Michael J. Bannister

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Research Interests

In general, I am interested in problems within the area of theoretical computer science. In particular, I am interested in the design, implementation, and analysis of geometric and graph algorithms.

Education

University of California, Irvine

- PhD Candidate in Computer Science, expected completion 2015. GPA: 3.96/4.00.
  Advisor: David Eppstein.
- MS in Computer Science, Spring 2012. GPA: 3.93/4.00.

University of California, Los Angeles

- MA in Mathematics, Spring 2007. GPA: 3.87/4.00.
- BS in Mathematics, Spring 2007. GPA: 3.87/4.00.
  Summa cum laude. With departmental highest honors.

Employment

Graduate Student Researcher at University of California, Irvine — Fall 2010–Current

- Conduct, publish, and present research under the advisement of Professor David Eppstein.

Teaching Assistant at University of California, Irvine — Summer 2011–Current

- Lead discussion sections clarifying theoretical understanding, and addressing implementation concerns.
- Courses assisted: Discrete Mathematics, Introduction to Algorithms, Graph Algorithms, Programming Languages, Operating Systems.

Part-time Faculty and Tutor at Santiago Canyon College — Summer 2008–Spring 2010

- Developed and taught courses in remedial mathematics.
- Courses taught: Elementary Algebra, College Algebra, Trigonometry, Precalculus.

Part-time Faculty and Tutor at Orange Coast College — Spring 2008–Spring 2010

- Developed honors courses, bringing upper division mathematics to talented lower division students.
- Courses taught: Intermediate Algebra, College Algebra, Precalculus, Calculus I, Calculus II, Honors Topology, Honors Differential Geometry, Theory of Computation.

Awards and Recognitions

Best Presentation Award — Fall 2013

- Awarded at the 21st international symposium on Graph Drawing.

SIAM Student Travel Award — 2012, 2013, 2014

- Three times received for travel to the ACM-SIAM Symposium on Discrete Algorithms.

Dean's Fellowship, UCI — Fall 2010

- Four-year fellowship for graduate study at UCI.

Sherwood Prize, Mathematics Department, UCLA — Spring 2007

- Highest award given to graduating seniors in mathematics at UCLA.

Phi Beta Kappa, UCLA Chapter — Spring 2007

- Nationwide academic honors society.

Departmental Scholar, Mathematics Department, UCLA — Spring 2005–Spring 2007

- Joint B.S./M.A. program for advanced undergraduates.

Dean's Honor List, UCLA — Fall 2004–Spring 2007

- Awarded six quarters for a GPA above 3.75 while taking at least twelve units.

Conference Proceedings

C1. M. J. Bannister and D. Eppstein. Hardness of approximate compaction for nonplanar orthogonal graph drawings. *Proceedings of the 19th international symposium on Graph Drawing (GD'11)*, pp. 367–378. Springer-Verlag, 2011.

C2. M. J. Bannister and D. Eppstein. Randomized speedup of the Bellman–Ford algorithm. *Proceedings of the Meeting on Analytic Algorithmics & Combinatorics (ANALCO'12)*, pp. 41–47. Society for Industrial and Applied Mathematics, 2012.

C3. M. J. Bannister, D. Eppstein, M. T. Goodrich, and L. Trott. Force-directed graph drawing using social gravity and scaling. *Proceedings of the 20th international symposium on Graph Drawing (GD'12)*, pp. 414–425. Springer-Verlag, 2012.

C4. M. J. Bannister, C. DuBois, D. Eppstein, and P. Smyth. Windows into relational events: data structures for contiguous subsequences of edges. *Proceedings of the Twenty-Fourth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'13)*, pp. 856–864. Society for Industrial and Applied Mathematics, 2013.

C5. M. J. Bannister, S. Cabello, and D. Eppstein. Parameterized Complexity of 1-Planarity. *Proceedings of the Thirteenth Algorithms and Data Structures Symposium (WADS'13)*, pp. 97–108. Springer-Verlag, 2013.

C6. M. J. Bannister, D. Eppstein, and J. A. Simons. Fixed parameter tractability of crossing minimization of almost-trees. *Proceedings of the 21th international symposium on Graph Drawing (GD'13)*. Springer-Verlag, 2013.

C7. M. J. Bannister, Z. Cheng, W. E. Devanny, and D. Eppstein. Superpatterns and Universal Point Sets. *Proceedings of the 21th international symposium on Graph Drawing (GD'13)*. Springer-Verlag, 2013.

C8. M. J. Bannister, W. E. Devanny, and D. Eppstein. Small Superpatterns for Dominance Drawing. *Proceedings of the Meeting on Analytic Algorithmics & Combinatorics (ANALCO'14)*. Society for Industrial and Applied Mathematics, 2014.

C9. M. J. Bannister, W. E. Devanny, M. T. Goodrich, J. A. Simons, and L. Trott. Windows into Geometric Events: Data Structures for Time-Windowed Querying of Temporal Point Sets . *Proceedings of the 24th Canadian Conference on Computational Geometry (CCCG'14)*, 2014.

C10. M. J. Bannister and D. Eppstein. Crossing Minimization for 1-page and 2-page Drawings of Graphs with Bounded Treewidth. *Proceedings of the 22nd international symposium on Graph Drawing (GD'14)*. Springer-Verlag, 2014.

C11. M. J. Bannister, W. E. Devanny, D. Eppstein, and M. T. Goodrich. The Galois Complexity of Graph Drawing. *Proceedings of the 22nd international symposium on Graph Drawing (GD'14)*. Springer-Verlag, 2014.

Refereed Journal Articles

J1. M. J. Bannister, D. Eppstein, and J. A. Simons. Inapproximability of orthogonal compaction. *Journal of Graph Algortihms and Applications* 16(3):651–673, 2012.

J2. M. J. Bannister, Z. Cheng, W. E. Devanny, and D. Eppstein. Superpatterns and universal point sets. *Journal of Graph Algorithms and Applications* 18(2):177–209, 2014.

Miscellaneous

M1. M. J. Bannister, C. DuBois, D. Eppstein, and P. Smyth. Windows into Relational Events. NIPS 2012 Workshop: Algorithmic and Statistical Approaches for Large Social Networks (poster), 2012.

M2. M. J. Bannister, M. T. Goodrich, and P. Sampson. Force-Directed 3D Arc Diagrams. 22nd international symposium on Graph Drawing (poster), 2014.