Curriculum Vitae

Zsolt Bartha

Personal data:

Born: 1990, Budapest, Hungary
Citizenship: Hungarian

Contact Information:

HUN-REN Alfréd Rényi Institute of Mathematics
Budapest
Reáltanoda utca 13–15.
1053
Hungary
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Employments:

2024 – HUN-REN Alfréd Rényi Institute of Mathematics
Research fellow

2024 University of Iceland
The Institute of Physical Sciences, Mathematics Division
Postdoctoral researcher

2023 – 2024 HUN-REN Alfréd Rényi Institute of Mathematics
Research fellow

2020 – 2023 Eindhoven University of Technology
Department of Mathematics and Computer Science
Teaching postdoctoral researcher

Education:

2014 – 2020 University of California, Berkeley
Department of Statistics
Statistics PhD Program

Main research topic: random constraint satisfaction problems
Advisor: Nike Sun
PhD award date: 15/05/2020

2012 – 2014   Budapest University of Technology and Economics (BME)
Faculty of Natural Sciences
MSc in Mathematics
graduated with excellence
Thesis title: Bootstrap Percolation and Noise Sensitivity
Advisor: Gábor Pete

2009 – 2012   Budapest University of Technology and Economics
Faculty of Natural Sciences
BSc in Mathematics
graduated with excellence
Thesis title: Cryptographic Applications of Elliptic Curves
Advisor: Lajos Rónyai

2003 – 2009   Fazekas Mihály Secondary School, Budapest
special mathematics class, excellent matura exam

Areas of interest:

Probability theory, in particular discrete stochastic models, including spreading processes on (stochastic) networks, bootstrap percolation, spin systems, random constraint satisfaction problems, noise sensitivity, random walks

Publications:

Z. Bartha, J. Komjáthy, D. Valesin: *Degree-penalized contact processes. Forum of Mathematics, Sigma* **14**, e6., 2026.
doi.org/10.1017/fms.2025.10144

Z. Bartha, B. Kolesnik, G. Kronenberg, Y. Peled: *Sharp Fuss–Catalan thresholds in graph bootstrap percolation*, 2025.
arxiv.org/abs/2510.26724

Z. Bartha, B. Kolesnik, G. Kronenberg: *H-percolation with a random H. Electronic Communications in Probability* **29**, no. 33, 1–5., 2024.
doi.org/10.1214/24-ECP602

Z. Bartha, B. Kolesnik: *Weekly saturated random graphs. Random Structures & Algorithms* **65**(1), 131–148., 2024.
onlinelibrary.wiley.com/doi/10.1002/rsa.21210

Z. Bartha, J. Komjáthy, J. Raes: *Sharp bound on the truncated metric dimension of trees. Discrete Mathematics* **346**, no. 8 (2023): 113410.
arXiv:2111.08813

Z. Bartha, N. Sun, Y. Zhang: *Breaking of 1RSB in Random Regular MAX-NAE-SAT. In Proc. 60th FOCS*, 1405–1416. IEEE, 2019.
arXiv:1904.08891

Z. Bartha, G. Pete: *Noise sensitivity in bootstrap percolation*, 2015.
arXiv:1509.08454

Z. Bartha, A. Telcs: *Quenched Invariance Principle for the Random Walk on the Penrose Tiling. Markov Processes Relat. Fields* **20**, 751–767., 2014.
arXiv:1311.7023

Teaching activities:

Eindhoven University of Technology,
Department of Mathematics and Computer Science
Lecturer for:

2021–23   ○ *Probability and Statistics* (2DL70, for pre-Master students)

Instructor (teaching assistant) for various courses:

2021–23   ○ *Probability and Statistics* (2DI90, for Bachelor students)
2020–23   ○ *Probability and Stochastics 2* (2MMS30, for Master students)
2020–23   ○ *Mathematical Statistics* (2WS30, for Bachelor students)

UC Berkeley, Department of Statistics
Graduate Student Instructor (teaching assistant) for various graduate and undergraduate courses:

2017–19   ○ *Probability theory, first semester* (STAT 205A, for graduate students, two times)
2017–19   ○ *Concepts of Probability* (STAT 134, for undergraduate students, two times)
2019–20   ○ *Stochastic Processes* (STAT 150, for undergraduate students, two times)
2018   ○ *Introduction to Probability and Statistics at an Advanced Level* (STAT 200A, for Master students in non-Statistics programs)
2016–17   ○ *Probability theory, second semester* (STAT 205B, for graduate students, two times)
2016   ○ *Introduction to Probability at an Advanced Level* (STAT 201A, for Master students in Statistics)
2016   ○ *Introduction to Statistics at an Advanced Level* (STAT 201B, for Master students in Statistics)

BME, Faculty of Natural Sciences,
Teaching assistant for courses on

2012   ○ *Probability Theory*

2012	○ *calculus for engineering students*
2012	○ *Cryptography and Coding Theory*

BME, Faculty of Electrical Engineering and Informatics,
Department of Computer Science and Information Theory

2010	○ *Practical course on computer science*

Student supervising:

Delft University of Technology
Delft Institute of Applied Mathematics

2023–24	○ Csanád Bakos, MSc honours project (co-supervised with Júlia Komjáthy): *k-cores in scale-free configuration models under attack*

