Personal details and date of CV

- Surname: Kubjas
- First name: Kaie
- Researcher identifier (ORCID): 0000-0002-2227-2272
- Date of CV: 18.09.2024

Degrees

- 2013, PhD in mathematics, Free University of Berlin, Germany
- 2009, Phase I in mathematics, Technical University of Berlin, Germany
- 2007, BSc in mathematics, University of Tartu, Estonia

Current employment

• 2024-present, Associate Professor (Tenured), Aalto University, Finland

Previous work experience

- 2017-2024, Assistant Professor, Aalto University, Finland
- 2018-2019, Marie Skłodowska-Curie Fellow, Sorbonne University, France
- 2017-2018, Marie Skłodowska-Curie Fellow, MIT, USA
- 2014, Microsoft Research Fellow, Simons Institute for the Theory of Computing, Berkeley, USA
- 2014-2016, Aalto Science Fellow, Aalto University, Finland
- 2013, Visiting Postdoctoral Researcher, Max Planck Institute for Mathematics, Bonn, Germany

Research funding and grants

- 2019-2023, Academy of Finland Project funding for early-career researchers (sole PI, 500899 EUR)
- 2017-2019 Marie Skłodowska-Curie Individual Global Fellowship (sole PI, 166603 EUR)

Research output (selected publications)

- Diego Cifuentes, Jan Draisma, Oskar Henriksson, Annachiara Korchmaros, Kaie Kubjas (2024). "3D genome reconstruction from partially phased Hi-C data." *Bulletin of Mathematical Biology*, 86(4): 33.
- Anastasiya Belyaeva, Kaie Kubjas, Lawrence J. Sun, Caroline Uhler (2022). Identifying 3D Genome Organization in Diploid Organisms via Euclidean Distance Geometry. *SIAM Journal on Mathematics of Data Science*, 4(1), 204–228.
- Robert Krone, Kaie Kubjas (2021). Uniqueness of nonnegative matrix factorizations by rigidity theory. *SIAM Journal on Matrix Analysis and Applications*, 42(1), 134–164.
- Dimitra Kosta, Kaie Kubjas (2019). Maximum likelihood estimation of symmetric groupbased models via numerical algebraic geometry. *Bulletin of Mathematical Biology (Special Issue: Algebraic Methods in Phylogenetics)*, 81(2), 337-360.
- Kaie Kubjas, Elina Robeva, Bernd Sturmfels (2015). Fixed points of the EM algorithm and nonnegative rank boundaries. *The Annals of Statistics*, 43(1), 422-461.

Research supervision and leadership experience

• Completed supervisions: 2 PhD theses (Olga Kuznetsova 2019-2023, Muhammad Ardiyansyah 2019-2023), 5 MSc theses and 14 BSc theses

- Ongoing supervisions: 2 PhD theses (Lilja Metsälampi 2022-present, Nataliia Kushnerchuk 2023-present), 1 MSc thesis, 1 BSc thesis
- Mentoring of postdocs: Annachiara Korchmaros (2019-2021), Luca Sodomaco (2019-2022), Tobias Boege (2022-2023), Milo Orlich (2022-present)
- Mentor for 3 research papers written by PhD students and early postdocs in connection with the Apprenticeship Week "Varieties from Statistics" which took place at IMSI, Chicago, USA (2023)

Teaching merits

Pedagogical and supervision training

- 2021, 2-day doctoral supervision training, Aalto University
- 2020, A! Peda Intro (5 ECTS), Aalto University
- 2017, 2-day leadership and management skills course for scientist, MIT
- 2011, 2-day workshop on teaching mathematics, Berlin Mathematical School

Teaching experience

- 2015-present, 14 courses lectured at Aalto University: Abstract Algebra, Computational Algebraic Geometry, Algebraic Statistics, Algebraic Methods in Data Science, Tensors in Applications, Commutative Algebra Reading Course
- 2022, Masterclass on Algebraic Statistics, University of Trento, Italy
- 2022, CIMPA School on Algebraic and Combinatorial Methods in Geometry, LUMS, Pakistan
- 2018, Summer School in Algebraic Statistics, Arctic University of Norway, Norway
- 2016, Summer School on Algebra, Statistics and Combinatorics, Aalto University, Finland

