Timothy W. Randolph

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Research Interests

Property testing, metric embeddings, sketching algorithms, learning theory, fair allocation, mechanism design for social good.

Education

Columbia University, New York, NY. 2018-Present
PhD in Theoretical Computer Science.
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

Timothy W. Randolph. "Tight Bounds for $(t, 2)$ Broadcast Domination on Finite Grids." arXiv:1805.06058. 2018. Forthcoming in *Rose-Hulman Undergraduate Mathematics Journal*.

Emilio di Giacomo, William J. Lenhart, Giuseppe Liotta, Timothy W. Randolph, Alessandra Tappini. "(k, p)-Planarity: A Relaxation of Hybrid Planarity." arXiv:1806.11413v2. 2018. Forthcoming in *WALCOM* 2019.

Benjamin F. Drews, Pamela E. Harris, Timothy W. Randolph. "Optimal (t, r) Broadcasts on the Infinite Grid." arXiv:1711.11116. 2019. Forthcoming in *Discrete Applied Mathematics*.

Research Presentations

"The Case for Wasteful Allocation Mechanisms," INFORMS Workshop on Market Design, Phoenix, AZ, June 28, 2019.

"k-Ticket Lotteries: Insights From Alaska," 3rd Workshop on Mechanism Design for Social Good, Phoenix, AZ, June 28, 2019.

"(k,p)-planar Drawings of Cluster Graphs," Williams College Summer Science Expo, Williamstown, MA, August 11, 2017.

"Automated Constraint Pattern Extraction," Microsoft Bing Intern Summary Presentation, Seattle, WA, August 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 implemented a software component to parse user queries based on syntactic 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^2C 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

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.

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

Long-distance running, urban exploration, modernism, science-fiction, classic literature, yoga, world travel.