

CURRICULUM VITAE

Darren Jeffrey Strash

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HIGHLIGHTS

Due to the length of my CV, I briefly list here my most significant accomplishments from just the last two years: I served on the program committees of the two top algorithm engineering conferences (ALENEX 2016, ESA 2018), and published ten papers in peer-reviewed venues, including top-tier conferences sponsored by the ACM, SIAM, and IEEE. My paper at GECCO 2017 (an ACM-sponsored conference on evolutionary algorithms) was nominated for the best paper award, and my paper at the IEEE-sponsored IPDPS 2018 won the best paper award.

I am constantly seeking motivated students who are enthusiastic about research. If you want to do research or work on a thesis, please contact me!

EDUCATION

Ph.D.	2011	<i>Algorithms for Sparse Geometric Graphs and Social Networks</i> Computer Science, University of California, Irvine (with David Eppstein and Mike Goodrich, advisors), GPA: 3.99
M.S.	2008	Computer Science, University of California, Irvine
B.S.	2006	Computer Science, California State Polytechnic University, Pomona Honors: Summa Cum Laude, Valedictorian of the College of Science

RESEARCH

I develop efficient algorithms to solve real-world scalability problems in network analysis with applications to computational sociology, biology, and chemistry (to name a few). Through interdisciplinary collaboration and the algorithm engineering paradigm, I explore algorithm efficiency in both theory and practice, with the ultimate goal of designing algorithms that are *practical*. Some items from my active research agenda include subgraph enumeration, network visualization, and exact and heuristic algorithms for combinatorial optimization problems.

POST-GRAD PROFESSIONAL EXPERIENCE

Assistant Professor , <i>Hamilton College</i>	Jul. 2018—Present
5 courses/year, including: Data Structures; Discrete Mathematics	
Visiting Assistant Professor , <i>Colgate University</i>	Jul. 2016—Jun. 2018
5 courses/year, including: Intro. to Computing; Algorithms; Advanced Algorithms	
Postdoctoral Researcher , <i>Karlsruhe Institute of Technology</i>	Oct. 2014—Aug. 2016
<i>Large-scale combinatorial optimization algorithms</i> , with Peter Sanders	
Software Engineer (R&D) , <i>Intel Corporation</i>	Jul. 2011—Sep. 2014
<i>Algorithms for massively parallel lithographic simulations</i> , Lithography Algorithms Group	

HONORS AND AWARDS

Fellowships/Scholarships

- *Graduate Assistance in Areas of National Need (GAANN) Fellowship*, 2008-2009

Research Awards

- *Best Paper Award*, IEEE International Parallel & Distributed Processing Symposium (IPDPS 2018)
- *Best Paper Nominee*, The Genetic and Evolutionary Computation Conference (GECCO 2017)
- *Best Paper*, International Symposium on Experimental Algorithms (SEA 2011)

Selective Research Programs

- *NASA Partnership Awards for the Integration of Research into Undergraduate Education (PAIR) Project*, 2005–2006
- *NSF Research Experience for Undergraduates (REU)*, Harvey Mudd College, 2005

Academic Awards

- *Julian A. McPhee Scholar* (valedictorian), Cal Poly Pomona, College of Science, 2006

PUBLICATIONS

All authors are listed in alphabetical order, except those marked with *.

Book Chapters

- B-1 C. Schulz and D. Strash, “Graph Partitioning: Formulations and Applications to Big Data,” *Encyclopedia on Big Data Technologies*, 2018, Springer, [doi:10.1007/978-3-319-63962-8_312-2](https://doi.org/10.1007/978-3-319-63962-8_312-2)

