Ray Li

Personal

website: rayyli.com
email: rayyli@stanford.edu
github: abacadaea

Education

Expected May 2022	PhD in Computer Science, **Stanford University**, Stanford, CA
May 2017	M.S. in Mathematical Sciences, **Carnegie Mellon University**, Pittsburgh, PA
	Thesis: *New developments in coding against insertions and deletions*
May 2017	B.S. in Mathematical Sciences, **Carnegie Mellon University**, Pittsburgh, PA

Publications

6. R. Li and M. Wootters, *Random linear binary codes have smaller list sizes than uniformly random binary codes*, RANDOM 2018.
5. V. Guruswami and R. Li, *Efficiently decodable codes for the binary deletion channel*, RANDOM 2017.
4. V. Guruswami and R. Li, *Coding against deletions in oblivious and online models*, ACM-SIAM Symposium on Discrete Algorithms 2018 (SODA18).
3. R. Li and S. J. Miller, *A collection of central limit type results in Generalized Zeckendorf Decompositions*, Proceedings of the 17th International Fibonacci Conference.
2. R. Li and S. J. Miller, *Central limit theorems for gaps of Generalized Zeckendorf Decompositions*, submitted to Fibonacci Quarterly. http://arxiv.org/abs/1606.08110v1.pdf
1. V. Guruswami and R. Li, *Efficiently decodable insertion/deletion codes for high-noise and high-rate regimes*. In *2016 IEEE International Symposium on Information Theory (ISIT)*, 620-624.

Selected Talks

9. Improved list decodability of random linear binary codes, RANDOM 2018.
8. Randomness in math and computer science, Math Olympiad Summer Program (MOP), June 2018.
7. Random linear binary codes have smaller list sizes than uniformly random binary codes, CMU Theory Lunch, March 2018.
6. Random linear binary codes have smaller list sizes than uniformly random binary codes, Stanford Theory Lunch, March 2018.
5. Coding Against Deletions in Oblivious and Online Models, Symposium on Discrete Algorithms (SODA), January 2018.
4. Efficiently decodable codes for the binary deletion channel, RANDOM, Berkeley, August 2017.
3. A collection of central limit type results in Generalized Zeckendorf Decompositions, Young Mathematicians Conference, Columbus, August 2016.
2. Efficiently decodable insertion/deletion codes for high-noise and high-rate regimes, ISIT, Barcelona, July 2016.
1. Convergence rates in generalized Zeckendorf decomposition problems, CANT, New York City, May 2016.

Awards and Honors

2017 - 2022	NSF Graduate Research Fellowship Program (NSF GRFP)
2013 - 2017	Knaster McWilliams Scholarship, full tuition merit scholarship
2015	Putnam N1 (Top 16)
2013	ACM ICPC Regonal Competition 3rd place
2013	Virginia Tech Regional Math Competition Tied 1st Place
2013	Hack CMU Winner (Top 4)
2013	International Math Olympiad (IMO) Silver Medal
2012, 2013	USA International Olympiad in Informatics (IOI) team candidate (Top 8)

Work Experience

May 2016-Aug 2017 | Research Assistant at Carnegie Mellon University
Work with Venkatesan Guruswami on Insertion and Deletion Codes

May-July 2015 | Assistant Trading Intern at Jane Street Capital LLC, New York, NY

Jan 2014-Mar 2015 | CTO at Expii Inc., Pittsburgh, PA
Conceived and grew a crowdsourced ed-tech startup through a ten-person team, a 1.3M seed round, and over a thousand users. Built and led the engineering team from day 0.

Teaching Experience

2017, 2018 | Instructor at Math Olympiad Summer Program, Pittsburgh, PA

2015 | Teaching Assistant at Carnegie Mellon University
21-127, Concepts of Mathematics

2014 | Junior Counselor at Summer Program on Applied Rationality and Cognition, Berkeley, CA

2012, 2014 | Instructor at IDEAMATH, Santa Clara, CA, Boston, MA, Pittsburgh, PA
Taught three two-week math enrichment programs. Designed handouts and quizzes, taught 6 hours of class a day, and organized recreational activities and study sessions.

2014 | Grader at Math Olympiad Summer Program, Pittsburgh, PA
Graded papers and mentored students at training camp for USA International Math Olympiad Team.

Service

- Refereed papers in IEEE Trans. Mol. Biol. Multi-Scale Commun., J Number Theory, IEEE Trans. Inf. Theory, ISIT, ICALP.
- Mathscinet reviewer.
- USA Math Olympiad Grader (2014).
- After-school Volunteer at The Pittsburgh Project. Tutor and mentor K-5 students several hours a week with community development organization (2015-6).
- Online Math Open Co-founder and Co-director (2012-3); Conceived and launched an online math competition that grew to over 600 students from over 10 countries.

Programming Skills

C++, Python, Latex, Mathematica, Excel/VBA, Unix, Git, Lua, SML, OCaml, Rust, HTML/CSS, Javascript, mySQL, AWS, Node.js, Backbone.js, React.js, nginx, PHP