ARTEM VERGAZOV

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SKILLS

C/C++ | Python | MATLAB

Visual Studio | VS Code | PyCharm

PyTorch | PyQT | PySide | NumPy | SciPy | Pandas | scikit-learn | Matplotlib | Plotly | Folium | Dash | Flask | Eigen | pytest

ML | DS | Numerical methods | Math modeling | Linux shell | WiX | LaTeX

LANGUAGES

Russian: Native

English: Advanced / C1

EXPERIENCE

Contractor | Aramco Innovations Moscow Research Center

Apr 2022 – u.t.d. | Moscow, Russia

Development of AI-assisted water geochemistry prediction tool on Qt.

Research Engineer | Skoltech Laboratory of Quantum algorithms for machine learning and optimization

July 2023 – July 2024 | Moscow, Russia

- Implementing optimization algorithms
- Data automation for processing and experimentation
- Internal software development, debugging and testing
- Graphical processing of measurement results

Industrial Internship | Gazprom Neft's Science and Technology Center

June 2022 – August 2022 | Saint Petersburg, Russia

- Development of oil field optimization software for internal use.
- Implementing an optimization module based on Particle Swarm Optimization to the oil field modeling workflow.
- Achieved 3x speed up of the search for the optimal development system.
- 5% accuracy improvement due to improved boundary handling and hyperparameter selection.

Intern | Schlumberger Moscow Research (SMR)

Feb 2019 – Feb 2022 | Moscow, Russia

Project Involvements

- Development of competitive computational tools for hydraulic fracture simulation
- Hydraulic fracture closure on proppants for one of fracturing simulators in Kinetix
- Development of elastically open fracture model for Kinetix simulator
- Development of Boundary Integral Equation Solver for non-local elasticity
- Higher-Order Approximation Displacement Discontinuity Method for improved accuracy in fracture width computation
- Development of computationally effective numerical schemes and algorithms for geomechanics models in MATLAB, C++, and Python
- Unit & system tests in Visual Studio C++ projects
- Code profiling for speedup using Intel VTune/Advisor
- Advising other team members on the theory of numerical methods and consulting on C++ software development techniques

Achievements

- Development of the computationally effective method of high-resolution hydraulic fracture closure modeling
- Implementing highly accurate quadratic DDM
- Revision and speed up of existing model
- Presenting results of the work at 2 company internal workshops
- Mentioning in the acknowledgements in the paper in Engineering Fracture Mechanics Magazine for contribution to elastically open fracture model development: https://doi.org/10.1016/j.engfracmech.2020.107071

EDUCATION

MSc | Skoltech

2021 – 2023 Moscow, Russia

- Program: Advanced Computational Science
- GPA: 4.74/5.00
- Field of Research: Machine Learning and Data-Intensive Modeling
- Thesis: Articulation Points in Multiplex Networks
- Advisor: Vladimir Palyulin, Assistant Prof.

BSc | Lomonosov Moscow State University

2017 – 2021 Moscow, Russia

- Faculty of Physics, Department of Applied Mathematics, Chair of Mathematics
- GPA: 4.94/5.00 (**diploma with honors**)
- Field of Research: Numerical Methods and Mathematical Modeling
- Thesis: Accuracy Control in Stiff System Integration
- Coursework: “Tools for constructing artificial neural networks for classification problems in particle astrophysics” (at the Chair of Nuclear Physics and Quantum Collision Theory)

Publications in Preprints of Keldysh Institute of Applied Mathematics

- Belov A.A., Vergazov A.S., Kalitkin N.N. Numerical solution error of stiff Cauchy problems on geometrically adaptive meshes // Preprints of Keldysh Institute of Applied Mathematics. 138 (2019), p. 23 DOI: 10.20948/prepr-2019-138
- Belov A.A., Vergazov A.S., Kalitkin N.N. Accuracy control in stiff system integration // Preprints of Keldysh Institute of Applied Mathematics. 2020. № 88, p. 27 DOI: 10.20948/prepr-2020-88

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- the President grant MK-1780.2019.1

OTHER

Holder of Moscow government scholarship 65K/year

2017 – 2021 Moscow, Russia

for 100 score at Unified State Exams both in Physics and Mathematics