Vadim Smirnov

Vancouver, Canada vadim.smir97@gmail.com Linkedin GitHub +1 (778) 889 5428

Education

Higher School of Economics Online
Two-year online master's degree in Data Science *Sep 2023 — Jun 2025*
Coursework: Advanced Statistics, Machine Learning, Deep Learning, Computer Vision, NLP, Time Series

Simon Fraser University (SFU) Vancouver, Canada
Master of Science in Theoretical Physics *Jan 2020 — Aug 2022*
Coursework: Quantum Field Theory, Advanced Quantum Mechanics, Electromagnetism I, Quantum Information Science
Academic Excellence: Special Graduate Entrance Scholarship (SGES)

Moscow Institute of Physics and Technology (MIPT) Moscow, Russia
Bachelor of Science in Applied Math and Physics *Sep 2015 — Jul 2019*
Coursework: Calculus I-IV, Linear Algebra, Partial Differential Equations, Complex Analysis, Functional Analysis, Group Theory, Cosmology, Particle Physics, Nuclear Physics, Quantum Field Theory, General Relativity, Scientific Computing, Optimization, C++ for Physics

Technical Skills

Programming Languages: Python (Pandas, NumPy, Scikit-learn), SQL (Postgres), C/C++, R, Tableau
Frameworks: Pytorch, Tensorflow
Technologies: FastAPI, Docker, GitLab

Academic Experience

Higher School of Economics Remote
Data Scientist in the Computer Science department *Jun 2023 — Present*

- Working on several computer vision tasks which include developing a deep CNN Image Classifier and deep face detection models.
- Developing predictive models for market data movement based on Time Series and ML algorithms.

Simon Fraser University Vancouver, Canada
Researcher and Data Scientist in the Cosmology Group *Jan 2020 — Aug 2022*

- Collected, cleaned and analyzed unstructured data of cosmological parameters using Principal Component Analysis (PCA), Bayesian and Markov Chain Monte Carlo (MCMC) statistical algorithms.
- Implemented the Physics Informed Neural Network algorithm for solving Einstein's equations.
- Solved the spectral problem for quasi-normal modes (QNM) of black holes and wormholes using different approaches. Developed finite-difference algorithm in Python to simulate a solution of the problem.
- Conducted research independently in the fields of modern cosmology and modified theory of gravity applied to black holes and wormholes. Searched and surveyed all relevant literature on the subject.

Institute for Nuclear Research of Russian Academy of Science Moscow, Russia
Researcher in the Department of High Energy Leptons and Neutrino Astrophysics *Sep 2015 — Dec 2019*

- Contributed to numerical simulation of black hole silhouette for the brightest point detection in the accretion disk. Computed the spin of the M87 black hole. Results published in a paper.
- Built the logistic regression model to classify the types of elementary particles based on the large datasets of parameters retrieved from the CERN database.
- Wrote software packages for data analysis of parameters from high-energy particle collisions in C++. Performed Monte Carlo experiments for model selection purposes.

Publications

DOI:10.1007/s10714-019-2564-8, Volume 51, article number 81, (2019)
Event horizon silhouette: implications to supermassive black holes in the galaxies M87 and Milky Way.
Authors: Vyacheslav I. Dokuchaev, Natalia O. Nazarova, Vadim P. Smirnov