

CALEB C. FAST

1928A Canterbury St., Houston, Texas 77030
(276) 266-5350 • calebfast@gmail.com

Education:

Rice University

Ph.D. in Computational and Applied Mathematics – Expected December 2016

– **Thesis Title:** Combining Combinatorial and Integer Programming Techniques for the Zero-Forcing and p-Median Graph Location Problems. **Advisor:** Dr. Illya V. Hicks

M.A. in Computational and Applied Mathematics – May 2014

– **Thesis Title:** On the Integrality Gap of the Subtour Relaxation of the Traveling Salesman Problem for Certain Fractional 2-matching Costs. **Advisor:** Dr. Illya V. Hicks

Limestone College

B.S. in Mathematics – May 2010, GPA: 4.0/4.0

Experience:

Rice University Research Assistant

Computational and Applied Mathematics

Houston, Texas

August 2011 – Current

Rice University Teaching Assistant

CAAM 470: Introduction to Graph Theory

CAAM 210: Introduction to Engineering Computation

Houston, Texas

January 2015 – May 2015

August 2013 – December 2013

Rice University Center for Written, Oral, and Visual Communication

Communication Consultant

Houston, Texas

August 2013 – May 2014

LeTourneau University

Research Assistant

Longview, Texas

May 2008 – June 2008

Awards:

2015/2016 Lodieska Stockbridge Vaughn Fellowship

2013/2014 ExxonMobil Graduate Fellowship

2008 State Champion: Mathematical Association of America Texas Section Calculus Bowl

2009 State Champion: Mathematical Association of America Texas Section Calculus Bowl

Publications:

C. Fast and I.V. Hicks, “**The Effect of Vertex Degrees on the Zero-Forcing Number and Iteration Index of a Graph,**” Working Paper, June 2016.

C. Fast and I.V. Hicks, “**A branch decomposition algorithm for the p-median problem,**” Under Review, November 2015.

R. Davila, C. Fast, M. Hennning, and F. Kenter, “**Lower bounds on the distance domination number of a graph,**” To appear in Contributions to Discrete Mathematics, July 2015.

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Selected Technical Presentations:

“A branch decomposition algorithm for better p-median solutions,” INFORMS Annual Meeting, November 2015

“A branch decomposition algorithm for the p-median problem,” INFORMS Annual Meeting, November 2014

“On the integrality gap of the Traveling Salesman Problem with fractional 2-matching costs,” INFORMS Optimization Society Conference, March 2014

“The 4/3 conjecture for fractional 2-matching instances of the Traveling Salesman Problem,” INFORMS Annual Meeting, October 2013

“On the 4/3 conjecture for the symmetric TSP,” SIAM Annual Meeting, July 2013

Poster Presentations:

“A branch-decomposition heuristic for the p-median problem,” 2014 Mixed Integer Programming Workshop, July 2014

“Approximating traveling salesman and p-median solutions using linear relaxations,” 2014 Oil & Gas High Performance Computing Workshop, March 2014

“An approach to the 4/3 conjecture for the linear relaxation of the Traveling Salesman Problem,” 2013 Mixed Integer Programming Workshop, July 2013

Service Activities:

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| Rice University Writing Coach | Jan. 2014 – May 2014 |
| Rice University SIAM Student Chapter Grill Master | Aug. 2012 – Aug. 2013 |
| LeTourneau University Mathematics Club Secretary/Treasurer | Jan. 2008 – May 2008 |

Professional Affiliations:

Institute for Operations Research and the Management Sciences (INFORMS)

Professional Certifications:

Society of Actuaries

Exam P (Probability),
Exam FM (Financial Mathematics)
Exam MLC (Life Contingencies)

Programming/Software Skills:

C, C++: 5 years experience developing mathematical optimization algorithms using both procedural and object-oriented paradigms

Matlab: 5 years experience developing mathematical optimization algorithms and solvers

Other: Python, Gurobi, AMPL, Gecode, Subversion, Graphviz, Bash