Papers in Refereed Journals

- J-9 M. Henzinger, A. Noe, C. Schulz, and D. Strash, “Practical Minimum Cut Algorithms,” *ACM Journal of Experimental Algorithms* (to appear). Special issue for ALENEX 2018.
- J-8 N. Sitchinava and D. Strash, “Reconstructing Generalized Staircase Polygons with Uniform Step Length,” *Journal of Graph Algorithms and Applications*, **22**(3), 2018, pp. 431–459, [doi:10.7155/jgaa.00469](https://doi.org/10.7155/jgaa.00469). Special issue for GD 2017.
- J-7 M. Korman, M. Löffler, R. I. Silveira, and D. Strash, “On the Complexity of Barrier Resilience for Fat Regions,” *Computational Geometry Theory & Algorithms*, **72**, 2018, pp. 34–51 [doi:10.1016/j.comgeo.2018.02.006](https://doi.org/10.1016/j.comgeo.2018.02.006).
- J-6 P. San Segundo, J. Artieda, and D. Strash*, “Efficiently Enumerating all Maximal Cliques with Bit-Parallelism,” *Computer & Operations Research*, **92**, 2017, pp. 37–46, [doi:10.1016/j.cor.2017.12.006](https://doi.org/10.1016/j.cor.2017.12.006).
- J-5 S. Lamm, P. Sanders, C. Schulz, D. Strash, R. F. Werneck, “Finding Near-Optimal Independent Sets at Scale,” *Journal of Heuristics*, **23**(4), 2017, pp. 207–229, [doi:10.1007/s10732-017-9337-x](https://doi.org/10.1007/s10732-017-9337-x).

- J-4 D. Eppstein, M. Löffler, and D. Strash, “Listing All Maximal Cliques in Large Sparse Real-World Graphs in Near-Optimal Time,” *ACM Journal of Experimental Algorithmics*, **18**(3): 3.1, 2013, [doi:10.1145/2543629](https://doi.org/10.1145/2543629). Special issue for SEA 2011.
- J-3 D. Eppstein, M.T. Goodrich, M. Löffler, D. Strash, and L. Trott, “Category-Based Routing in Social Networks: Membership Dimension and the Small-World Phenomenon,” *Theoretical Computer Science*, **514**, 2013, pp. 96–104, [doi:10.1016/j.tcs.2013.04.027](https://doi.org/10.1016/j.tcs.2013.04.027). Special issue for GA 2011.
- J-2 D. Eppstein, M.T. Goodrich, D. Strash, and L. Trott, “Extended Dynamic Subgraph Statistics using h -index Parameterized Data Structures,” *Theoretical Computer Science*, **447**, 2012, pp. 44–52, [doi:10.1016/j.tcs.2011.11.034](https://doi.org/10.1016/j.tcs.2011.11.034). Special issue for COCOA 2010.
- J-1 D. Eppstein, M.T. Goodrich, and D. Strash, “Linear-Time Algorithms for Geometric Graphs with Sublinearly Many Edge Crossings,” *SIAM Journal on Computing*, **39**(8), 2010, pp. 3814–3829, [doi:10.1137/090759112](https://doi.org/10.1137/090759112).

Papers Appearing in Refereed Proceedings

- C-22 L. Kleist, B. Klemz, A. Lubiw, L. Schlipf, F. Staals, and D. Strash, “Convexity-Increasing Morphs of Planar Graphs,” *Proc. 44th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2018)*, LNCS, vol. 11159, 2018, pp. 318–330, [arXiv:1802.06579](https://arxiv.org/abs/1802.06579), [doi:10.1007/978-3-030-00256-5_26](https://doi.org/10.1007/978-3-030-00256-5_26)
- C-21 H.-K. Ahn, E. Oh, L. Schlipf, F. Stehn, and D. Strash, “On Romeo and Juliet Problems: How to Minimize Distance-to-Sight,” *Proc. 16th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2018)*, LIPIcs, vol. 101, 2018, pp. 6:1–6:13, [doi:10.4230/LIPIcs.SWAT.2018.6](https://doi.org/10.4230/LIPIcs.SWAT.2018.6).
- C-20 D. Funke, S. Lamm, P. Sanders, C. Schulz, D. Strash, and M. von Looz, “Communication-Free Massively Distributed Graph Generation,” *Proc. 32nd IEEE International Parallel and Distributed Processing Symposium (IPDPS 2018)*, **best paper award**, 2018, pp. 336–347, [doi:10.1109/IPDPS.2018.00043](https://doi.org/10.1109/IPDPS.2018.00043), [arXiv:1710.07565](https://arxiv.org/abs/1710.07565).
- C-19 M. Henzinger, A. Noe, C. Schulz, and D. Strash, “Practical Minimum Cut Algorithms,” *Proc. 20th Meeting on Algorithm Engineering and Experiments (ALENEX 2018)*, 2018, pp. 48–61. [doi:10.1137/1.9781611975055.5](https://doi.org/10.1137/1.9781611975055.5), [arXiv:1708.06127](https://arxiv.org/abs/1708.06127).
- C-18 D. Hespe, C. Schulz, and D. Strash, “Scalable Kernelization for Maximum Independent Sets,” *Proc. 20th Meeting on Algorithm Engineering and Experiments (ALENEX 2018)*, 2018, pp. 223–237. [doi:10.1137/1.9781611975055.19](https://doi.org/10.1137/1.9781611975055.19), [arXiv:1708.06151](https://arxiv.org/abs/1708.06151).
- C-17 N. Sitchinava and D. Strash, “Reconstructing Generalized Staircase Polygons with Uniform Step Length,” *Proc. 25th International Symposium on Graph Drawing and Network Visualization (GD 2017)*, LNCS, vol. 10692, 2018, pp. 88–101, [doi:10.1007/978-3-319-73915-1_8](https://doi.org/10.1007/978-3-319-73915-1_8), [arXiv:1708.09842](https://arxiv.org/abs/1708.09842).
- C-16 P. Sanders, C. Schulz, D. Strash, and R. Williger, “Distributed Evolutionary k -way Node Separators” *Proc. Conference on Genetic and Evolutionary Computing and Combinatorial Optimization (GECCO 2017)*, pp. 345–352, ACM, 2017, [doi:10.1145/3071178.3071204](https://doi.org/10.1145/3071178.3071204), [arXiv:1702.01692](https://arxiv.org/abs/1702.01692), **best paper nomination**.

