Alexander Timofeev

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Summary

I am a researcher with experience in applied mathematics and programming, currently pursuing a data science engineer career.

Skills

Languages & Platforms	Linux, C, C++, Python, SQL, bash, LaTeX
Tools	vim, git, valgrind, gdb
Python Libraries	numpy, scikit-learn, pandas, matplotlib, seaborn, xgboost, pytorch, scipy, beautifulsoup
C/C++ Libraries	openmp, mpi, thrust, cuda, eigen, cgal, blas, lapack, opengl, qt
Machine Learning &	regression, classification, clustering, ensemble methods, boosting algorithms
Quantitative	deep learning, mathematical optimization, numerical modeling
Languages	Russian (Native), English (Fluent)

Experience

Researcher   Sep 2020 – Feb 2022

Human Physiology Lab, Moscow Institute of Physics and Technology

Studied mathematical models of cardiomyocytes and developed C++ software for parameter estimation using customized optimization techniques such as Nelder-Mead method, gradient descent, and genetic algorithm.

Researcher   2019 – 2022

Institute of Numerical Mathematics Russian Academy of Science

Developed BloodFlow, a cardiovascular system modeling tool in C++ and Qt GUI for it. Proposed a novel zero-dimensional heart model incorporating a left ventricular assist device. Studied a virtual model of the systemic arteries network of a patient with implanted LVAD. Results were published in 2 papers.

Selected projects

Credit card usage and default risk (Erdos Institute 2022 Data Science Boot Camp Final Project)

Studied real bank data and built a XGBoost model to assess the credit risk of an applicant that requires only their bank card transaction history (ROC AUC 0.78). Developed a demo app with Gradio.

AI Village Capture the Flag @ DEFCON Kaggle Competition

Obtained the 28th place. Got an introduction to machine learning security topics such as adversarial attacks and data poisoning.

Santa 2022 - The Christmas Card Conundrum

Got a bronze medal in a competition related to discrete optimization by using travelling salesman problem solvers, Concorde and LKH-2.

VesselsDelaunay

Proposed an algorithm to represent tubular vessels in tetrahedral mesh and developed a CGAL extension in C++ to build such mesh from a 3D medical image.

Education

M.Sc.	Applied Mathematics and Informatics, Lomonosov Moscow State University		GPA: 4.97/5.0
	Faculty of Computational Mathematics and Cybernetics		2018 – 2020
B.Sc.	Applied Mathematics and Informatics, Lomonosov Moscow State University		GPA: 3.97/5.0
	Faculty of Computational Mathematics and Cybernetics		2013 – 2018