Symposium on Geometry Processing 2014 Graduate School

**Note:** The graduate school is at WX/3.07, including coffee breaks and lunches. The only exception is two workshop invited talks at C/2.07. Please follow signs between these rooms.

**Monday 7 July (Graduate School Day 1)**

- **8:15-9:00** Registration and Opening
- **9:00-11:00** Laplace-Beltrami: The Swiss Army Knife of Geometry Processing
  Justin Solomon (Stanford Univ.) Keenan Crane (Columbia Univ.) Etienne Vouga (Harvard Univ.)
- **11:00-11:30** Coffee Break
- **11:30-12:30** Tutorial on Generative Modeling (First Part)
  Ulrich Krispel, Christoph Schinko, Torsten Ullrich (Graz Univ. Tech., Austria)
- **12:30-13:30** Lunch
- **13:30-14:30** Tutorial on Generative Modeling (Second Part)
  Ulrich Krispel, Christoph Schinko, Torsten Ullrich (Graz Univ. Tech., Austria)
- **14:30-15:00** Coffee Break
- **15:00-17:00** LIBIGL: a C++ library for geometry processing without a mesh data structure
  Daniele Panozzo (ETH Zurich), Alec Jacobson (Columbia Univ.)

**Tuesday 8 July (Graduate School Day 2)**

- **9:30-10:15** Workshop Invited Talk: SpatialHadoop: A MapReduce Framework for Spatial Data (C/2.07)
  Mohamed F. Mokbel (University of Minnesota, US)
- **10:15-10:30** Coffee Break
- **10:30-12:30** Feature extraction, matching and evaluation for shape registration
  Yonghuai Liu (Aberystwyth Univ., UK)
- **12:30-13:30** Lunch
- **13:30-14:15** Workshop Invited Talk: Point Cloud Data Management (C/2.07)
  Peter van Oosterom (Delft University of Technology, NL)
- **14:15-14:45** Coffee Break
- **14:45-17:15** Structure preserving representations of Euclidean geometry through conformal geometric algebra
  Leo Dorst (University of Amsterdam, The Netherlands)
Symposium on Geometry Processing 2014 Technical Programme

Wednesday 9 July  SGP’14, Day 1

8:15-9:00  Registration and Welcome
9:00-10:00  Session: KEYNOTE I (Chair: Thomas Funkhouser and Shimin Hu)
        Recent Progress and Open Problems in Architectural Geometry
        Helmut Pottmann
10:00-10:20  Coffee break
10:20-12:00  Session: COORDINATES AND FIELDS  (Chair: Keenan Crane)
        Designing N-PolyVector Fields with Complex Polynomials
        Olga Diamanti, Amir Vaxman, Daniele Panozzo, Olga Sorkine-Hornung
        Discrete 2-Tensor Fields on Triangulations
        Fernando de Goes, Beibei Liu, Max Budninskiy, Yiyong Tong, Mathieu Desbrun
        Efficient encoding of texture coordinates guided by mesh geometry
        Libor Vasa, Guido Brunnett
        Compressed Manifold Modes for Mesh Processing
        Thomas Neumann, Kiran Varanasi, Christian Theobalt, Marcus Magnor, Markus Wacker
12:00-13:10  Lunch
13:10-15:15  Session: RECONSTRUCTION  (Chair: Niloy Mitra)
        Feature-Preserving Surface Completion Using Four Points
        Gur Harary, Ayellet Tal, Eitan Grinspun
        Piecewise-Planar 3D Reconstruction with Edge and Corner Regularization
        Alexandre Boulch, martin de la gorce, Renaud Marlet
        Feature-Preserving Surface Reconstruction From Unoriented, Noisy Point Data
        J. Wang, Z. Yu, W. Zhu, J. Cao
        3D Motion Completion in Crowded Scenes
        Andrei Sharf, Niv Gafni
        Real-time Bas-Relief Generation from Depth-and-Normal Maps on GPU
        Zhongping Ji, Xianfang Sun, Shi Li, Yigang Wang
15:15-15:45  Coffee break
15:45-17:15  Session: GEOMETRY PROCESSING IN INDUSTRY  (Chair: Ralph Martin)
        Adrian Bowyer (Reprap Pro)
        Jan Vandenbran (Boeing)
        Iain Ainsworth (Renishaw)
18:00-19:00  TOUR OF CARDIFF CASTLE
19:00-21:00  BANQUET
Thursday 10 July  SGP’14, Day 2

9:00-10:00  Session: KEYNOTE II (Chair: Szymon Rusinkiewicz)  
From Virtual to Real  
Wojciech Matusik

10:00-10:20  Coffee break

10:20-12:00  Session: SEGMENTATION AND STRUCTURE (Chair: Maks Ovsjanikov)  
3D shape segmentation and labeling via Extreme Learning Machine  
Zhige xie, Kai Xu, Ligang Liu  
Robust Region Detection via Consensus Segmentation of Deformable Shapes  
Emanuele Rodola, Samuel Rota Bulo, Daniel Cremers  
Transductive 3D Shape Segmentation using Sparse Reconstruction  
Weimei Xu, Zhouxu Shi, Mingliang Xu, Kun Zhou, Jindong Wang, Bin Zhou, Jinrong Wang, Zhengming Yuan  
Clever Support: Efficient Support Structure Generation for Digital Fabrication  
Juraj Vanek, Jorge Garcia, Bedrich Benes