- C-15 R. Kimmig, H. Meyerhenke, and D. Strash, “Shared Memory Parallel Subgraph Enumeration,” *Proc. 31st IEEE International Parallel and Distributed Processing Symposium Workshops (IEEE IPDPSW 2017): 7th IEEE Workshop on Parallel / Distributed Computing and Optimization (PDCO 2017)*, pp. 519–529, IEEE, 2017, [doi:10.1109/IPDPSW.2017.133](https://doi.org/10.1109/IPDPSW.2017.133), [arXiv:1705.09358](https://arxiv.org/abs/1705.09358).
- C-14 L. Barth, B. Niedermann, M. Nöllenburg, and D. Strash, “Temporal Map Labeling: A New Unified Framework with Experiments,” *Proc. 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2016)*, pp. 23:1–23:10, ACM, 2016, [doi:10.1145/2996913.2996957](https://doi.org/10.1145/2996913.2996957), [arXiv:1609.06327](https://arxiv.org/abs/1609.06327).
- C-13 D. Strash, “On the Power of Simple Reductions for the Maximum Independent Set Problem,” *Proc. 22nd International Computing and Combinatorics Conference (COCOON 2016)*, LNCS, vol. 9797, 2016, pp. 345–356, [doi:10.1007/978-3-319-42634-1_28](https://doi.org/10.1007/978-3-319-42634-1_28), [arXiv:1608.00724](https://arxiv.org/abs/1608.00724).
- C-12 J. Dahlum, S. Lamm, P. Sanders, C. Schulz, D. Strash, and R. F. Werneck, “Accelerating Local Search for the Maximum Independent Set Problem,” *Proc. 15th International Symposium on Experimental Algorithms (SEA 2016)*, LNCS, vol. 9685, 2016, pp. 118–133, [doi:10.1007/978-3-319-38851-9_9](https://doi.org/10.1007/978-3-319-38851-9_9), [arXiv:1602.01659](https://arxiv.org/abs/1602.01659).
- C-11 S. Lamm, P. Sanders, C. Schulz, D. Strash, and R. F. Werneck, “Finding Near-Optimal Independent Sets at Scale,” *Proc. 18th Meeting on Algorithm Engineering and Experiments (ALENEX 2016)*, 2016, pp. 138–150, [doi:10.1137/1.9781611974317.12](https://doi.org/10.1137/1.9781611974317.12), [arXiv:1509.00764](https://arxiv.org/abs/1509.00764).
- C-10 I. Kostitsyna, M. Nöllenburg, V. Polishchuk, A. Schulz, and D. Strash, “On Minimizing Crossings in Storyline Visualizations,” *Proc. 23rd International Symposium on Graph Drawing and Network Visualization (GD 2015)*, LNCS, vol. 9411, 2015, pp. 192–198, [doi:10.1007/978-3-319-27261-0_16](https://doi.org/10.1007/978-3-319-27261-0_16), [arXiv:1509.00442](https://arxiv.org/abs/1509.00442).
- C-9 M. Korman, M. Löffler, R. I. Silveira, and D. Strash, “On the Complexity of Barrier Resilience for Fat Regions,” *Proc. 9th International Symposium on Algorithms and Experiments for Sensor Systems, Wireless Networks and Distributed Robotics (ALGOSENSORS 2013)*, LNCS, vol. 8243, 2014, pp. 201–216, [doi:10.1007/978-3-642-45346-5_15](https://doi.org/10.1007/978-3-642-45346-5_15), [arXiv:1302.4707](https://arxiv.org/abs/1302.4707).
- C-8 M. Löffler, J. A. Simons, and D. Strash, “Dynamic Planar Point Location with Sub-logarithmic Local Updates,” *Proc. 13th International Symposium on Algorithms and Data Structures (WADS 2013)*, LNCS, vol. 8037, 2013, pp. 499–511, [doi:10.1007/978-3-642-40104-6_43](https://doi.org/10.1007/978-3-642-40104-6_43), [arXiv:1204.4714](https://arxiv.org/abs/1204.4714).
- C-7 D. Eppstein, M.T. Goodrich, M. Löffler, D. Strash, and L. Trott, “Category-Based Routing in Social Networks: Membership Dimension and the Small-World Phenomenon,” *Proc. 3rd International Conference on Computational Aspects of Social Networks (CASoN 2011)*, 2011, pp. 102–107, [doi:10.1109/CASON.2011.6085926](https://doi.org/10.1109/CASON.2011.6085926), [arXiv:1108.4675](https://arxiv.org/abs/1108.4675).
- C-6 D. Eppstein and D. Strash, “Listing All Maximal Cliques in Large Sparse Real-World Graphs,” *Proc. 10th International Symposium on Experimental Algorithms (SEA 2011)*, LNCS, vol. 6630, 2011, pp. 364–375, [doi:10.1007/978-3-642-20662-7_31](https://doi.org/10.1007/978-3-642-20662-7_31), [arXiv:1103.0318](https://arxiv.org/abs/1103.0318), **best paper**.

