteria Rectilinear Shortest Paths among Rectilinear Obstacles in the Plane Haitao Wang	High Dimensional Consistent Digital Segments Man-Kwun Chiu and Matias Korman
9:50-10:10	Self-Approaching Paths in Simple Polygons Prosenjit Bose, Irina Kostitsyna and Stefan Langerman	Local Equivalence and Intrinsic Metrics between Reeb Graphs Mathieu Carrière and Steve Oudot
10:10-10:40	Coffee break	
	Session 8A Chair: Boris Aronov	Session 8B Chair: Joseph Mitchell
10:40-11:00	Fine-Grained Complexity of Coloring Unit Disks and Balls Csaba Biró, Édouard Bonnet, Dániel Marx, Tillmann Miltzow and Paweł Rzażewski	Origamizer: A Practical Algorithm for Folding Any Polyhedron Erik Demaine and Tomohiro Tachi
11:00-11:20	Proper Coloring of Geometric Hypergraphs Balázs Keszegh and Dömötör Pálvölgyi	Near-Optimal ε-Kernel Construction and Related Problems Sunil Arya, Guilherme Da Fonseca and David Mount
11:20-11:40	Coloring Curves That Cross a Fixed Curve Alexandre Rok and Bartosz Walczak	Applications of Chebyshev Polynomials to Low-Dimensional Computational Geometry Timothy Chan
11:40-12:00	Break	
12:00-13:00	Invited talk: The Geometry and Topology of Crystals: From Sphere-Packing to Tiling, Nets, and Knots Vanessa Robins	
13:00-14:30	Lunch	

Young Researchers Forum

Tue 04/07, 14:30-14:50	Persistent Nerves Revisited Nicholas Cavanna and Don Sheehy
Tue 04/07, 14:50-15:10	Towards Canonical Ideal Triangulations of Convex Projective Surfaces via Area Estimates Dominic Tate
Tue 04/07, 15:10-15:30	Length spectrum estimates for hyperbolic 3-manifolds Robert Haraway, Neil Hoffman, Matthias Goerner and Maria Trnkova
Tue 04/07, 15:30-15:50	An Optimal Lower Bound for the Hilbert-type Planar Universal Traveling Salesman Problem Patrick Eades and Julián Mestre
Wed 05/07, 14:30-14:50	Voronoi Diagrams with Rotational Distance Costs Michael Horton, Joachim Gudmundsson, Herman Haverkort and Mark de Berg
Wed 05/07, 14:50-15:10	Unwinding Annular Curves and Electrically Reducing Planar Networks Hsien-Chih Chang and Jeff Erickson
Wed 05/07, 15:10-15:30	Conditional Nontrivial Lower Bounds for 3SUM and Friends Jean Cardinal, John Iacono, Stefan Langerman and Aurélien Ooms

6th Annual Minisymposium on Computational Topology

Organisers: Mickaël Buchet, Emerson G. Escolar, Clément Maria, and Bei Wang

http://www.wpi-aimr.tohoku.ac.jp/hiraoka_lab/eescolar/comptopo2017/

Wed 05/07, 14:30-15:30	(Hierarchical-) Clustering consistently: Densities and graphons Yusu Wang
Wed 05/07, 15:30-16:00	Finite state computational topology Benjamin Burton
Wed 05/07, 16:30-17:00	A new T2 I test Robert Haraway
Wed 05/07, 17:00-17:30	Crushing and inflating triangulations William Pettersson
Wed 05/07, 17:30-18:00	Cardiac Trabeculae Segmentation: An Application of Computational Topology Chao Chen
Thu 06/07, 14:30-15:30	TBA Stephan Tillmann
Thu 06/07, 15:30-16:00	Persistent homology of spatially random point patterns Vanessa Robins
Thu 06/07, 16:30-17:00	A Gaussian Type Kernel for Persistence Diagrams Steve Oudot
Thu 06/07, 17:00-17:30	Computing the Fréchet distance between real-valued surfaces Tim Ophelders
Thu 06/07, 17:30-18:00	Open questions and discussions Tim Ophelders

