

JAFAR BAKHSHALIYEV

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EDUCATION

Stiftung Universität Hildesheim, Germany

October 2022 - Present

M.S., Data Analytics

Grade: 1.1 (sehr gut)

Relevant Coursework: Machine Learning I & II (1.3, 1.7), Advanced Computer Vision (1.3), Modern Optimization Techniques (1.7), Planning and Optimal Control (1.0) Programming ML (1.0), DDA (1.0), Deutsch A2 (1.0)

The University of Texas at Dallas, USA

August 2020 - May 2022

M.S., Finance

GPA: 3.92 (High Distinction)

Relevant Coursework: Programming for Data Science, FinTech & Blockchain, Business Analytics with R, Game Theory (PhD), Mathematical Methods for Finance

Bilkent University, Turkey

September 2016 - June 2020

B.S., Industrial Engineering

Relevant Coursework: Introduction to Programming (Java), Introduction to Computing (MATLAB), Applied Data Analysis (R), Introduction to Stochastic Processes, Stochastic Models, Macroeconomic Theory I & II

SKILLS

Programming Languages (sorted): Python, R, Java, MATLAB, VBA

ML Frameworks: PyTorch, TensorFlow, Keras

Tools (incl. Databases): MySQL, Spark, Git, Docker, Tableau, LaTeX

Strong background in: ML and Deep Learning, Mathematics, Algorithms and Data Structures

RESEARCH

Wave-Mask/Mix: Exploring Wavelet-Based Augmentations for Time Series Forecasting

Apr 2024

Authored research introducing wavelet-based augmentation methods, WaveMask and WaveMix, to improve time series forecasting accuracy. Demonstrated effectiveness through comprehensive experiments, outperforming traditional techniques across various datasets. Available on [arXiv](#) and [GitHub](#).

EXPERIENCE

Medizinische Hochschule Hannover, Germany

October 2024 - March 2025

Graduate Student Research Assistant

- Conducting research to develop machine learning models that differentiate between Tourette Syndrome and functional tic-like movements using video-based keypoint analysis.
- Applying spatio-temporal models to analyze body and facial keypoints extracted from patient videos for accurate classification.
- Collaborating with clinical experts to refine techniques and improve diagnostic support.

Stiftung Universität Hildesheim, Germany

November 2023 - March 2024

Graduate Student Assistant (HiWi) for Machine Learning

- Conducted 90-minute weekly tutorials for a group of approximately 20 students, explaining tutorial solutions, and providing academic support to enhance comprehension and performance.
- Assisted in the administration of final exams, ensuring precise evaluation and fair grading of student assessments.

Vattenfall, Germany

September 2023 - June 2024

Working Student - Data Science/Financial Modelling

- Actively contributed to the enhancement and automation of analysis-related routines, procedures, and applications, streamlining data processing and boosting operational efficiency.

- Conducted comprehensive market and competitor analyses, providing valuable insights for strategic planning and risk assessment, which played a crucial role in shaping the company's trading strategies.

MaxDecisions Inc., USA

January 2022 - May 2022

Risk Analyst - Data Science, Risk Management

- Processed data with Weight of Evidence, scaling, and oversampling for class imbalance, then implemented SVM, XGBoost, and deep learning models to predict Probability of Default.
- Evaluated models using K-S scores, ROC curves, and confusion matrices; collaborated with data scientists and business leaders for risk management solutions. Available on [GitHub](#).
- Tech stack: Python, Scikit-Learn, TensorFlow, Keras

Arcelik Inc., Turkey

October 2019 - June 2020

Senior Year Project Engineer - Project Management, Strategic Planning

- Led a warehouse optimization project, relocating departments to improve flow and increase capacity by 2,800 ft², using MATLAB for assessment and visualization.
- Enhanced logistics by optimizing forklift paths, reducing wait times by 20%, and boosting productivity.
- Increased revenue by 10% by designing wedges for coil steels, minimizing damage and waste.
- Authored a 40-page academic report on project methodology, results, and future recommendations with a team of seven ([Presentation](#), [Report](#)).

PROJECTS

Building Machine Learning From Scratch, Universität Hildesheim

October 2022 - March 2023

- Developed and formulated SLE algos (Gaussian elimination, QR), optimization algos (GD, Newton, SGD, CD), step-length algos (backtracking, bold-driver, RMSProp), forward/backward search with AIC/BIC, grid/randomized search with K-Fold, regularization (L1, L2, Elastic Net, Dropout), losses/fit (MSE, cross-entropy, case weights, MCR, Information gain)
- Developed and designed Linear/logistic regression, LDA/QDA, KNN (vanilla, LSH), decision trees (with gradient boosted), MLP, SVM, Naïve Bayes, K-Means, Gaussian Mixtures, NLP (TF-IDF, BOW, CBOW model, N-Gram language model). Available on [GitHub](#).

Credit Default Prediction, American Express

May 2022 - September 2022

- Conducted extensive data analysis on a dataset of 5M+ rows, leveraging time-series data and advanced feature engineering techniques to create over 800 features, resulting in a significant improvement in model performance.
- Achieved a 0.803 custom metric score with LGBM-DART and stacked 7+ models, including LogReg, SVM, NN, and Bagging. Available on [GitHub](#).

Smart Big Alpha Model, The University of Texas at Dallas

January 2022 - May 2022

- Gathered the stock prices, financial statement & macroeconomic data, technical indicators, and social media sentiment data and generated panel data using these data. Determined 25 statistically significant factors & cultivated a portfolio by exploiting the insights from financial, technical, and sentimental indicators.
- Tested the big alpha model to analyze the performance & reliability in generating excess returns and achieved a 17.5% return from the portfolio.

AWARDS AND SCHOLARSHIPS

Deutschlandstipendium, Universität Hildesheim

October 2023

David L.Holmberg Fellowship, The University of Texas at Dallas

August 2021

Dean's Excellence Scholarship, The University of Texas at Dallas

May 2021

Full Tuition Waiver Scholarship, Bilkent University

September 2016

Mathematical Olympiad (Baku) - 1st Place

March 2014

LANGUAGES

Azerbaijan - Native, Turkish - C2, English - C1, German - B1, Russian - A2