Charles (Charlie) Carlson

Curriculum Vitae

Research Interests

Interested in research related to topics such as Graph Theory, Combinatorial Optimization, Convex Optimization, Spectral Graph Theory, Algorithms, Complexity and Probabilistic Methods.

Education

2017	**Doctor of Philosophy**, *University of Colorado Boulder*, Boulder, CO, Concentration: *Theoretical Computer Science*.
2015–2017	**Masters of Science**, *University of Illinois Urbana-Champaign*, Urbana-Champaign, IL, Concentration: *Theoretical Computer Science*.
2010–2014	**Bachelor of Science**, *University of Alaska Fairbanks*, Fairbanks, AK, Dual Degrees in Computer Science and Mathematics.

Publications

○ **Lower Bounds for Max-Cut via Semidefinite Programming.** With Alexandra Kolla, Ray Li, Nitya Mani, Benny Sudakov and Luca Trevisan. Submitted 2020.

○ **Spectral Aspects of Symmetric Matrix Signings.** With Karthekeyan Chandrasekaran, Hsien-Chih Chang and Alexandra Kolla. Mathematical Foundations of Computer Science (MFCS) 2019.

○ **Improving the Smoothed Complexity of FLIP for Max Cut Problems.** With Ali Bibak and Karthekeyan Chandrasekaran. ACM-SIAM Symposium on Discrete Algorithms (SODA) 2019.

○ **Optimal Lower Bounds for Sketching Graph Cuts.** With Alexandra Kolla, Nikhil Srivastava and Luca Trevisan. ACM-SIAM Symposium on Discrete Algorithms (SODA) 2019.

Teaching Experience

Fall 2019	**Teaching Assistant for Graduate Algorithm Course**, University of Colorado Boulder, Boulder, CO, CSCI 5454.
Summer 2018	**Instructor for Introductory Algorithm Course**, University of Colorado Boulder, Boulder, CO, CSCI 3104.

Spring 2018	**Teaching Assistant for Introductory Algorithm Course**, University of Illinois Urbana-Champaign, Urbana-Champaign, IL, CS 374.
Spring 2017	**Teaching Assistant for Advanced Algorithm Course**, University of Illinois Urbana-Champaign, Urbana-Champaign, IL, CS 473.
Fall 2016	**Teaching Assistant for Introductory Algorithm Course**, University of Illinois Urbana-Champaign, Urbana-Champaign, IL, CS 374.
2015–2016	**Teaching Assistant for Computer Science Senior Capstone Series**, University of Illinois Urbana-Champaign, Urbana-Champaign, IL, CS 492 & CS 493.

Work Experience

2014–2015	**Software Development Engineer**, Microsoft, Readmond, WA. Helped design and implement features in production code. Filed and investigated bug reports. Reviewed and implemented bug fixes in production code.
2013–2014	**Software Development Engineer in Test Intern**, Microsoft, Redmond, WA. Performed testing of production software. Filed bug reports and assisted in developing bug fixes. Desigend and implemented internal software package for bug tracking.

Programming Languages & Skills

Comfortable with and writing code, software engineering practices and using version-control systems. Specifically familiar with C/C++, Python, SageMath, LaTeX, and Git.