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**.
	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