- C-5 D. Eppstein, M. Löffler, and D. Strash, “Listing All Maximal Cliques in Sparse Graphs in Near-Optimal Time,” *Proc. 21st International Symposium on Algorithms and Computation* (ISAAC 2010), LNCS, vol. 6506, 2010, pp. 403–414, [doi:10.1007/978-3-642-17517-6_36](https://doi.org/10.1007/978-3-642-17517-6_36), [arXiv:1006.5440](https://arxiv.org/abs/1006.5440).
- C-4 D. Eppstein, M.T. Goodrich, D. Strash, and L. Trott, “Extended Dynamic Subgraph Statistics using h -index Parameterized Data Structures,” *Proc. 4th International Conference on Combinatorial Optimization and Applications* (COCO 2010), LNCS, vol. 6508, 2010, pp. 128–141, [doi:10.1007/978-3-642-17458-2_12](https://doi.org/10.1007/978-3-642-17458-2_12), [arXiv:1009.0783](https://arxiv.org/abs/1009.0783).
- C-3 M.T. Goodrich and D. Strash, “Priority Range Trees,” *Proc. 21st International Symposium on Algorithms and Computation* (ISAAC 2010), LNCS, vol. 6506, 2010, pp. 97–108, [doi:10.1007/978-3-642-17517-6_11](https://doi.org/10.1007/978-3-642-17517-6_11), [arXiv:1009.3527](https://arxiv.org/abs/1009.3527).
- C-2 M.T. Goodrich and D. Strash, “Succinct Greedy Geometric Routing in the Euclidean Plane,” *Proc. 20th International Symposium on Algorithms and Computation* (ISAAC 2009), LNCS, vol. 5878, 2009, pp. 781–791, [doi:10.1007/978-3-642-10631-6_79](https://doi.org/10.1007/978-3-642-10631-6_79), [arXiv:0812.3893](https://arxiv.org/abs/0812.3893).
- C-1 D. Eppstein, M.T. Goodrich, and D. Strash, “Linear-Time Algorithms for Geometric Graphs with Sublinearly Many Crossings,” *Proc. 20th ACM-SIAM Symposium on Discrete Algorithms* (SODA 2009), 2009, pp. 150–159, [doi:10.1137/1.9781611973068.18](https://doi.org/10.1137/1.9781611973068.18), [arXiv:0812.0893](https://arxiv.org/abs/0812.0893).

