Otte Heinävaara

Curriculum Vitae

November 6, 2023

Princeton University
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Education	**Doctor of Philosophy**, Mathematics, Princeton University, 2024 (expected). **Master of Arts**, Mathematics, Princeton University, 11/2020. **Master of Science**, Mathematics, University of Helsinki, 5/2018. **Bachelor of Science**, Mathematics, University of Helsinki, 9/2017.
Work experience	**Department of Mathematics and Statistics, University of Helsinki** Doctoral Student, 2/2019 – 8/2019 **Department of Mathematics, Princeton University** Visiting Student Research Collaborator, 9/2018 – 1/2019 **Department of Mathematics and Statistics, University of Helsinki** Research Assistant, 6/2016 – 12/2018 **Department of Computer Science, University of Helsinki** Research Assistant, 6/2015 – 5/2016

Teaching

Department of Mathematics, Princeton University

Grader	Multivariable Analysis and Linear Algebra I	Fall 2020
	Linear Algebra with Applications	Spring 2021
	Introduction to Real Analysis	Fall 2021
	Linear Algebra with Applications	Spring 2022
	Complex Analysis with Applications	Spring 2023
Teaching Assistant	Calculus I	Fall 2022

Department of Mathematics and Statistics, University of Helsinki
Instructor, math circle for high school students, 9/2016 – 5/2019

Training division, Finnish Mathematical Society
Instructor, high school math competition training, 9/2016 – 5/2018

MAFY-valmennus (Mathematics/Science-training)
Instructor, Training high school students mathematics and physics
for the Finnish matriculation examinations, 2/2015 – 5/2015

Other work experience

Finnish Cancer Registry
Research assistant, Helping to verify research data, 6/2014 – 1/2015
Finnish military service
Conscription, 7/2013 – 12/2013

Publications   **Journal articles**
Tracial joint spectral measures
Preprint, 2023

(With D. Bilyk, A. Chang, R. W. Matzke and S. Steinerberger) A random line intersects $\mathbb{S}^2$ in two probabilistically independent locations.
Preprint, 2023

Planes in Schatten-3.
Preprint, 2022

Characterizing matrix monotonicity of fixed order on general sets.
Preprint, 2019

Local characterizations for the matrix monotonicity and convexity of fixed order.
Proceedings of the American Mathematical Society 146(9), pp.3791-3799, 2018

(With J. Leppä-Aho, J. Corander, and A. Honkela) On the inconsistency of ℓ_1-penalised sparse precision matrix estimation. *BMC bioinformatics*, 17(16), pp.99-107, 2016

Theses
Matrix monotone functions. Master's thesis, University of Helsinki, 2018.
Available at `https://www.cs.helsinki.fi/u/othe/gradu.pdf`.

Talks/presentations	**Planes in Schatten-p, and a Problem of Ball, Carlen and Lieb** (Poster). Lluís Santaló School: Linear and non-linear analysis in Banach spaces, Santander, 7/2023 **Planes in Schatten-p, and a Problem of Ball, Carlen and Lieb** (Poster). Recent Advances in Applications of Harmonic Analysis to Convex Geometry, North Dakota State University, 4/2023 **Planes in Schatten-p** Geometric and Functional Analysis Seminar, University of Helsinki, 1/2023 **New look on Loewner's Theory of Matrix Monotone Functions** SEAM 38, Online, 3/2021 **Matrix Monotone Functions** Graduate Student Seminar, Princeton University, 9/2019 **Matrix Monotone Functions on General Sets** Geometric and Functional Analysis Seminar, University of Helsinki, 4/2019 **Matrix Monotone Functions on General Sets** Special Analysis Seminar, California Institute of Technology, 11/2018 **Matrix Monotone Functions** Analysis Near the Pole, Svalbard, 8/2017 **Matrix Monotone Functions** Geometry in May, University of Helsinki, 5/2017
Merits	**Ernst Lindelöf Prize** Prize for Finnish Master's Thesis in Mathematics, 2018 **International Collegiate Programming Contest (ICPC)** Contestant, 2016, 2017 **International Mathematical Contests for University Students (IMC)** Contestant, 2014 (First prize category) **International Mathematical Olympiad (IMO)** Contestant, 2012 (Silver medal), 2013 (Silver medal)
Languages and Skills	Finnish (native), English (fluent), German (basic), Swedish (basic) Python (intermediate), C++ (intermediate), Java (intermediate)