Petar Nizić-Nikolac

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Personal info	Born in 2000, Zagreb, Croatia
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Contact	+41 44 633 8192, petar.nizic-nikolac@ifor.math.ethz.ch
Webpage	https://pnizicnikolac.github.io/
Research interests	High-Dimensional Probability, Statistics, Optimization, Computer Science, Combinatorics

Education

ETH Zürich	PhD in Mathematics, advised by Afonso S. Bandeira	*10/2022 – xy/2027*
Simons Institute for the Theory of Computing	Long-term Visitor at the *Spectral Theory Beyond Graphs* program	*fall/2026*
Trinity College, Cambridge	MMath (Master of Mathematics): Honours with Distinction	*09/2021 – 06/2022*
Trinity College, Cambridge	BA (Bachelor of Arts) in Mathematics: First Class	*09/2018 – 06/2021*
XVth Gymnasium Zagreb	Mathematical grammar school: Student of the Generation award	*09/2014 – 06/2018*

Research

also at Google Scholar

Preprints	The Spectral Distribution of Matrix Least Squares Solutions, and the Ellipsoid Fitting Problem. (with A. S. Bandeira and Y. M. Lu). arXiv:2611.23431.
	Matrix Concentration and Equivalent Operators on Fock Spaces. (with A. S. Bandeira, D. Kunisky, L. Pesenti, and R. Wang). arXiv:2610.01982.
	Convergence of Kikuchi matrices to Γ-independent and q-Gaussian limits. (with A. S. Bandeira, D. Kunisky, L. Pesenti, and R. Wang). arXiv:2610.02008.
	The Hypergraph Moore Bound. (with A. S. Bandeira, D. Kunisky, L. Pesenti, and R. Wang). arXiv:2607.14068.
Publications	Matrix Chaos Inequalities and Chaos of Combinatorial Type. (with A. S. Bandeira, K. Lucca, and R. van Handel). STOC 2025.
	The bunkbed conjecture holds in the $p \uparrow 1$ limit. (with T. Hutchcroft and A. Kent). Combinatorics, Probability and Computing. 2023;32(3):363–369.
Other writing	Randomstrasse101: Open Problems of 2025. (with A. S. Bandeira, D. Dmitriev, K. Lucca, and A. Rödder). arXiv:2603.29571.
	Exercises in Mathematics of Data Science. (with A. S. Bandeira, P. A. Teixeira, K. Lucca, and A. Kireeva). Available online.
In preparation	Structure-aware bounds for random tensor-structured sketching. (with G. Paouris and L. Rebrova). Available soon.

Mentoring

co-advised with Afonso S. Bandeira

Master theses	Shawn Lim (*ongoing*)
	Pavel Kliska (*2025-2026*) → Research Intern at University of Zürich
	Mael Macuglia (*2024*) → Research Intern at University of Zürich
	Xinmeng Zeng (*2023*) → PhD at Stanford University
Bachelor theses	Lukas Münzel (*2026*) → Founding Member at Mirendil
	Stefan Hadzhistoykov (*2024*) → Options Trader at Maverick Derivatives
Semester projects	Suei-Wen Chen (*2025*), Vlad Burca (*2025*), Nicolas Hotton (*2023*), Danielle Ludin (*2023*)

Teaching

Courses	*Spring 2027*: Noncommutative Probability	*co-lecturer*
	Spring 2026: Student Seminar on MDS: Randomized Linear Algebra	*co-advisor*
	Fall 2025: Mathematics of Data Science	*course organizer*
	Spring 2025: Mathematics of Signals, Networks, and Learning (video)	*course organizer*
	Fall 2024: Mathematics of Data Science	*course organizer*
	Spring 2024: Mathematics of Signals, Networks, and Learning	*course organizer*
	Fall 2023: Mathematics of Data Science	*teaching assistant*
	Spring 2023: Mathematics of Signals, Networks, and Learning	*teaching assistant*