Papers in Workshops with Informal Proceedings

- W-6 H.-K. Ahn, E. Oh, L. Schlipf, F. Stehn, and D. Strash, “Quickest Pair-Visibility Problems: How to Minimize Distance-to-Sight,” *Proc. 34th European Workshop on Computational Geometry* (EuroCG 2018), Berlin, Germany, March 2018.
- W-5 L. Kleist, B. Klemz, A. Lubiw, L. Schlipf, F. Staals, and D. Strash, “Convexity-Increasing Morphs of Planar Graphs,” *Proc. 34th European Workshop on Computational Geometry* (EuroCG 2018), Berlin, Germany, March 2018.
- W-4 N. Sitchinava and D. Strash, “Reconstructing a Unit-Length Orthogonally Convex Polygon from its Visibility Graph,” *Proc. 32nd European Workshop on Computational Geometry* (EuroCG 2016), Lugano, Switzerland, March 2016.
- W-3 D. Eppstein, M.T. Goodrich, M. Löffler, D. Strash, and L. Trott, “Category-Based Routing in Social Networks: Membership Dimension and the Small-World Phenomenon.” *Proc. Workshop on Graph Algorithms and Applications* (GA 2011), Zürich, Switzerland, July 2011.
- W-2 L. Effinger-Dean, C. Erickson, M. O’Neill, and D. Strash, “Extending Garbage Collection to Complex Data Structures,” *Proc. 3rd Workshop on Semantics, Program Analysis and Computing Environments for Memory Management* (SPACE 2006), pp. 91–97.
- W-1 L. Effinger-Dean, C. Erickson, M. O’Neill, and D. Strash, “Garbage Collection for Trailer Arrays,” *Proc. 3rd Workshop on Semantics, Program Analysis and Computing Environments for Memory Management* (SPACE 2006), pp. 83–90.

Manuscripts in Preparation and Under Submission

- M-6 S. Lamm, C. Schulz, D. Strash, and R. Williger, “Exactly Solving the Maximum Weight Independent Set Problem on Large Real-World Graphs” (submitted to ALENEX 2019).
- M-5 S. Schlag, C. Schulz, D. Seemaier, and D. Strash, “Scalable Edge Partitioning,” (submitted to ALENEX 2019), [arXiv:1808.06411](https://arxiv.org/abs/1808.06411).
- M-4 I. Rutter, P. Stumpf, D. Strash, and M. Vollmer “Simultaneous Representation of Proper Interval Graphs,” (submitted to SODA 2019).
- M-3 D. Funke, S. Lamm, P. Sanders, C. Schulz, D. Strash, and M. von Looz, “Communication-Free Massively Distributed Graph Generation,” (invited to JPDC special issue).
- M-2 H.-K. Ahn, E. Oh, L. Schlipf, F. Stehn, and D. Strash, “On Romeo and Juliet Problems: How to Minimize Distance-to-Sight,” (invited to CGTA special issue).
- M-1 L. Kleist, B. Klemz, A. Lubiw, L. Schlipf, F. Staals, and D. Strash, “Convexity-Increasing Morphs of Planar Graphs,” (invited to CGTA special issue).

TALKS GIVEN

Invited Talks

- *The Case for Algorithm Engineering: The Maximum-Weight Independent Set Problem*, Hamilton College, **Sigma Xi Colloquium**, Clinton, NY, September 28, 2018
- *KAMI is NP-Complete*, Hamilton College, **Computer Science Colloquium**, Clinton, NY, March 1, 2018
- *Computing Near-Optimal Independent Sets in Huge Complex Networks*, Tohoku University, Sendai, Japan, July 21, 2016