Algorithms for the Medial Axis

Organisers: *Erin Chambers, Tao Ju, and David Letscher*
<http://cs.slu.edu/~chambers/cgweek2017.html>

Fri 07/07, 14:30–15:15	Computing medial axis and curve skeleton with Voronoi diagrams Tamal Dey
Fri 07/07, 15:15–16:00	Manifolds with positive reach: metric distortion, tangent space variation and geodesic convexity Mathijs Wintraecken
Fri 07/07, 16:30–17:15	On the Stability of the Medial Axis of a Union of Balls in the Plane David Letcher
Fri 07/07, 17:15–18:00	Erosion Thickness on the Medial Axes of 3D Shapes Tao Ju

Geometric Perspectives in Graph Drawing and Information Visualization

Organisers: *Steven Chaplick and Kevin Verbeek*
<https://www.win.tue.nl/aga/events/gdvis-2017/>

Tue 04/07, 14:30-15:15	Morphing and Compatible Triangulations of Planar Graph Drawings Anna Lubiw
Tue 04/07, 15:15-16:00	Graph Drawing Beyond Planarity: Some Results and Open Problems Giuseppe Liotta
Tue 04/07, 16:30-17:15	Geometric Algorithms for Information Visualization Bettina Speckmann
Tue 04/07, 17:15-18:00	Visualising Relational Data in a Geographic Context Tim Dwyer

Tutorial on Probabilistic Graphical Models: A Geometric and Topological View

Organisers: *Chao Chen and Qinfeng (Javen) Shi*

Workshop on Practical Methods for Solving Computational Geometry Problems

Organiser: *Sándor Fekete*

Thu 06/07, 14:30-14:45	Four short video testimonials by applied scientists about their work and the role of Computational Geometry
Thu 06/07, 14:45-15:20	Movable Separability: New Tools and New Challenges Danny Halperin
Thu 06/07, 15:20-16:00	Geometric Problems in Biomedical Applications Danny Chen
Thu 06/07, 16:30-17:05	Unveiling non-secrets of CGAL Delaunay triangulations Monique Teillaud
Thu 06/07, 17:10-17:45	Flood Risk Analysis using Massive Terrain Data Lars Arge
Thu 06/07, 17:10-17:45	Final discussion and announcements

Workshop on Geometric aspects of materials science (2 days)

Organisers: *Vanessa Robins, Ileana Streinu, Monique Teillaud*

https://members.loria.fr/Monique.Teillaud/CGWeek_2017_workshop/

Tue 04/07, 14:30-15:00	Design of hinged 3D auxetic mechanisms Henry Segerman
Tue 04/07, 15:00-15h30	Nets and tilings as models for crystals Olaf Delgado-Friedrichs
Tue 04/07, 16:30-17:30	Topological data analysis on materials science Yasu Hiraoka
Wed 05/07, 14:30-15:30,	Mechanical and photonic meta-materials: function through geometric design Gerd Schröder-Turk
Wed 05/07, 15:30-16:00	Symmetric differential growth Stuart Ramsden
Wed 05/07, 16:30-17:00	Non-euclidean virtual reality Sabetta Matsumoto
Wed 05/07, 17:00-17:30	Kirigami: using cutting, glueing and folding to refurbish the plane Toen Castle

The 2nd Workshop on Geometry and Machine Learning

Organisers: *Jinhui Xu and Jeff M. Phillips*

<http://www.cs.utah.edu/~jeffp/WaGoML/>

Thu 06/07, 14:30-15:15	Metric denoising: A geometric perspective Yusu Wang
Thu 06/07, 15:15-16:00	Federated Model for Surveillance and Non-Cooperative CCTV Face Recognition Brian Lovell
Thu 06/07, 16:30-17:15	Algorithms and Data Structures in Spaces of Curves Anne Driemel
Thu 06/07, 17:15-18:00	On the computational hardness of DBSCAN: From Static to Dynamic Yufei Tao