Jacob Richey

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I am a postdoctoral fellow at the Rényi Institute in Budapest. My research field is combinatorial probability, including current projects related to: stochastic particle systems, shifts of finite type, and random walks.

Employment

Postdoctoral fellow, Alfréd Rényi Institute of Mathematics, 2023-

Postdoctoral fellow, University of British Columbia, 2020-2023

Education

PhD Mathematics, Univeristy of Washington, 2014-2020. Advisor: Christopher Hoffman

B.A. Mathematics and Chinese Language, Dartmouth College, 2014

Publications

1. *Random walks on regular trees cannot be slowed down* Omer Angel, Jacob Richey, Yinon Spinka, Amir Yehudayoff. (Preprint, arxiv)

2. *Phase transition in the Parking Process with Coalescing Cars* Sungwon Ahn, Matt Junge, Hanbaek Lyu, Lily Reeves, Jacob Richey, David Sivakoff. (Preprint, link)

3. *Active phase for the Stochastic Sandpile on $\mathbb{Z}$* Chris Hoffman, Yiping Hu, Jacob Richey, Douglas Rizzolo. (Arxiv preprint)

4. *Intersections of random sets.* Jacob Richey, Amites Sarkar. (Published in the Journal of Applied Probability, 2022)

5. *Active phase for activated random walk on $\mathbb{Z}$.* Chris Hoffman, Jacob Richey, Leonardo Rolla. (Accepted in Communications in Mathematical Physics, 2022)

6. *Rumor source detection with multiple observations under adaptive diffusion protocols.* Miklos Z. Racz, Jacob Richey. (Published in IEEE Transactions on Network Science and Engineering, 2021)

7. *Activated random walk on a cycle.* Riddhipratim Basu, Shirshendu Ganguly, Chris Hoffman, Jacob Richey. (Published in AIHP, 2019)

8. *A smooth transition from Wishart to GOE.* Miklos Racz, Jacob Richey. (Published in JOTP, 2018)

9. *Counting clusters on a grid.* Project advisor: Peter Winkler. Undergraduate honors thesis.

Selected talks

1. Finding the source of a random diffusion. Dartmouth, UVic, UBC. '21-22

2. Recent results on the phase transition for activated random walk. Cornell, CUNY. '20

3. Rumor source detection with multiple observations under adaptive diffusion protocols. SIAM Workshop on Network Science 2018. Portland, OR

Undergraduate projects

(2021-) Undergraduate Research Opportunities REX at UBC. Led multiple undergraduate research groups. Most recent topic: street light percolation.

(2015-2020) Washington Experimental Mathematics Lab (WXML). Co-led multiple undergraduate research projects. Topics include: statistics of random walks, randomness of the discrete logarithm.

(Summer, 2015) University of Washington Inverse Problems REU. Gave a lecture at the REU colloquium, and advised an undergraduate student research project (link).

Teaching, outreach, service

Organizer, UBC probability seminar 2021-

Volunteer at STEM Britannia science event (Vancouver, BC, September 2022)

Taught multiple undergraduate courses in probability and calculus at University of British Columbia (2020-Present)

Taught multiple undergraduate courses in advanced multivariable calculus and linear algebra at University of Washington (Summer 2016 - 2020)

Taught the second year course for *UW Math Circle,* a math outreach program for advanced middle and high school students (2016-2021)

Junior staff at Hampshire College Summer Studies in Mathematics (HCSSiM). (Summer 2015)

Personal tutor for students in mathematics courses at Dartmouth College (2012-2014)

Recent conferences/visits

CRM Workshop on Interacting Particle Systems and Hydrodynamic Limits, March 2022. Montreal, CA

JMM 2020. Denver, CO

AMS MRC on Stochastic Spatial Models, Summer 2019. Providence, RI

Virginia Integrable Probability Summer School 2019. UVA, Charlottesville, VA

Visitor at NYU Shanghai, May 2019. Sponsor: Leonardo Rolla. Shanghai, China

Northwestern Probability Summer School, 2018. Northwestern University, Evanston, IL

Recent trends in Continuous and Discrete Probability, 2018. Georgia Tech, Atlanta, GA

Awards

Gerald B. Folland Fellowship (2019)

Personal

Originally from New York City.

Interests: bridge, chess, ultimate frisbee

Other

(Programming Languages) Python, Mathematica, Matlab, LaTeX

(Language skills) Mandarin Chinese

Last updated: September 3, 2023