Gennadii Filatov

filatovgwork@gmail.com gennadiifilatov.github.io GennadiiFilatov gennadii-filatov

Research: synthetic tabular data; generative models; probabilistic inference

Education

ITMO University Sep 2025 – Present
M.Sc. in Applied Mathematics and Computer Science (Big Data and Machine Learning) GPA: 4.00/4.00
- Supervisor: Dr. Irina Deeva (AIST Laboratory)

Peter the Great St. Petersburg Polytechnic University Sep 2021 – Jun 2025
B.Sc. in Physics (Nuclear and Particle Physics) GPA: 3.92/4.00
- Thesis: "Precision measurement of cathode wire positions in the high-pressure proportional chamber system for the PRES experiment." Advisor: Dr. Polina Kravchenko

Petersburg Nuclear Physics Institute Mar 2025
57th Winter School on Nuclear and Particle Physics

Peter the Great St. Petersburg Polytechnic University Sep – Dec 2023
Minor course in Mathematical Physics (prof. Irina Suslova)

Peter the Great St. Petersburg Polytechnic University Sep 2022 – Nov 2023
Program of additional education: Developer of Python Application Software

Research Interests

- **Synthetic Tabular Data:** Generation, calibration, and evaluation of generative models for trustworthy ML benchmarking.
- **Generative Models:** Diffusion models and flow matching for structured data; score-based and transport-based generation.
- **Probabilistic Inference:** Uncertainty quantification, Bayesian methods, and calibration of predictive models.

Research Experience

AIST Laboratory, ITMO University Oct 2025 – Present
Data Science Researcher
Engineered ridge regression-based loss calibration method for synthetic tabular data validation, achieving 60–79% model rank preservation across 5 UCI datasets with 44 ML architectures. Resulted in workshop publication at AISTATS 2026.

High Energy Physics Department, PNPI / SPbPU Jul 2023 – Aug 2025
Senior Laboratory Assistant
Led research optimizing PRES experiment data analysis: developed novel methods to process wire chamber images and mitigate systematic errors, achieving 30% higher precision in proton charge radius measurement.

Laboratory of Diagnostics of High-Temperature Plasma, SPbPU Feb – Jun 2023
Data Science Researcher
Engineered a 1D convolutional neural network (Python, TensorFlow/Keras) for filament detection in fusion plasma data; improved processing speed and accuracy over manual methods through automated signal analysis.

Publications

G. Filatov, I. Deeva. *"When Synthetic Data Is Enough: Calibration for Tabular Model Ranking."* Workshop on Towards Trustworthy Predictions: Theory and Applications of Calibration for Modern AI, **AISTATS 2026**. [OpenReview]

Talks & Presentations

- **Poster.** *Calibration of synthetic tabular data for correct model selection.* XV Congress of Young Scientists, ITMO University, 2026.
- **Poster.** *Precision measurement of the position of cathode wires in a system of proportional high-pressure chamber* [...]. 38th International Conference of Physics Students (ICPS), Georgia, 2024.
- **Talk.** *Status of PRES experiment and precision cathode wire position measurement in a high-pressure proportional chamber.* XI All-Russian Youth Forum "Open Science," 2024.
- **Talk.** *Development of a diagnostic method for multi-wire proportional high-pressure chambers for the PRES experiment.* All-Russian Conference, "Week of Science at the Institute of Physics and Mechanics," 2025.

Honors & Awards

- Potanin Scholarship Competition (2026–2027) | Vladimir Potanin Charitable Foundation
- Sber Competitive IT Scholarship (2025) | Charitable Foundation "Investment in the Future"
- Enhanced State Academic Scholarship (2022–2025) | Top 5% of SPbPU students
- "Student of the Year" Award (2024) | Peter the Great St. Petersburg Polytechnic University
- IAPS Worldwide Grant (2024) | For participation in ICPS 2024

Volunteering & Leadership

IAPS Local Committee St. Petersburg Apr 2023 – Apr 2025

President

Created and managed a student team producing educational events and science outreach. Wrote 3 grants totaling 17,000 EUR. Organized 113+ events reaching 1,650+ students. Coordinator of international exchange programs.

Summer Scientific School "A5 School" Aug 2022 – Jul 2024

Founder & Head of Education

Built a team of teachers for a science summer school; designed curriculum and trained instructors. Over 115 St. Petersburg schoolchildren completed the courses.

The Three Sciences Tournament, North-Western Federal District Apr 2024 – May 2025

Head of the Organizing Committee

Formed organizer team, created tournament tasks in physics, biology, and chemistry. 12 teams, 60 participants.

Technical Skills

Code: Python, Bash, LaTeX, C++

ML: PyTorch, scikit-learn, TensorFlow/Keras, NumPy, SciPy

Tools: Git, Docker, Kubernetes, Jupyter, VS Code

Languages: Russian (native), English (professional, B2/C1)