12:00-13:20  Lunch

13:20-15:00  Session: MATCHING (Chair: Mirela Ben Chen)  
Supervised learning of bag-of-features shape descriptors using sparse coding  
Roee Litman, Alex Bronstein, Michael Bronstein, Umberto Castellani  
An Efficient Approach to Correspondences between Multiple Non-Rigid Parts  
Gary KL Tam, Ralph Martin, Paul Rosin, Yu-Kun Lai  
Learnt Real-time Meshless Simulation  
Kirill Sidorov, David Marshall  
What Makes London Work Like London?  
Sawsan AlHalawani, Yongliang Yang, Peter Wonka, Niloy Mitra

15:00-15:30  Coffee break

15:30-16:40  Session: MESHING (Chair: Mario Botsch)  
Blue-Noise Remeshing with Farthest Point Optimization  
Jianwei Guo, Dongming Yan, Xiaopeng Zhang, Peter Wonka  
Pattern-Based Quadrangulation for N-Sided Patches  
Kenshi Takayama, Daniele Panozzo, Olga Sorkine-Hornung  
Freeform honeycomb structures  
Caigui Jiang, Jun Wang, Johannes Wallner, Helmut Pottmann

16:40-17:10  Coffee break

17:10-18:20  Session: POINT CLOUDS (Chair: Pierre Alliez)  
A Variational Taxonomy for Surface Reconstruction from Oriented Points  
Christopher Schroers, Simon Setzer, Joachim Weickert  
Super 4PCS: Fast Global Pointcloud Registration via Smart Indexing  
Nicolas Mellado, Niloy Mitra, Dror Aiger  
Patch-Collaborative Spectral Point-Cloud Denoising  
Guy Rosman, Anastasia Dubrovin, Ron Kimmel

19:00-21:00  RECEPTION AND POSTER SESSION
Posters:  
Construction of G3 Conic Spline Interpolation  
Long Ma, Caiming Zhang  
Depth-layer Architecture Reconstruction From Image Collections  
Yong Hu, Bei Chu, Yue Qi  
Geodesic Voronoi Diagrams with Polyline Generators  
Chunxu Xu, Yong-Jin Liu, Qian Sun, Jinyan Li, Ying He  
Irregular Model Synthesis via Boundary Consistency Analysis  
Mofei Song, Zhengxing Sun, Feiqian Zhang  
Learning Geometric Primitives in Point Clouds  
M. Caputo, K. Denker, M. Franz, P. Laube, and G. Umlauf  
Statistical Mesh Shape Analysis with Nonlandmark Nonrigid Registration  
Jan Dupej, Václav Krajicek, Jana Veleminská, and Josef Pelíkán  
Saliency-Preserving Slicing Optimization for Effective 3D Printing (CGF major revision)  
Weiming Wang, Haiyuan Chao, Hang Li, Zhouwang Yang, Jing Tong, Xin Tong, Xiuping Liu, Ligang Liu
Friday 11 July    SGP’14, Day 3

9:00-10:00    Session: KEYNOTE III (Chair: Leif Kobbelt)
Thinking about Geometry Processing
Michael Kazhdan

10:00-10:20    Coffee break

10:20-12:00    Session: SURFACES AND SHELLS (Chair: Mathieu Desbrun)

Semi-sharp Creases on Subdivision Curves and Surfaces
Jiri Kosinka, Malcolm Sabin, Neil Dodgson

Pseudo-Spline Subdivision Surfaces
Chongyang Deng, Kai Hormann

Functional Fluids on Surfaces
Omri Azencot, Steffen Weißmann, Maks Ovsjanikov, Max Wardetzky, Mirela Ben-Chen

Exploring the geometry of the space of shells
Behrend Heeren, Martin Rumpf, Peter Schroeder, Max Wardetzky, Benedikt Wirth

12:00-13:20    Lunch

13:20-15:00    Session: MAPS (Chair: Michael Bronstein)

As-Conformal-As Possible Surface Registration
Yusuke Yoshiyasu, Wan Chun Ma, Eiichi Yoshida

Remeshing-assisted optimization for locally injective mappings
Yao Jin, Jin Huang, Ruofeng Tong

Bilateral Maps for Partial Matching
Oliver van Kaick, Hao Zhang, Ghassan Hamarneh

Cross-Collection Map Inference by Intrinsic Alignment of Shape Spaces
Nitzan Shapira, Mirela Ben-Chen

15:00-15:15    CLOSING
Final Remarks and Awards
Shi-Min Hu and Thomas Funkhouser
Conference Venue

The conference will be held in Queen’s Buildings, Cardiff University, 5 The Parade, Cardiff CF24 3AA, UK.

Event Locations:
- Registration Desk: Foyer at Trevithick Entrance
- Graduate School (Mon-Tue): WX/3.07 (third floor)
- Co-located iQmulus Workshop (Tue): C/2.07; Lunches and Coffee Breaks: C/2.11 (second floor)
- SGP Conference (Wed-Fri): Faculty Lecture Theatre T/2.09 (second floor, upstairs from the Trevithick foyer)
- SGP Conference Lunches and Coffee Breaks (Wed-Fri): Seminar Rooms 1&2 (ground floor)
- Conference Banquet: Cardiff Castle (see the map above)
- Conference Reception & Posters: Viriamu Jones Gallery, Cardiff University Main Building (see the map above)

Please enter the building at the Trefivthick entrance, which is on your right hand side after passing the car park barrier. There are signs in the building to guide you between these rooms. You may also get assistance from local participants. See the following schematic diagram for room locations:

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