Nico Francesco Pelleriti

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PROFILE

Mathematics graduate specializing in optimization and machine learning, with first-author research publications. Experienced in quantitative analysis, data engineering, and AI/ML applications from academic research and financial services. Strong interest in energy commodity markets and eager to apply quantitative methods to oil flows, refinery operations, and fuels trading.

EDUCATION

Master of Science Mathematics *Technical University of Berlin* 2024 - 2025

- GPA: 1.0 (scale 1.0 - 4.0)
- Coursework: Stochastic Processes, Optimization, Machine Learning, Optimal Transport, Scientific Computing.
- Accelerated program, shortened by one year due to outstanding academic performance.
- Berlin Mathematical School Graduate Program (Phase 1), fast-track PhD program with approximately 5% acceptance rate.

Bachelor of Science Mathematics *Technical University of Berlin* 2021 - 2024

- GPA: 1.1 (scale 1.0 - 4.0)
- Coursework: Probability Theory, Analysis, Linear Algebra, Mathematics of Machine Learning.
- Thesis published at ICML 2025.

EXPERIENCE

Student Researcher | *Zuse Institute Berlin (ZIB)* Sep 2023 – Present

- Published first-author work at premier machine learning venues.
- Designed data processing pipelines and analytical frameworks for large-scale optimization problems.

Working Student | *Karl Storz* Mar 2023 – Oct 2023

- Optimized data processing pipelines for production deployment.
- Applied statistical methods and machine learning to balance performance and resource use.

Intern | *Munich Re* Jun 2022 – Oct 2022

- Built econometric models for tactical asset allocation and portfolio risk assessment using Python.
- Developed scalable analytics framework for investment decision-making adopted across teams.

Intern & Working Student | *Hannover Re* Jan 2021 – Apr 2022

- Created correlation models and data pipelines for portfolio diversification and systematic risk analysis.
- Delivered quantitative insights from complex datasets to optimize capital allocation strategies.

SCHOLARSHIPS AND AWARDS

Studienstiftung des Deutschen Volkes Scholarship

Germany's most prestigious merit-based award, granted to less than 1% of students in recognition of academic excellence.

Mathematics Competitions

Multiple first prizes in the German National Mathematics Olympiad and various state-wide mathematics contests.

PUBLICATIONS

Approximating Latent Manifolds in Neural Networks via Vanishing Ideals. Nico Pelleriti, Max Zimmer, Elias Wirth, Sebastian Pokutta. *ICML*, July 2025.

Computational Algebra with Attention: Transformer Oracles for Border Basis Algorithms. Hiroshi Kera*, Nico Pelleriti*, Yuki Ishihara, Max Zimmer, Sebastian Pokutta. *arXiv:2505.23696*, under review. [link]

TECHNICAL SKILLS

Data Engineering & Analytics	Python (Pandas, PySpark, NumPy), C++, SQL, Excel/VBA, data pipeline design
AI & Machine Learning	PyTorch, scikit-learn, generative AI applications, statistical modeling, time-series forecasting
Quantitative Analysis	MATLAB, R, Rust, econometric methods, Monte Carlo simulations, portfolio optimization
Infrastructure & Tools	Cloud platforms (Azure/AWS), real-time analytics pipelines, cross-system data integration