Awards and honours

- 2021, Departmental teaching award, Department of Mathematics and Systems Analysis, Aalto University
- 2008, Award for the best bachelor's thesis in mathematics, Estonian Mathematical Society
- 2004, Honorable mention, International Mathematical Olympiad, Athens, Greece
- 2003, 3rd place, Baltic Way (international mathematics competition in teams), Riga, Latvia

Other key academic merits, such as

- Evaluation committee member for doctoral dissertations: May Cai (Georgia Tech, 2024), Lukas Gustafsson (KTH, 2023), Jordi Roca Lacostena (Universitat Politecnica de Catalunya, 2021)
- Pre-examiner for doctoral dissertations: Julia Shore (University of Tasmania, 2022), Alexandros Grosdos (Osnabrück University, 2020)
- Peer review of a funding application for Humboldt-Stiftung (2022)
- Reviewer for Heidelberg Laureate Forum (2020, 2023, 2024)
- A member of the editorial board of Journal of Symbolic Computation (2022-present)
- Associate Editor at SIAM Journal on Applied Algebra and Geometry (2024-present)
- Guest editor for MEGA 2021 and 2024 special issues
- Refereed 34 papers for scientific journals in the areas of applied algebra, discrete mathematics, statistics and mathematical biology
- Refereed 7 papers for the conferences MEGA and ISSAC
- Member of the advisory board of MEGA: Effective Methods in Algebraic Geometry (2021present)

- Secretary (2020-2021) and Vice Chair (2022-2023) of the SIAM Activity Group on Algebraic Geometry
- Member of the Standing Committee (2018-2022), Deputy Treasurer (2016-2020) and Deputy Convenor (2020-2022) of the Association European Women in Mathematics

Selected invited plenary lectures:

- 2023, Geometry, Topology, Community: Celebrating the 60th birthday of Günter M. Ziegler, Berlin, Germany
- 2022, Algebraic Statistics 2022, Honolulu, HI, USA
- 2022, Finnish Mathematical Days 2022, Tampere, Finland (online)
- 2019, MEGA 2019: Effective Methods in Algebraic Geometry, Madrid, Spain
- 2018, Celebration of Mathematics: 150 years of the Finnish Mathematical Society, Helsinki, Finland

Organization of scientific conferences and workshops:

- 2024, Co-chair of MEGA 2024, MPI Leipzig, Germany
- 2024, Workshop "Rigidity in Action", RICAM, Linz, Austria
- 2023, Apprenticeship Week on the topic "Varieties from Statistics" at IMSI, Chicago, USA
- 2023, IMSI workshop "Invitation to algebraic statistics and applications", Chicago, USA
- 2023, Program committee member of ISSAC 2023, The Arctic University of Norway, Tromso, Norway
- 2022, European Women in Mathematics General Meeting, Aalto University, Finland
- 2021, Workshop on Real Algebraic Geometry and Algorithms for Geometric Constraint Systems, Fields Institute, Toronto, Canada (online)
- 2021, Executive committee member of MEGA 2021, The Arctic University of Norway, Tromso, Norway (online)
- 2019, Program committee member of MACIS 2019, Gebze Technical University, Istanbul, Turkey
- 2017, Large Structures Mini-Workshop, Aalto University, Espoo, Finland
- 2016, Summer School on Algebra, Statistics and Combinatorics, Aalto University, Espoo, Finland
- 2016, Statistics Day Helsinki, Aalto University, Espoo, Finland

Scientific and societal impact

- 2023, Organization of the panel discussion "How is it to begin a research career in Finland as a foreigner?" at the Finnish Science Forum, Helsinki, Finland
- 2018, Lectures on Detecting Fake News at Spark (an event for 7th and 8th graders at MIT), Cambridge, USA
- 2015-2018, Referee for "Akadeemiake", a journal for high-school students in Estonia
- 2005-2007, Member of Estonian Mathematical Olympiad Jury
- 2004-2007, Coaching students for mathematical olympiads at national level, Estonia