Jeremy Kun

Curriculum Vitae

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Education

2011 - 2016	**University of Illinois at Chicago**, Ph.D in Mathematics.
2010	**Budapest Semesters in Mathematics**, in . Graduated with honors.
2007 - 2011	**California Polytechnic State University**, B.S. in Mathematics, Minor in Computer Science. Magna Cum Laude

Work Experience

2017 - Present	**Software Engineer**, *Google, Inc.* Engineer focusing on resource planning and optimization. Worked on large integer linear programs for optimizing resource allocation in Google's datacenter fleet. Applied machine learning to problems therein
2016 - 2017	**Bitcoin Protocol Engineer**, *21, Inc.* Acquired as Earn.com by Coinbase in 2018-04. Built the Django backend for a task marketplace, including surveys, branching task pipelines, and automated reviews. Additional roles building an elasticsearch integration, doing ad hoc data science, maintaining an open-source bitcoin wallet (two1-python), and a mobile developer
2013 - 2014	**Graduate Research Assistant**, *MIT Lincoln Laboratory*. Research on graph representation learning, data mining on large networks. Proved theorems, designed algorithms, ran experiments, and wrote technical research papers
2012	**Ph.D Student Intern**, *Lawrence Livermore National Laboratory*. Data mining research in wind energy and plasma physics
2011 - 2013	**Graduate Teaching Assistant**, *University of Illinois at Chicago*. Taught calculus and introductory computer science
2009	**Software Developer Intern**, *Amazon.com*. Worked on the message-passing framework in a million-line service-oriented C++ architecture which regulated inventory in all of Amazon's warehouses
2008 - 2009	**Junior Developer**, *CreateSpace On-Demand Publishing*. Designed and developed a new accounting gateway infrastructure for a growing tech start-up, including writing thousands of lines of Java and SQL. Completed a technical writing training program
2005 - 2007, 2010	**Camp Counselor**, *Adventure Day Camp*. Child care ages 4-11

Contract Work

2018	**Technical Reviewer**, *Impractical Python*, No Starch Press. Publication date: 2018-08-07

2014 - 2015 **Technical Reviewer**, *Doing Math with Python*, No Starch Press.
Publication date: 2015-05-25

2012 - 2015 **Webmaster**, *QED Math Symposium*, Chicago Public Schools.

Programming

Portfolio **Github Repository**.

Languages **Python, Java, HTML/CSS, Javascript/ES6, C++, Perl, SQL**, Languages I've written production code in.

Publications

2018 **A Programmer's Introduction to Mathematics**, *Jeremy Kun*.

2018 **Treedepth Bounds in Linear Colorings**, *Jeremy Kun, Michael P. O'Brien, Blair D. Sullivan*, 44th International Workshop on Graph-Theoretic Concepts in Computer Science.

2016 **Graphs, New Models, and Complexity**, *Jeremy Kun*, The University of Illinois at Chicago.

2016 **A Confidence-Based Approach for Balancing Fairness and Accuracy**, *Benjamin Fish, Jeremy Kun, Adam Lelkes*, SIAM International Symposium on Data Mining.

2016 **Interception in Distance-Vector Routing Networks**, *David Burstein, Franklin Kenter, Jeremy Kun, Feng Shi*, Journal of Complex Networks.

2015 **On the Computational Complexity of MapReduce**, *Benjamin Fish, Jeremy Kun, Adam Lelkes, Lev Reyzin, Gyorgy Turan*, International Symposium on Distributed Computing.

2015 **Network Installation Under Convex Costs**, *Alexander Gutfraind, Jeremy Kun, Adam Lelkes, Lev Reyzin*, Journal of Complex Networks.

2015 **Fair Boosting: a Case Study**, *Benjamin Fish, Jeremy Kun, Adam Lelkes*, International Conference on Machine Learning Workshop on Fairness, Accountability, and Transparency in Machine Learning.

2015 **Open Problem: Learning Quantum Circuits with Queries**, *Jeremy Kun, Lev Reyzin*, Conference on Learning Theory.

2014 **A Boosting Approach to Learning Graph Representations**, *Rajmonda Caceres, Kevin Carter, Jeremy Kun*, SIAM International Conference on Data Mining Workshop on Mining Networks and Graphs.

2014 **On Coloring Resilient Graphs**, *Jeremy Kun, Lev Reyzin*, Mathematical Foundations of Computer Science.

2013 **Anti-Coordination Games and Stable Graph Colorings**, *Jeremy Kun, Brian Powers, Lev Reyzin*, Syposium on Algorithmic Game Theory.

Talks

2020 **Math and Programming: A More Perfect Union**, *Math for America, Thursday Speaker Series*, Teaching talk.

2019 **Mathematics: The Good Parts**, *Disney Jedi Engineering Training Academy*, Engineering talk.

