Donald Sheehy

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Education

B.S.E. Computer Science, Princeton University, *Summa Cum Laude*, 2005.

Ph.D. Computer Science, Carnegie Mellon University, 2011.

Employment

Geometrica, Inria Saclay, PostDoc, 2011-2013

Carnegie Mellon University, Graduate Student, 2005–2011.

Google (Mountain View, CA), Software Engineering Intern, Summer 2007.

Google (Pittsburgh, PA), Software Engineering Intern, Summer 2008.

Princeton University, Teaching Assistant, 2002–2005.

New Media Center, Princeton University, 2004-2005.

Williams College, Math Researcher (REU), Summer 2004.

Teaching

Teacher, CMU
Computational Geometry

Teaching Assistant, CMU
Graduate Algorithms

Teaching Assistant, CMU
Modern Computer Algebra

Lab Teaching Assistant, Princeton
Intro CS, Data Structures and Algorithms, Intro to Programming Systems, Computers in our World

Publications

Journal Articles

New Bounds on the Size of Optimal Meshes
Donald R. Sheehy.
Computer Graphics Forum, 31:5, pp. 1627-1635, 2102

Approximate Centerpoints with Proofs
Gary L. Miller and Donald R. Sheehy.
Computational Geometry: Theory and Applications, 43(8): 647-654, 2010

Shape Deformation in Continuous Map Generalization
Jeff Danciger, Satyan L. Devadoss, John Mugno, Donald R. Sheehy and Rachel Ward.
GeoInformatica 13: 2, 203–221, 2009

Compatible Triangulations and Point Partitions by Series Triangular Graphs
Jeff Danciger, Satyan L. Devadoss and Donald R. Sheehy.
Computational Geometry: Theory and Applications 34, 195–202, 2006

Proceedings

A Multicover Nerve for Geometric Inference
Donald R. Sheehy.
CCCG: The Canadian Conference in Computational Geometry, 2012

Linear-Size Approximations to the Vietoris-Rips Filtration
Donald R. Sheehy.
SOCG: ACM Symposium on Computational Geometry. (accepted to special issue of DCG), 2012

Minimax Rates for Homology Inference
Sivaraman Balakrishnan, Alessandro Rinaldo, Aarti Singh, Donald R. Sheehy and Larry Wasserman.
AISTATS: AI and Statistics, 2012

Beating the Spread: Time-Optimal Point Meshing
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
SOCG: ACM Symposium on Computational Geometry, 2011

Topological Inference via Meshing
Benoit Hudson, Gary L. Miller, Steve Y. Oudot and Donald R. Sheehy.
SOCG: ACM Symposium on Computational Geometry, 2010

The Centervertex Theorem for Wedge Depth
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
CCCG: The Canadian Conference in Computational Geometry, 2009

Approximate Center Points with Proofs
Gary L. Miller and Donald R. Sheehy.
SOCG: Proceedings of the 25th ACM Symposium on Computational Geometry, 2009

Size Complexity of Volume Meshes vs. Surface Meshes
Benoit Hudson, Gary L. Miller, Todd Phillips and Donald R. Sheehy.
SODA: ACM-SIAM Symposium on Discrete Algorithms, 2009

Achieving Spatial Adaptivity while Finding Approximate Nearest Neighbors
Jonathan Derryberry, Daniel D. Sleator, Donald R. Sheehy and Maverick Woo.
CCCG: The Canadian Conference in Computational Geometry, 2008

Linear-size meshes
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
CCCG: The Canadian Conference in Computational Geometry, 2008

Size Competitive Meshing without Large Angles
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
ICALP: 34th International Colloquium on Automata, Languages and Programming, 2007

Workshops

Tighter Bounds on the Size of Optimal Meshes
Donald R. Sheehy.
The European Workshop on Computational Geometry, 2012

Fat Voronoi Diagrams
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
The Fall Workshop in in Computational Geometry, 2010

(Multi)Filtering Noise in Geometric Persistent Homology
Donald R. Sheehy.
The Fall Workshop in in Computational Geometry, 2010

