Robert Edman *Curriculum Vitae*

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Research Interests

My research interests are in mathematical problems with a computational spin. I am particularly interested in how understanding the fundamental mathematics of a problem can lead to improved algorithms. Examples include combinatorial optimization, convex geometry, Gröbner bases, Schreier–Sims, and any NP-hard problem which is becomes computable in for specific structures.

Education

2015 Ph.D. – University of Minnesota (Expected graduation date: May 2015)

Advisor: Victor Reiner
Thesis: *Diameter and Coherence of Monotone Path Graphs.*

2008 M.S. – University of Minnesota (Awarded, 2014)

Advisor:*Ezra Miller (now at Duke University)*
Thesis: $\mathcal{A}$ *hypergeometric series*

2003 B.S. – Mathematics Michigan Technological University

Magna Cum Laude

2003 B.S. – Computer Science Michigan Technological University

Cum Laude

Employment History

2009 - Present Adventium Labs, 111 3rd Ave S, Minneapolis, MN 55401
Research Graduate Intern

2011 - Present University of Minnesota (MathCEP), Minneapolis, MN
Workshop Leader/Instructor
School of Mathematics Center for Educational Programs. I work primarlly in an accelerated program for talented high school students taking honors classes at the University of Minnesota.

2004 - 2011 University of Minnesota (Department of Mathematics), Minneapolis, MN
Graduate Teaching Assistant

Programming Languages

Significant Experience
Python - Scientific Computing using pylab, scipi, graphviz; interface with other languages, rapid prototyping and proof of co
Java - Application development in eclipse, including eclipse plugin development
Mathematical Software - Mathematica, Matlab/Octave, Sage, Gap, Macaulay.
Constraint Reasoning Software - SMT (SMT2.0, Yices, z3), CSP (MiniZinc, JaCoP).
C/C++ - STL, OpenMP, MPI, GDB.

Awards and Honors

2014 Distinguished Performer – Award for work on DARPA VET planning program.

2011 Distinguished Performer – Award for work on Navy MiCart scheduling program.

2004 Math in Moscow Scholarship – NSF/AMS Scholarship to attend Math in Moscow Program

2003 Math in Moscow Scholarship – (same as above).

2002 MASS program – Scholarship for REU and advanced undergraduate classes.

2002 MTU National Scholars Program – Merit-based scholarship awarded to non-Michigan residents.

Selected Departmental/Institutional Talks

2014 Inequalities on a Plane, MathCEP Teacher Professional Development)

2012 Diameter of Hyperplane Arrangements, Adventium Labs

2009 Tropical Discriminants, Duke University

Teaching Experience

University of Minnesota

Calculus 1 (College of Liberal Arts) – Primary Instructor

Honors Multivariable Calculus (MathCEP/Honors College) – Workshop Instructor

Honors Differential Equations (MathCEP/Honors College) – Workshop Instructor

Multivariable Calculus (College of Science and Engineering) – Teaching Assistant

Calculus 2 (College of Liberal Arts) – Teaching Assistant

Calculus 1 (College of Liberal Arts) – Teaching Assistant

Precalc 2 (College of Liberal Arts) – Teaching Assistant

College Algebra (College of Liberal Arts) – Teaching Assistant

Augsburg University

Practical Applications of Mathematics – Primary Instructor

Duke University

Multivariable calculus for Economics and Finance students – Teaching Assistant