LUKA DUMBADZE

Batumi/Kutaisi/Tbilisi, Georgia | +995 577-39-58-34 | dumbadze.luka24@gmail.com

linkedin.com/in/luka-dumbadze

PROFESSIONAL SUMMARY

A motivated and goal-oriented AI/Machine Learning Engineer with a strong academic foundation in the complete data science lifecycle, numerical optimization, and robust software engineering. Proficient in Python and its data science ecosystem (Scikit-learn, Pandas), with a deep understanding of the mathematical and algorithmic principles behind modern AI. Seeking an entry-level opportunity to apply these skills to real-world projects and contribute to building innovative solutions.

TECHNICAL SKILLS

AI & Machine Learning: Supervised & Unsupervised Learning, Model Validation (Cross-validation), Exploratory Data Analysis (EDA), Dimensionality Reduction (PCA), Regularization (L1/L2), Hyperparameter Tuning, Linear/Logistic Regression, Decision Trees, K-Means Clustering, SVMs **Mathematical Foundations:** Nonlinear Optimization (Gradient Descent, Newton, BFGS, SQP), KKT Conditions, Numerical Linear Algebra (SVD, LU Factorization), Stability & Condition Analysis **Programming Languages:** Python, Java, C0, OCaml, SQL, JavaScript **Libraries & Frameworks:** Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, SciPy **Web Technologies:** HTML, CSS, JavaScript **Developer Tools:** Git, GitHub, Jupyter, Anaconda, Typst

ACADEMIC PROJECTS

Applied Machine Learning & Data Analysis **Course:** Intro to Data Science with Python

- Executed the complete data science workflow on real-world datasets, including data cleaning and manipulation with Pandas, and exploratory data analysis using Matplotlib and Seaborn to identify key patterns.
- Developed a portfolio of supervised and unsupervised models in Scikit-learn, including Linear Regression to predict house prices, Logistic Regression for customer churn analysis, and K-Means Clustering for market segmentation.
- Evaluated model performance using appropriate metrics (R-squared, accuracy, confusion matrices) and communicated findings through data visualizations and project reports.
- **Technologies:** Python, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Jupyter

Numerical Optimization for AI/ML **Course:** Optimization & Numerical Methods Courses

- Implemented and analyzed a suite of large-scale nonlinear optimization algorithms in Python, including Gradient Descent, Newton's method, and Quasi-Newton methods (BFGS).
- Solved complex constrained optimization problems by formulating Karush-Kuhn-Tucker (KKT) systems and applying methods like Sequential Quadratic Programming (SQP).
- Applied numerical linear algebra techniques, including Singular Value Decomposition (SVD) for data analysis and LU Factorization for solving systems efficiently, analyzing algorithm stability and conditioning.
- **Technologies:** Python, NumPy, SciPy

Object-Oriented Software Development **Course:** Fundamentals of Programming

- Engineered a series of object-oriented applications in Java, implementing core data structures (linked lists, trees, stacks) from scratch to build robust and modular software.
- Applied software engineering best practices including version control with Git and GitHub for collaborative development and code management.
- **Technologies:** Java, Git, GitHub

EDUCATION

Bachelor of Science in Computer Science & Mathematics | Kutaisi International University | 2022 – 2025 (Expected)

Key Coursework: Introduction to Data Science with Python, Unconstrained & Constrained Nonlinear Optimization, Numerical Linear Algebra & Analysis & Programming, Fundamentals of Machine Learning

High School Diploma | Tbilisi Komarovi Physics and Mathematics №199 Public School | 2015 – 2022

Specialized in Physics and Mathematics