



Luka Dumbadze

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🎯 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.

🎓 EDUCATION

Bachelor of Science in Computer Science & Mathematics

2022 – 2025 (Expected)

Kutaisi International University, Kutaisi, Georgia

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

High School Diploma

2015 – 2022

Tbilisi Komarovi Physics and Mathematics №199 Public School, Tbilisi, Georgia

Specialized in Physics and Mathematics

⚡ SKILLS

AI & Machine Learning: Supervised & Unsupervised Learning, Model Validation (Cross-validation), Exploratory Data Analysis (EDA), Dimensionality Reduction (PCA), Regularization (L1/L2), Hyperparameter Tuning

Models: 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

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

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

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](#)