

Mikhail Tiuterev

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Introduction

I'm an applied scientist and physics MSc student who loves taming complex systems with machine learning, computational modeling, or a touch of clever automation. I believe innovation moves fastest when people talk plainly, work together turning big questions into small & doable steps. Even in the middle of code or simulations, I try to keep the general goal in my mind.

Always learning. Always building (sometimes even with a little optimism).


Education

M.Sc. University of Bonn, Physics

- GPA: 2.2
- IT courses GPA: 1.3

Bonn, Germany
Nov 2023 – approx. Apr 2026

B.Sc. Saint-Petersburg State University, Applied Math & Physics

- Graduated with distinctions
- GPA: 4.9/5.0 (**Top 1%**)
- Awarded an academic scholarship
- **Thesis:** Analysis of numerical models describing the aging of lithium-ion batteries due to the formation of a solid-electrolyte interface layer
github.com/miketio/comsol_battery 

Saint-Petersburg, Russia
Sep 2019 – Jul 2023

Experience

GET Racing — Aerodynamics Team Member

- Designed aerodynamic components (**Creo**) and manufactured carbon-fiber aero parts.
- Contributed to a **30%** increase in downforce and improved manufacturing quality.

Dortmund, Germany
Jan 2025 – now

University of Bonn — Research Assistant

- Automated laser experiment setup and integrated a Python/PyQt5 **multi-threaded controller** for real-time intensity control.
- Applied **optimization methods** (Nelder-Mead, Adam) to improve system performance and setup reliability.

Bonn, Germany
Aug 2024 – Oct 2024

Publications

The combined effect of a corona discharge and moisture on hydrophobicity of silicone rubber

May 2022

K.D. Poluektova, S.A. Vasilkov, **M.I. Tiuterev**

Competitions & Hackathons

DeepRacer Cup (Audi & AWS), Top 20 Finalist

Aug 2025 - Oct 2025

- **Topic:** Autonomous racing with **reinforcement learning**
- Optimized (**Metropolis-Hastings**) action-space (race line, speed, steering); ran local **PyTorch** simulations for the reward function optimization; deployed models on AWS.
- Got position 19 in the finals out of 400 participants.

Tech Arena — Huawei (Sweden) Top 7 Finalist

Jul 2025 - Aug 2025

- **Topic:** **AI-enabled SVD** operator for wireless communications ($128 \times 128 \rightarrow \text{rank-64}$)
- Built a **hybrid CNN & Transformer** model; optimized compute (<8M MACs) and placed 7/80.

Tech Arena — Huawei (Nuremberg 2024), 3rd place

Sep 2024 - Jan 2025

- **Topic:** State-of-Charge (SoC) estimation from noisy voltage/current
- Implemented an **Extended Kalman Filter** and tuned parameters (**Nelder-Mead**) for accurate SoC estimation.

Other hackathons

2024 - 2025

- **IFM Hackathon 2025** (1st) — RFID initialization app with SAP BTP middleware integration.
- **Huawei Tech Arena** (Nuremberg 2025, ongoing) — Battery Energy Storage System (BESS) energy optimization (SciPy LP for DA/FCR/aFRR).
- **DFL Hackathon** — dynamic pricing (Bellman eqn + Monte Carlo simulations).
- **RWTH Mining Hackathon** (3rd) — on-demand 3D spare parts delivery strategy.
- **NKU Hackathon** (final) — flood simulation GUI.
- **World Engineering Day** — climate-resilience solutions for smallholder farming.
- **IFM Hackathon 2024** (final) — racing telemetry ML for lap-time prediction.

Skills

Programming Languages / Tools

Python (numpy, scipy, pandas, PyTorch, TensorFlow, scikit-learn, matplotlib, etc), MATLAB (Optimization Toolbox, Simulink, Image Processing, Curve Fitting, Statistics), Git / GitHub, Linux (bash), COMSOL (multiphysics modules, Hydrodynamics, ODE modules, etc), Autodesk (Inventor & Fusion), VBA, LaTeX, PyQt5, Arduino, Optimization solvers (SciPy linprog)

Theoretical Background

ML & Deep Learning (supervised, unsupervised, transfer learning, model selection), NN (CNN, RNN, Transformers), Reinforcement Learning, Advanced Optimization (gradient methods, Nelder-Mead, ADAM, SGD, LP/QP formulation), Statistical Methods (hypothesis testing, regression), Time Series Analysis & Forecasting, Stochastic Processes & Monte Carlo methods, Kalman Filters, Signal & Image Processing, Finite Element Methods, Numerical Methods (linear algebra, solvers, stability), Probabilistic Modeling, Experimental Design, Data Engineering fundamentals, OOP & Software Design

Languages

English (Professional)