Vitaly Belov

Date of Birth: December 10, 2002   **Location:** Moscow, Russia
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Education

Moscow Institute of Physics and Technology (MIPT)
Faculty of Control and Applied Mathematics (FPMI)
Department of Modern Mathematical Problems
Master's Degree (1st year), Expected Graduation: 2026
GPA: 7.7

Additional Education

- **DEEP Learning School:** In-depth study of neural networks and modern deep learning approaches.

- **Yandex Algorithm Training:** Courses focused on solving complex algorithmic problems.

- **Samsung Computer Vision Course:** Study of cutting-edge computer vision technologies.

- **Vega Institute - Financial Mathematics:** Basic course in financial mathematics.

- **Vega Institute - Monte Carlo Methods:** Advanced use of Monte Carlo methods and time series.

- **Vega Institute - Game Theory:** Comprehensive course on game theory.

Work Experience

Research Scientist at VNIIA named after Dukhov (Quantum Computing Lab)
September 2022 – February 2025

- Development and optimization of quantum algorithms in Python and C++, adapting classical algorithms to the quantum paradigm.

- Implementation of the full project cycle: from idea to final integration and validation.

- Application of quantum computing and machine learning methods to solve complex problems.

- Implementation of modern software development and testing methodologies.

Analyst at Tinkoff Bank
June 2022 – July 2022

- Data analysis and report preparation to support business decision-making.

- Identification of key trends and anomalies based on statistical data processing.

- Development and optimization of SQL queries for data extraction from corporate databases.

- Collaboration with development and marketing teams to improve analytical processes.

Publications and Research Achievements

Measurement-induced phase transition in the central spin model: second Rényi entropy in dual space approach
Field: Physics and Quantum Computing
Conducted extensive research on information phase transitions in quantum systems, providing numerical proof of previously proposed theoretical formulas. Results published in a scientific journal.

Dynamical quantum Ansatz tree approach for the heat equation
Field: Algorithms and Quantum Computing
Developed a new method for solving the heat equation using a dynamical quantum ansatz, demonstrating the potential of quantum computing in solving complex mathematical problems compared to classical algorithms.

Technical Skills

- **Programming Languages:** Python (numpy, pandas, pytorch, matplotlib, sklearn, scipy, seaborn), C++ (basic level), SQL.

- **Tools:** Docker, Git.

- **Methods:** Quantum computing, quantum algorithm development, machine learning, deep learning, algorithmic analysis and optimization, data analysis.

Additional Achievements and Competencies

- Deep expertise in quantum computing, algorithms, and their application in financial models.

- Extensive research experience, supported by publications in peer-reviewed journals.

- Active participation in scientific conferences and seminars.

- Analytical mindset and problem-solving skills for complex challenges.

Personal Qualities

- High adaptability and learning ability.

- Commitment to continuous professional growth.

- Responsibility and initiative in task execution.