Iuliia Vitiugova

iv294@cam.ac.uk · vitjuli.github.io · github.com

Education

University of Cambridge *Oct 2025 - Present*
MPhil in Data Intensive Science
Department of Applied Mathematics and Theoretical Physics (DAMTP)
Supervisor: Dr. Miles Cranmer

Université Sorbonne Paris *Sep 2024 - May 2025*
M1 in Computer Science

Lomonosov Moscow State University *Sep 2019 - Jun 2023*
BSc in Physics Graduated with Honours; GPA: 4.85/5.0
Faculty of Physics
Department of Mathematical Modelling and Computer Science
BSc Thesis: Analysis of neural network weight for data processing in physics
Supervisor: Dr. Sergey Dolenko

Research Experience

Research Assistant *Oct 2024 - Present*
DAMTP, University of Cambridge
Research focused on mechanistic interpretability of machine learning models and physics-informed computational methods.

Research Assistant *Sep 2020 - Dec 2023*
Skobeltsyn Institute of Nuclear Physics Moscow
Laboratory of Adaptive Methods of Data Processing

Machine Learning and Deep Learning for Sensors Data:

- Developed and trained classifier and non-linear regression models for gas sensing detection (PyTorch, Scikit-learn). Developed advanced signal processing methods for pattern recognition of data obtained from semiconductor sensors in natural air (Feature Selection and Extraction methods).
- Evaluated the performance of models and refined predictions (Calibration methods). Conducted interpretability analysis of neural networks (Weight Analysis, Deep Taylor Decomposition).

Deep Learning for Spectroscopy Data:

- Developed and trained DL models (PyTorch, Scikit-learn)
- Conducted interpretability analysis for neural networks, particularly focusing on Weight Analysis methods for spectroscopy (IR/Raman) databases.

Collaborative Chemistry Research:

- Collaborated with a chemistry group (Faculty of Chemistry, MSU) to apply Chemometrics methods for computing energy characteristics of molecules in liquids (MCR-methods).

Publications

Comparison of Input Feature Selection Methods Based on Neural Network Weight Analysis *2023*
XXV International Scientific and Technical Conference Neuroinformatics-2023
Vitiugova I., Efitorov A., Shiroky V.

Calibration of Gas Sensor Data Classification Models *2023*
International Conference on Exploring Discoveries and Innovations in Overcoming Global Challenges: A Focus on Fundamental and Applied Research
Vitiugova I., Efitorov A., Dolenko S.

Calibration of Gas Sensor Data Classification Models *2023*
International Journal Of Professional Science №7-2023
Vitiugova I., Efitorov A., Dolenko S.

Conferences

XXV International Scientific and Technical Conference Neuroinformatics-2023 *2023*
Moscow, Russia

International Conference on Exploring Discoveries and Innovations in Overcoming Global Challenges: A Focus on Fundamental and Applied Research held *2023*
Seattle, USA

Professional Experience

Data Scientist, Icorp-Med (Healthcare VC), Paris *June 2025 - Oct 2025*
Optimized cardiovascular risk prediction pipeline achieving 3x speedup. Developed deep learning quality control system for medical data processing.

Machine Learning Intern, Yandex, Moscow *Jun 2021 - Sep 2021*
Implemented production machine learning models for search ranking and content classification systems.

Honors & Awards

Winner of Best AI Project *2025*
University of Cambridge & OpenAI Hackathon for developing fully functional AI-powered product

Scholarship for International Studies *2025-2026*
Association Solidarity FRANCE, French Government for Cambridge studies

Excellence Scholarship EUR PNGS-M&CS *2024 - 2025*
Université Sorbonne Paris XIII (Issued by Graduate School in Mathematics and Computer Sciences)

Winner of The Best Innovative Research Project *2023*
International Competition of Scientific and Technical Research Projects: "Science in Motion: Discoveries in Engineering, Mathematics and Physics"

Second Degree Diploma, The Best Innovative Research Project *2023*
International Competition: "Innovations in the Field of Information Technology"

Winner of Universiade of the Faculty of Physics *2023*
Graduate Papers Competition in Lomonosov Moscow State University

State Fellow for Special Academic Achievements *2020 - 2023*
Lomonosov Moscow State University (Issued by Russian Government)

Leadership & Service

Leader at Student Union of the Faculty of Physics, MSU *Dec 2020 - Dec 2021*
Elected by a faculty of 3,000+ students to mediate between student representatives and faculty to secure funding and support for new initiatives. Organized Mathematical and Physics Olympiads and the Integration Championship.

Skills

Programming Languages: Python, C++, R, SQL, Java, MATLAB, LaTeX
ML Frameworks: PyTorch, TensorFlow, Scikit-learn
Languages: English (proficient), Russian (native), French (intermediate)