Service

Member	VMM (Verein des akademischen Mittelbaus): Executive Board	*03/2026 – ongoing*
	FIM Nachdiplom Committee	*10/2025 – ongoing*
Reviewer	Annals of Probability, Communications of the AMS, Information and Inference: A Journal of the IMA, Symposium on Discrete Algorithms	
Seminar organization	DACO Seminar	*10/2023 – 08/2026*

Work Experience

G-Research	Quant Research Intern	*London, UK, 06/2025 – 08/2025*
Squarepoint Capital	Quant Software Engineer Intern	*London, UK, 06/2021 – 08/2021*
University of Cambridge	Summer Research Intern (advisor: Tom Hutchcroft)	*Cambridge, UK, 06/2020 – 09/2020*

Outreach

Memberships	Croatian Mathematical Society • Team Selection Test Committee • Deputy Leader at MEMO 2022, Switzerland	*09/2021 – ongoing*
	Society of Young Gifted Mathematicians "Marin Getaldić" • European Mathematical Cup Jury (≈ 700 students) • Organizing camps and popularizing mathematics	*07/2018 – 08/2022*
	Cambridge University Croatian Society • Junior Treasurer	*09/2020 – 06/2022*
Instructor	XV$^{\text{th}}$ Gymnasium Zagreb • Preparing students from my former high school for math competitions	*09/2018 – 04/2019*

Honors

PhD grants	G-Research Travel Allowance	*London, UK, 2025*
University awards	Senior Scholar Award	*Cambridge, UK, 2021*
	F. J. Woods Fund Studentship	*Cambridge, UK, 2020*
	CMS Summer Studentship	*Cambridge, UK, 2020*
	Junior Scholar Award	*Cambridge, UK, 2019*
International competitions	Bronze medal at the 59$^{\text{th}}$ IMO	*Romania, 2018*
	Bronze medal at the 58$^{\text{th}}$ IMO	*Brazil, 2017*
	Team gold and individual gold medals at the 10$^{\text{th}}$ MEMO	*Austria, 2016*
	Silver medal at the 12$^{\text{th}}$ IJSO	*South Korea, 2015*
	Team gold and individual silver medals at the 9$^{\text{th}}$ MEMO	*Slovenia, 2015*

Communications

Talk	Seminar, NYU	*12/2026*
Talk (inv.)	Seminar in high dimensional probability and statistics, Michigan State University	*12/2026*
Talk (inv.)	Seminar, Berkeley	*11/2026*
Talk (inv.)	Probability Seminar, UC Davis	*10/2026*
Talk (inv., video)	Probabilistic Phenomena on Graphs, Groups, and Manifolds, Simons Institute	*10/2026*
Talk (inv.)	Seminar, Yale	*08/2026*
Talk (inv.)	Seminar, Institute of Science and Technology Austria	*07/2026*
Talk (inv.)	Foundations of Computational Mathematics 2026, Vienna	*07/2026*
Poster	RandNLA workshop, Lausanne	*06/2026*
Talk (inv.)	SIAM Conference on Optimization, Edinburgh	*06/2026*
Talk (inv., video)	1W-MINDS Seminar, online	*10/2025*
Talk	57$^{\text{th}}$ Annual ACM Symposium on Theory of Computing, Prague	*06/2025*
Poster	Towards a Theory for Typical-Case Algorithmic Hardness, Les Houches	*02/2025*
Talk (inv.)	Seminar za teoriju vjerojatnosti, PMF Zagreb	*11/2024*
Poster	Mathematical Aspects of Learning Theory – 20 years later, Barcelona	*09/2024*
Talk	Seminar, MIT	*05/2024*
Poster	Citadel Securities PhD Summit, London	*03/2024*
Talk (inv.)	Research Seminar Noncommutative and Functional Analysis, Saarland University	*11/2023*
Talk	Graduate Seminar in Probability, ETH Zürich	*12/2022*
Talk	Summer Research Festival 2020, Cambridge	*10/2020*

Knowledge and Skills

Languages	English (fluent), Croatian (native), German (basic)
Computer skills	C++, Python, MATLAB, Q/kdb+, LaTeX, GitHub