2019	**Mathematics: The Good Parts**, *Github*, Engineering talk.
2015	**Resilience and new approaches to approximate graph coloring**, *Theory Seminar, North Carolina State University*, Research talk.
2015	**A Gentle Introduction to Learning Theory**, *Graduate Student Colloquium, University of Illinois at Chicago*, Graduate student talk.
2015	**Eigenfaces: using linear algebra to recognize faces**, *Undergraduate Math Club, Wheaton College*, Undergraduate student talk.
2015	**What Can Algorithms Tell Us About Life, Love, and Happiness?**, *Moraine Valley Community College STEM Talks*, General audience talk.
2015	**Information Monitoring in Routing Networks**, *Chicago Area SIAM Student Conference, Illinois Institute of Technology*, Graduate student talk.
2015	**How to Send Secret Messages (RSA)**, *'Math and Snacks,' University of Illinois at Chicago*, Undergraduate student talk.
2014	**On Resiliently Colorable Graphs**, *Computer Science Seminar, University of Illinois at Chicago*, Research talk.
2014	**Resilient Coloring and Other Combinatorial Problems**, *Midwest Theory Day. Purdue University*, Research talk.
2014	**How to Combine Graphs**, *Chicago Area SIAM Student Conference, Northwestern University*, Graduate student talk.
2014	**Hybrid Images and Fourier Analysis**, *Undergraduate Math Club, University of Illinois at Chicago*, Undergraduate student talk.
2014	**Elliptic Curves, Projective Geometry, and Python**, *Stanford Pre-Collegiate Studies*, High school talk.
2013	**Anti-Coordination Games and Stable Graph Colorings**, *Computer Science Seminar, University of Illinois at Chicago*, Research talk.
2013	**Stable Graph Colorings, and Why You Should Care about NP**, *Graduate Student Colloquium, University of Illinois at Chicago*, Graduate student talk.
2013	**A Brief Overview of Persistent Homology and its Applications**, *Chicago Area SIAM Student Conference, University of Illinois at Chicago*, Graduate student talk.
2013	**Classic Nintendo Games are NP-Hard**, *Undergraduate Math Club, University of Illinois at Chicago*, Undergraduate student talk.
2012	**PageRank and the Billion-Dollar Eigenvector**, *Undergraduate Math Club, University of Illinois at Chicago*, Undergraduate student talk.
2011 - 2015	**Guest lectures to high school students**, *Various locations*, High school talk.
2011	**Eigenfaces: Linear Algebra for Facial Recognition**, *Undergraduate Math Club, University of Illinois at Chicago*, Undergraduate student talk.

Other

Blog	**Math Intersect Programming**, In-depth presentation of technical topics with full implementations in code. As of February 2017: 236 published posts, 2000 word average post length, over 3.5 million page views since June 2011.

Posters

2015 **Information Monitoring in Routing Networks**, SIAM Workshop on Network Science.

Service

2015 **Reviewer**, *ALT 2015*, Algorithmic Learning Theory.

2015 **Organizer**, *Graduate Student Colloquium*, University of Illinois at Chicago.

2014 **Publicity Co-Chair**, *ISAIM 2014*, International Symposium on Artificial Intelligence and Mathematics.

2013 - 2016 **Organizer**, *Graduate Student Theoretical Computer Science Seminar*, University of Illinois at Chicago.

2013 **Instructor**, *Website Workshop*, Association for Women in Mathematics, University of Illinois at Chicago.

Awards

2015 **Best Student Poster Award**, *For the poster 'Information Monitoring in Routing Networks'*, Granted by SIAM Network Science 15.
Monetary value of $100

2014 **Dean's Scholar Award**, *To provide the most distinguished, advanced-level graduate students with a period of time dedicated solely to the completion of their programs*, Granted by University of Illinois at Chicago.
Monetary value of $25,000

2011 **Charles J. Hanks Excellence in Mathematics Award**, *Demonstrated excellence and outstanding ability*, Granted by California Polytechnic State University.

2010 **Robert P. Balles Mathematics Award**, *Highest GPA in mathematics coursework after three years*, Granted by California Polytechnic State University.

2009 **3rd Place in a Collegiate Regional Programming Contest**, *Three-person team programming tasks*, Granted by Association for Computing Machinery.

2007 **Eagle Scout Award**, *Troop 234 of Moraga, CA*, Granted by Boy Scouts of America.

2007 **Black Belt, First Degree**, *Kang's Tae Kwon Do Academy. Walnut Creek, CA*, Granted by World Tae Kwon Do Federation.

Professional Programs

2014 **Network Science Week**, Received mentoring, engaged in research to attack open problems, and developed new collaborations.

Teaching

Differential Equations **TA**, *University of Illinois at Chicago*, 2016.
Led a discussion session once weekly

Introduction to Mathematical Computer Science **TA**, *University of Illinois at Chicago*, 2012 - 2013.
Wrote a grading robot for all labs and projects

Calculus 1 **TA**, *University of Illinois at Chicago*, 2011, 2013, 2015.
Led a discussion session twice weekly