Eindhoven University of Technology
Department of Mathematics and Computer Science

2021	○ Mike van Santvoort, MSc thesis (co-supervised with Júlia Komjáthy): *Stochastic SIR in metapopulations*
2021	○ Rick Reubsaet, BSc thesis (co-supervised with Júlia Komjáthy): *Distance penalised spreading in infinite graphs*
2020–21	○ Järvi Raes, BSc thesis (co-supervised with Júlia Komjáthy): *On the threshold metric dimension*

Received funding:

2014 – 2016	○ UC Berkeley Loève Fellowship (provides funding for the first two years of the PhD program)
2014 – 2015	○ Scholarship of the Hungarian Initiatives Foundation

Honors and awards:

2019	○ Outstanding Graduate Student Instructor Award, UC Berkeley
2014	○ Kató Rényi Memorial Prize, Second Category (awarded by the János Bolyai Mathematical Society for original research conducted before graduation)
2013	○ First Prize at the Scientific Conference for Students, BME Research topic: Quenched Invariance Principle for the Random Walk on the Penrose Tiling Advisor: András Telcs ○ First Prize at the International Mathematics Competition for University Students ○ Scientific Scholarship of the Faculty of Natural Sciences, BME
2012	○ Second Prize at the International Mathematics Competition for University Students
2010	○ Third Prize at the International Mathematics Competition for University Students

○ 11th place at the Hungarian National High School Competition in Mathematics
○ 24th place at the Hungarian National High School Competition in Physics

Talks at conferences, workshops, seminars:

2024   ○ Bootstrap Percolation and its Applications workshop at Banff International Research Station, Apr 14–19

2023   ○ Seminar of the Department of Probability Theory and Statistics, ELTE, Budapest, Hungary, Nov 10
○ Annual meeting of the Dynasnet Synergy Grant, Lednice, Czechia, Oct 16–20
○ Invited speaker at the 29th Nordic Congress of Mathematicians, Aalborg, Denmark, Jul 3–7
○ Seminar series in Probability and Statistics at TU Delft, Delft Institute of Applied Mathematics, Apr 3
○ Drafting Workshop in Discrete Mathematics and Probability, Erdős Center, Budapest, Hungary, Feb 6–8

2022   ○ Workshop: Mathematics of Large Networks, Erdős Center, Budapest, Hungary, May 9–13
○ SPP2265 Workshop – Random Spatial Networks, Bonn, Germany, Mar 14–17

2021   ○ ANR Workshop – Geometric Random Graph Models and Percolation, Oct 19–20
○ Eurandom (TUe)–Bézout Labex (Université Paris–Est) Workshop – Random Graphs, Statistical Mechanics and Networks, IHP, Paris, France, Jul 7–9

2020   ○ SPOR Seminar at TU/e, Department of Mathematics and Computer Science, Sep 15
○ Probability Seminar at UC Berkeley, Department of Statistics, Apr 29

2019   ○ Invited speaker at FOCS (60th Annual IEEE Symposium on Foundations of Computer Science), Baltimore, Maryland, Nov 9–12

Other conferences, workshops, summer schools:

2024   ○ CMI-HIMR Summer School on Symmetry and Randomness, University of Bristol, Jul 15–19
○ Noise Sensitivity Workshop, Erdős Center, Budapest, Hungary, Jan 8–12

2023   ○ Random walks in Bath conference, University of Bath, Jun 5–9

2022   ○ Summer school: Graphs, Groups, Stochastic Processes, Erdős Center, Budapest, Hungary, Jun 6–10
○ Summer school: Mathematics of Large Networks, Erdős Center, Budapest, Hungary, May 30–Jun 3
○ Workshop: Graphs, Groups, Stochastic Processes, Erdős Center, Budapest, Hungary, May 16–20

2021   ○ Oberwolfach Workshop – Spatial Networks and Percolation, Oberwolfach, Germany, Jan 17–23

2020   ○ Workshop on Stochastic Geometry and Communications, Weierstrass Institute, Berlin, Nov 2–4

2019	○ Seminar on Stochastic Processes, Mar 13–16, The University of Utah, Salt Lake City, Utah
2017	○ PIMS-CRM Summer School in Probability, Jun 5–30, University of British Columbia
2016	○ Poster presenter at Simons Conference on Random Graph Processes, UT Austin, May 9–12
	○ Counting Complexity and Phase Transitions, workshops at the Simons Institute, UC Berkeley, Jan 11–May 13
2015	○ Stochastics and Interactions, Jul 21–24, Alfréd Rényi Institute of Mathematics
	○ CRM-PIMS Summer School in Probability, Jun 15–Jul 11, McGill University
2014	○ PIMS Summer School in Probability, Jun 2–27, University of British Columbia
	○ Stochastic Activity Month (mini courses), Jan 13–17, Eurandom, TU Eindhoven
2013	○ Erdős Centennial Conference, Jul 1–5, Budapest, Hungary

Other:

Language skills:	Hungarian (native), English (fluent), French (intermediate)
Computer skills:	C/C++, Python, Mathematica, Matlab, LaTeX