Nataliia Kushnerchuk

Espoo, Finland   nataliia [dot] kushnerchuk [at] aalto [dot] fi

Education

Aalto University   Espoo, Finland
School of Science, Department of Mathematics and System Analysis, Doctoral degree   *since 2023*

Aalto University   Espoo, Finland
School of Science, Mathematics and Operations Research, Master's degree (pass with honours)   *2021 – 2023*

Saint Petersburg State University   Saint Petersburg, Russia
Department of Mathematics and Computer Science, Mathematics, Bachelor's degree   *2017 – 2021*

Work experience

Doctoral researcher at Aalto University   *since August 2023*

Doctoral studies at Mathematics and System Analysis department are under supervision of Professor Kaie Kubjas.
Topic: Algebraic Statistics, Graphical Models

Research assistant at Aalto University   *June 2022 – July 2023*

Research assistance at Computer Science department was under supervision of Professor Parinya Chalermsook.
Topics: Semialgebraic proofs, pattern-avoiding permutations

Teaching assistant at Aalto University   *2022*

Courses: First course in probability and statistics, Graph theory, Matrix algebra

Personal tutor   *2017 – 2023*

Personal tutor in mathematics for primary and junior high school students.

Publications

With Oliver Clarke, Serkan Hosten, Janike Oldekop, *Matroid Stratification of ML Degrees of Independence Models.* Alg. Stat. 15 (2024) 199-223

With Cecilie Olesen Recke, Sarah Lumpp, Janike Oldekop, Jiayi Li, Jane Ivy Coons, Elina Robeva, *Identifiability in Graphical Discrete Lyapunov Models.* preprint arXiv:2601.21818 (2026)

With Dario Gasbarra, Kaie Kubjas, Sangina Kulathinal, Fatemeh Mohammadi, Etienne Sebag, *Discrete-time, discrete-state multistate Markov models from the perspective of algebraic statistics.* preprint arXiv:2602.09619 (2026)

Talks

- September 2025, Applied CATS seminar, KTH University: *Higher Order Cumulants for Identifying Discrete Lyapunov Models*

- July 2025, SIAMAG25, Madison, USA: *Higher Order Cumulants for Identifying Discrete Lyapunov Models*

- April 2024, GSMAAC24, Berlin: *Matroid Stratification of ML Degrees of Independence Models*

- March 2024, Applied CATS seminar, KTH University: *Matroid Stratification of ML Degrees of Independence Models*

- January 2024, Finnish Mathematical Days, Espoo: *Matroid Stratification of ML Degrees of Independence Models*

Attendance and visits

- September-October 2025, research visit to KTH University to work with Liam Solus, Stockholm, Sweden

- July 2025, Workshop «New Directions in Algebraic Statistics», Chicago, USA

- June 2025, New Perspectives on Discriminants and Applications, Leipzig, Germany

- May 2025, Finnish Summer School on Probability and Statistics, Lammi, Finland

- November 2024, Workshop «Macaulay2 in the Sciences», Leipzig, Gemrany

- July 2024, Workshop «Women in Algebraic Statistics», Oxford, UK

- November 2023, Apprenticeship Week: Varieties from Statistics, online

Teaching and Supervision

Advisor of Bachelor Thesis: Meeri Palokangas. Undirected Graphical Models for Discovering Statistical Dependencies in Continuous Air Pollutant and Weather Data. (2024)

Awards and grants

- Foundation for Aalto University Science and Technology, *research visit grant* (2025)

- Teaching prize "Best head teaching assistant of the year"awarded by the mathematics department of Aalto University (2026)

Organization

- Co-organizing "Algebra and Discrete Mathematics" seminar at Aalto University. (since 2024)

- Vice-president of the student association "Women of Aalto". (2024-2025)

Skills

- **Programming skills:** Python, MatLab, Macaulay2

- **Language skills:** English (C1), Russian (native speaker), Finnish (A2)