

# Tim Randolph

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## Research Interests

Property testing, sublinear & subexponential algorithms,  
fair allocation, market & mechanism design for social good.

## Education

Columbia University, New York, NY. 2018-Present  
PhD in Computer Science Theory.  
Advised by Professors Rocco Servedio and Xi Chen.

Columbia University, New York, NY. 2018-2019  
MS in Computer Science.

Williams College, Williamstown, MA. 2014-2018  
B.A. Computer Science with Highest Honors, Mathematics with Honors,  
Philosophy. Concentration in Cognitive Science. (Magna Cum Laude.)  
Thesis:  $(k, p)$ -Planar Graphs. Advised by Professor William Lenhart.  
GPA: 3.96. GRE: 170vb/170qt

Lakeside School, Seattle, WA. 2010-2014

## Publications

Nick Arnosti and Tim Randolph. “The Alaskan Hunting License Lottery is Flexible and Approximately Efficient.” SSRN:3370605. 2019.

Xi Chen, Tim Randolph, Rocco Servedio, and Tim Sun. “A Lower Bound on Cycle Finding in Sparse Digraphs.” *SODA* 2020.

Emilio di Giacomo, William J. Lenhart, Giuseppe Liotta, Timothy W. Randolph, Alessandra Tappini. “ $(k, p)$ -Planarity: A Relaxation of Hybrid Planarity.” arXiv:1806.11413v2. *WALCOM* 2019.

Timothy W. Randolph. “Tight Bounds for  $(t, 2)$  Broadcast Domination on Finite Grids.” arXiv:1805.06058. *Rose-Hulman Undergraduate Mathematics Journal* 20, 2019.

Benjamin F. Drews, Pamela E. Harris, Timothy W. Randolph. “Optimal  $(t, r)$  Broadcasts on the Infinite Grid.” arXiv:1711.11116. *Discrete Applied Mathematics* 255, 2018.

Research Presentations	“Alaskan Hunting License Lotteries are Flexible & Approximately Efficient,” DSI Financial and Business Analytics Center, New York, NY, 11/12/2019; also WINE 2019, Columbia University, New York, NY, 12/10/2019.
	“The Case for Wasteful Allocation Mechanisms,” INFORMS Workshop on Market Design, Phoenix, AZ, 6/28/2019.
	“ $k$ -Ticket Lotteries: Insights From Alaska,” 3rd Workshop on Mechanism Design for Social Good, Phoenix, AZ, 6/28/2019.
	“ $(k,p)$ -planar Drawings of Cluster Graphs,” Williams College Summer Science Expo, Williamstown, MA, 8/11/2017.
	“Automated Constraint Pattern Extraction,” Microsoft Bing Intern Summary Presentation, Seattle, WA, 8/17/2016.
Work Experience	Makerspace Director, Williams College. 2015-2018 Coordinated student and faculty access, staff training, and maintenance of 3D printers, 3D scanners, and virtual reality systems. Established a volunteer program with training and certification for student associates.
	Research Software Engineering Intern, Microsoft. 2016 Designed and built a software component to parse user queries based on syn- tactic and semantic features and extract constraints on user requests. Built a pipeline to extract constraint patterns from large datasets.
	Research Assistant, Williams College Categories Lab. 2015 Implemented attention and behavior experiments in JavaScript for Amazon Mechanical Turk.
	Software Engineering Intern, Microsoft. 2015 Redesigned I/O packet control flow on I <sup>2</sup> C and SPI port drivers on Windows 10 for internet of things devices. Rebuilt the Win10 SPI bus driver stack to decrease overhead slowdown by a factor of 20 on short transfers.
	Makerspace Consultant, Williams College. 2014-2015
Teaching	Guest lecture in CSCI 4236: Computational Complexity, Columbia University. 11/1/2019.
	Substitute for CSOR 4231: Analysis of Algorithms. Columbia University. 10/24/2019.
	TA for COMS 4231: Analysis of Algorithms, Columbia University. 2019.
	Innovative Teaching Summer Institute (ITSI) Certification. 2019.
	TA for COMS 6998-06: Computation and Brain, Columbia University. 2018.
	TA for COMS 3261: Computer Science Theory, Columbia University. 2019.

Service	PhD Coordinator, CUCS Emerging Scholars Program. 2019-Present. Organize ESP, a peer-taught, discussion-based seminar focused on group problem-solving and exposing students to the breadth of computer science. Develop new initiatives and curriculum to engage underrepresented minorities and nontraditional students in computer science at Columbia.
	Organizer, Columbia Grad Student Theory Retreat 2019-Present. Created Columbia's first annual theory retreat for graduate students.
Awards	Sam Goldberg Prize Awarded for the best colloquium in Computer Science at Williams College.
	Sigma Xi
	Phi Beta Kappa (Junior Year) Awarded to students in the top 5% of graduating class by GPA.
	Williams Class of 1960s Scholar in Computer Science (2x) Awarded to exceptional students endorsed by the department for academic careers.
	Williams Class of 1960s Scholar in Cognitive Science Awarded to exceptional students endorsed by the department for academic careers.
Interests	Running, literature, yoga, travel, maps, pen and ink drawing, nature.