Aleksandr Kariakin

kariakinaleksandr@gmail.com | https://www.linkedin.com/in/kariakinaleksandr/ | https://github.com/PioneerAlexander

Education

Constructor University (former Jacobs University Bremen) — Sep 2024 – May 2026
M.Sc. Data Science — Bremen, Germany

Constructor University — Jan 2023 – Aug 2024
B.Sc. Computer Science, Minor in Mathematics — Bremen, Germany

Saint Petersburg State University — Sep 2021 – Jan 2023
B.Sc. Data Science, transferred to Constructor University, GPA **8.7/10.0** — Saint Petersburg, Russia

Achievements

International Mathematics Competition for University Students (IMC) — Aug 2023, Aug 2024
Winner, **Prize-Winner** — Bulgaria

International Mathematical Tournament of Towns — Apr 2021
Prize-winner — Russia

National All-Russian Mathematical Olympiad — Apr 2021
Finalist, **top 200** participants out of 20000+ participants — Russia

Experience

Machine Learning Preliminaries Teaching Assistant — Sep 2024 - Present
Constructor University — Bremen, Germany
- Reviewed and assessed homework assignments for **20+ 2nd-year CS students**, providing feedback on fundamental concepts in **Probability Theory and Statistics**, as well as **data processing** and **visualization** techniques.

Advanced Calculus and Matrix Algebra Teaching Assistant — Sep 2023 – May 2024
Constructor University — Bremen, Germany
- Designed problem sets and held seminars in advanced calculus and linear algebra for first-year STEM students

Quantum Computing Research Intern | ***PyTorch, Pyro*** — Jul 2023 – Sep 2023
Constructor — Bremen, Germany
- Applied **machine learning** framework **PyTorch** to create probabilistic circuit architecture
- Developed **neural network based** algorithms for **optimal state search** using **Ising model** and **annealing** methods
- Conducted literature reviews on research papers about **Bayesian networks** and p-bit computing

Projects

Price Movement Prediction | Pandas, NumPy, yfinance, tsfel, sklearn — Sep 2024
- Collected hourly **financial time series data** for S&P 500 **stock market tickers**, covering **180 days**, using **yfinance** API
- Developed 30-day labeled **rolling windows** capturing **time series volatility**, using Pandas and NumPy for **data processing**.
- Implemented and evaluated **time series clustering models** and **feature extraction techniques** to build and validate a **ML classifier** for predicting target **market trend** using **sklearn** and **tsfel**.
- Implemented **over 20+ features** based on **limit order book** and **trades HFT** data.

Research thesis Offline RL algorithms meet NLP | PyTorch, JAX, Flax, WandB, Git — Nov 2023 – May 2024
- Implemented **Transformer-based** Offline **Reinforcement Learning** algorithms: IQL (Implicit Q-Learning), CQL (Conservative Q-Learning) and TD3+BC, using **JAX** framework to accelerate both the training and evalution processes
- **Assessed the performance** for text generation tasks across different **NLP** benchmarks using WandB agents
- Conducted **remote experiments** on a cluster for a **hyperparameter tuning** using Tmux, wrote scripts using Bash, Vim, and WandB API. **Managed run configurations** using Hydra framework

Artificial Text Detection Kaggle Competition | Transformers, Hugging Face, PyTorch, Colab — Feb 2024
- Trained the 'Distil-BERT' text **classification model** into human-written and machine-generated for artificial text detection
- Achieved a remarkable accuracy of **98%** in a competitive **Kaggle** environment

Natural Language Processing Team Portfolio | PyTorch, Hugging Face, Colab — Sep 2023 – Dec 2023
- Developed a Telegram bot that enables search functionality in a chat through sentenced prompts instead of keywords
- Overcame the TF-IDF baseline in a movie **classification task** through the implementation of a CBOW (Context Bag of Words) classifier, evaluated the performance using **F1-score, precision, and recall metrics**
- Analyzed numerous research papers, exploring topics that range from Graph Transformers to Variational Auto-Encoder.

Technical Skills

Mathematical Knowledge: **Probability Theory and Statistics, Calculus, Algebra, Game Theory**
Programming Skills: Python, C++, **Machine Learning, Deep Learning**, **Bayesian Methods**, Generative AI
Frameworks: PyTorch, JAX, Flax
Developer Tools: Git, WandB, Bash, Vim, Tmux, jaxtyping