Mesh-Enhanced Persistent Homology
Benoit Hudson, Gary L. Miller, Steve Y. Oudot and Donald R. Sheehy.
The Fall Workshop in in Computational Geometry, 2009

Approximating Voronoi Diagrams with Voronoi Diagrams
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
The Fall Workshop in in Computational Geometry, 2009

Fast sizing calculations for meshing
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
The Fall Workshop in in Computational Geometry, 2008

Cone Depth and the Center Vertex Theorem
Gary L. Miller, Todd Phillips and Donald R. Sheehy.
The Fall Workshop in in Computational Geometry, 2008

Service

Co-Organizer NIPS Workshop on Algebraic Topology in Machine Learning, 2012

Graduate Admissions Committee Carnegie Mellon University

Organized Low-Dimensional Manifolds Reading Group (`http://www.cs.cmu.edu/~manifolds`)

Theory Lunch Organizer, 2007-2008

Immigration Course Student Coordinator, 2006

Selected Talks

A New Approach to Output-Sensitive Voronoi Diagrams and Delaunay Triangulations
Ohio State University, Oct 31, 2012

Mesh Generation and Topological Data Analysis
Banff Workshop on Topological Data Analysis and Machine Learning Theory 2012

A Multicover Nerve for Geometric Inference
Presented at the Canadian Conference on Computational Geometry 2012, PEI Canada

New Bounds on the Size of Optimal Meshes
Presented at the Symposium on Geometry Processing 2012, Tallinn Estonia

Minimax Rates for Homology Inference
Geometrica Seminar, Inria Saclay

Linear-Size Approximations to the Vietoris-Rips Filtration
Presented at The University of Muenster

Linear-Size Approximations to the Vietoris-Rips Filtration
Presented at ATMCS5: Applied and Computational Topology

Linear-Size Approximations to the Vietoris-Rips Filtration
Presented at The Symposium on Computational Geometry 2012, University of North Carolina Chapel Hill

Beating the Spread: Time-Optimal Point Meshing
Presented at Symposium on Computational Geometry, 2011, Paris, France

Learning with Nets and Meshes
Computational Geometry Learning Workshop (CGL), Paris, France

Meshes and Nets
Presented at CMU Theory Lunch, April 6, 2011

Ball Packings and Fat Voronoi Diagrams
Presented at CMU Theory Lunch, September 15, 2010

Topological Inference via Meshing
Presented at Symposium on Computational Geometry, 2010, in Snowbird, Utah

Topological Inference via Meshing (long version for Theory Lunch)
Presented at CMU Theory Lunch, March 3, 2010

**Prospective Students Research Talk:
 Geometry, Topology and All of You Wildest Dreams Will Come True.**
Presented to CMU Prospective Grad Students, Feb 27, 2010

The Centervertex Theorem for Wedge Depth
Presented at the Canadian Conference on Computational Geometry, 2009, in Vancouver

Approximate Centerpoints with Proofs
Presented at the Symposium on Computational Geometry, 2009, in Aarhus, Denmark.

Planar Graphs in 2 1/2 Dimensions
Presented at Theory Lunch, Carnegie Mellon University, March 18, 2009

Linear-size meshes
Presented at the Canadian Conference on Computational Geometry, 2008, in Montreal

Achieving Spatial Adaptivity while Finding Approximate Nearest Neighbors
Presented at the Canadian Conference on Computational Geometry, 2008, in Montreal

Cone Depth and the Center Vertex Theorem
Presented at The Fall Workshop in in Computational Geometry, October 31, 2008

Searching for the Center
Presented at Theory Lunch, Carnegie Mellon University, October 8, 2008

A Competitive Algorithm for No-Large-Angle Triangulation
Presented at Theory Lunch, Carnegie Mellon University, May 2, 2007

Flips in Computational Geometry
Presented at Theory Lunch, Carnegie Mellon University, Nov. 15, 2006

Last updated: November 14, 2012
`http://www.cs.cmu.edu/~dsheehy/cv.html`