Conference/Workshop Talks

- *Rom*, SWAT 2018
- *Reconstructing Generalized Staircase Polygons with Uniform Step Length*, GD 2017
- *On the Power of Simple Reductions for the Maximum Independent Set Problem*, COCOON 2016
- *Reconstructing a Unit-Length Orthogonally Convex Polygon from its Visibility Graph*, EuroCG 2016
- *Finding Near-Optimal Independent Sets at Scale*, ALENEX 2016
- *On Minimizing Crossings in Storyline Visualizations*, GD 2015
- *Listing All Maximal Cliques in Large Sparse Real-World Graphs*, SEA 2011
- *Listing All Maximal Cliques in Sparse Graphs in Near-Optimal Time*, ISAAC 2010
- *Priority Range Trees*, ISAAC 2010
- *Succinct Greedy Geometric Routing in the Euclidean Plane*, ISAAC 2009

OPEN SOURCE SOFTWARE

- **KaGen**: Communication-free Massively Distributed Graph Generators
<https://github.com/sebalamm/KaGen>
- **TemporalLabeling**: Computing non-overlapping labels efficiently for GPS navigation:
<http://i11www.iti.kit.edu/temporallabeling/>
- **OpenPLS**: An open implementation of PLS algorithms for maximum clique and related problems: <https://github.com/darrenstrash/open-pls>
- **KernelMIS**: Computing a maximum independent set exactly through kernelization:
<https://github.com/darrenstrash/kernel-mis>
- **OpenMCS**: An open implementation of the MC* family of maximum clique algorithms:
<https://github.com/darrenstrash/open-mcs>
- **KaMIS**: Karlsruhe Maximum Independent Sets:
<http://algo2.iti.kit.edu/kamis/>
- **QuickCliques**: Efficiently list all maximal cliques of a graph:
<https://github.com/darrenstrash/quick-cliques>

INVITATION-ONLY RESEARCH WORKSHOPS ATTENDED

2019: NII SHONAN MEETING (No. 144):

Parameterized Graph Algorithms & Data Reduction: Theory Meets Practice

2017: 1ST HAWAIIAN WORKSHOP ON PARALLEL ALGORITHMS AND DATA STRUCTURES

2017: DAGSTUHL SEMINAR (No. 17072):

Applications of Topology to the Analysis of 1-Dimensional Objects

2016: 19TH KOREAN WORKSHOP ON COMPUTATIONAL GEOMETRY (KWCG)

2015: 2ND DYNAMIC ALGORITHMS FOR NETWORKS IN CHANGING ENVIRONMENTS (DANCE)

RESEARCH VISITS

2017: *Hamilton College*; Clinton, NY, USA. Host: David Perkins

2016: *Tohoku University*; Sendai, Japan. Host: Matias Korman

2014: *Utrecht University*; Utrecht, the Netherlands. Host: Maarten Löffler

COURSES TAUGHT

Hamilton College

Fall	2018	<i>Data Structures</i>	1 section
Fall	2018	<i>Discrete Mathematics</i>	1 section

Colgate University

Spring	2018	<i>Analysis of Algorithms</i>	2 sections/2 labs
Fall	2017	<i>Advanced Algorithms: Algorithms for Big Data</i>	1 section
Fall	2017	<i>Analysis of Algorithms</i>	1 section/1 lab
Spring	2017	<i>Analysis of Algorithms</i>	2 sections/2 labs
Fall	2016	<i>Introduction to Computing I</i>	2 sections/1 lab

Karlsruhe Institute of Technology

- Spring 2016 *Graph Algorithms* (seminar)
- Fall 2015 *Computational Geometry*, Master's level
- Spring 2015 *Algorithms for Large Social Networks in Theory and Practice* (seminar)

University of California, Irvine

- 2008–2011 Invited Lecturer for: *Graph Algorithms*, *Computational Geometry*, *Practical Computer Security*, and *Fundamental Data Structures and Algorithms*
- 2007–2008 Teaching Assistant for: *Data Structures and Algorithms* (3), *Fundamental Data Structures and Algorithms*

NON-THESIS STUDENT PROJECTS SUPERVISED**Hamilton College**

- Summer 2018: *On Reducing Redundancy in Branch-and-Reduce Algorithms*
▶ with Amr Abdelhady '21 and Amin Babar '20

Previous Projects (Colgate University)

