benkraft@mit.edu **Benjamin J. Kraft** www.benkraft.org

Education

Massachusetts Institute of Technology: Pursuing S.B. in mathematics, GPA 5.0/5 *2011-2015*
- Relevant coursework includes Algebra, Algebraic Topology, Algebraic Number Theory, Complex Analysis, Geometric Folding Algorithms, Quantum Mechanics, Quantum Field Theory, Computational Classical Mechanics, Network and Computer Security, and Elections and Voting Technology.

Lehigh University: Took math courses while in high school *2008-2011*

Liberty High School: Graduated 1st in class of 621 *2007-2011*

Work Experience

Khan Academy: Software development intern *2014*
- Worked on site infrastructure, performance, and dev tools

Extracurricular Activities & Leadership

MIT Educational Studies Program: Organized programs for middle and high school students *2011-present*
- Chair of ESP for 2013; led the organization, advised program directors and make sure important tasks happened, organized discussions about policy, and worked with MIT offices
- Directed Splash 2012, a weekend program for 3000 middle and high school students; organized teachers, students, and volunteers, made policy and logistical decisions, and led the team of around 40 administrators for the biggest Splash to date
- Directed Spark 2014, a weekend program for 1000 middle school students
- Taught classes on math, physics, programming, and origami for several programs

Association of Student Activities: President of the MIT Association of Student Activities *2014*
- Worked with students and MIT administrators to oversee and advocate for MIT's 500 student groups.

Faculty Policy Committee: Student representative to MIT Faculty Policy Committee *2014-2015*

Committee on Curricula: Student representative to MIT Committee on Curricula *2012-2014*

Alpha Phi Omega: Brother of Alpha Phi Omega, a national co-ed service fraternity *2011-present*

Mystery Hunt: Member of the Mystery Hunt writing teams for the 2013 and 2015 hunts *2012-present*

MIT Integration Bee: Finalist in 2012, 2013, and 2014

Research

"Determining the Structure of Length-k Steenrod Operations as $A(r)$-Modules", ongoing research in algebraic topology with Prof. Mark Behrens at MIT *2013-2014*
- Presented poster at Joint Math Meetings 2014

"Diameters of Groups Generated by Transposition Trees", paper in combinatorics, researched at the University of Minnesota Duluth Research Experience for Undergraduates *2012*
- Submitted to *Discrete Applied Mathematics*
- Presented in AMS Session "Graph Theory II" at Joint Math Meetings 2013

"Entries of Random Matrices", paper in pure mathematics, mentored by Gregory Minton at the Research Science Institute *2010*
- US Finalist and Honorable Mention in S.-T. Yau High School Mathematics Awards 2010
- Semifinalist in Intel Science Talent Search 2011 and Siemens Competition 2010

"On Conjugacies of the $3x + 1$ Map Induced by Continuous Endomorphisms of the Shift Dynamical System", paper in pure math with Keenan Monks, mentored by Kenneth G. Monks *2009*
- Published in *Discrete Mathematics* 310 (2010)

Computer Skills & Projects

- LaTeX, Python (including Django and Sage), Linux/Bash, HTML/CSS/JavaScript, Scheme, and Haskell
- Major projects include the Educational Studies Program website, a Django application used by ESP programs across the country, and zScore, a small sleep tracking application

Interests & Hobbies

- Piano, origami (especially modular), board games, hiking