- Spring 2018: *Enumerating maximal cliques with graph partitioning*
▶ with Nianyi Wang '18
- Spring 2018: *Edge partitioning with KaHIP*
▶ with Boris Shou '18
- Spring 2018: *On the difference between critical set and LP reductions*
▶ with Daniel Gathogo '20
- Fall 2017: *Accelerating branch-and-reduce search for minimum vertex cover*
▶ with Michael Rapaport '18
- Summer 2017: *Fast maximum clique computation using graph partitioning*
▶ with Rohan Chaudhari '19
- Summer 2017: *Auto-generating pretty tables of experimental data*
▶ with Daniel Gathogo '20
- Spring 2017: *Solving linear programming relaxations with the Hopcroft-Karp algorithm*
▶ with Armando Belardo '18
- Spring 2017: *Real-time visualization of trajectory grouping algorithms*
▶ with Abeneazer Chafamo '17, Rohan Chaudhari '19, Mark Ma '18, Peter Olson '18, Nianyi Wang '18

THESES SUPERVISED**In Progress**

- 2018: Damir Ferizovic: *On the Effectiveness of Reductions for the Maximum Cut Problem* (Master's)

Completed (Colgate)

- 2017: Haonan (Drew) Zhong '17: *Engineering an Efficient Branch-and-Reduce Algorithm for the Minimum Vertex Cover Problem* (Bachelor's)

Completed (KIT)

- 2017: Sebastian Lamm: *Communication Efficient Algorithms for Generating Massive Networks* (Master's)
- 2017: Demian Hesse: *Scalable Kernelization for the Maximum Independent Set Problem* (Master's)
- 2016: Robert Williger: *Evolutionary k-way Node Separators* (Bachelor's)
- 2016: Marvin Williams: *Evolutionary Graph Coloring* (Bachelor's)
- 2016: Raphael Kimmig: *Parallel Algorithm Engineering for Subgraph Isomorphism Problems* (Diplom: Bachelor's/Master's)
- 2016: Michael Vollmer: *Recognizing Simultaneous Proper Interval Graphs* (Master's)
- 2015: Jan Ebbing: *How to Partition a Graph When You Think Like a Vertex* (Bachelor's)
- 2015: Jakob Dahlum: *Boosting Local Search for Maximum Independent Sets* (Bachelor's)

PROFESSIONAL SERVICE

Hamilton College

- 2018–Present: Department Secretary (Department of Computer Science)

Previous Service (Colgate University)

- Formalized Honors Thesis Guidelines and Publication Procedures
- 2017—2018: Faculty advisor for ACM ICPC programming contest preparation
- 2017—2018: Faculty advisor for *Colgate Coders* club

Program Committees

- **GD 2018:** 26th International Symposium on Graph Drawing and Network Visualization
- **ESA 2018:** 25th Annual European Symposium on Algorithms, Experimental Track
- **SoCG 2017 Multimedia Track:** 33rd International Symposium on Computational Geometry
- **ALENEX 2016:** 18th Workshop on Algorithm Engineering and Experiments

External Reviewing

I frequently review submissions for journals and refereed conferences. These include:

Journal of the ACM (**JACM**), Algorithmica, Theoretical Computer Science (**TCS**), Journal of Experimental Algorithmics (**ACM JEA**), Computational Geometry: Theory and Applications (**CGTA**), ACM Transactions on Parallel Computing (**ACM TOPC**), INFORMS Journal on Computing (**IJOC**), Journal of Graph Algorithms and Applications (**JGAA**), IEEE Transactions on Parallel and Distributed Systems (**IEEE TPDS**), Journal of Computational Geometry (**JoCG**), The Electronic Journal of Combinatorics (**E-JC**), Journal of Computational Science, ACM-SIAM Symposium on Discrete Algorithms (**SODA**), Canadian Conference on Computational Geometry (**CCCG**), International Symposium on Experimental Algorithms (**SEA**), European Symposium on Algorithms (**ESA**), Symposium on Theoretical Aspects of Computer Science (**STACS**), International Symposium on Graph Drawing (**GD**), International Colloquium on Automata, Languages

and Programming (**ICALP**), and ACM International Conference on Computing Frontiers (**CF**), Computational Geometry: Young Researchers Forum (**CG:YRF**), Scandinavian Symposium and Workshops on Algorithm Theory (**SWAT**), International Joint Conference on Artificial Intelligence (**IJCAI**), International Symposium on Algorithms and Computation (ISAAC), Algorithms, Applied Network Science, IEEE Transactions on Knowledge and Data Engineering (**IEEE TKDE**).

REFERENCES

Teaching References

Vijay Ramachandran, Associate Professor and Chair
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