Ivan Lazhok

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Summary

Master's student in AI (Applied Mathematics background) with hands-on PyTorch experience in graph neural networks, model benchmarking, and computer vision. Looking for a junior ML/AI engineer or data scientist role.

Education

Taras Shevchenko National University of Kyiv — Kyiv, Ukraine
Master of Computer Science, Mathematical Methods of Artificial Intelligence — *Sep. 2026 – Present*

Taras Shevchenko National University of Kyiv — Kyiv, Ukraine
B.Sc. Applied Mathematics, Faculty of Computer Science and Cybernetics — *Sep. 2022 – Jun. 2026*

IT Step Computer Academy — Lutsk, Ukraine
Software Development course — *Jun. 2019 – Apr. 2023*

Projects

Handwritten Stroke Classification with a Modified EGAT (Diploma Project)
Python, PyTorch Geometric — Nov. 2025 – Jun. 2026

- Built a custom Edge-Conditioned Graph Attention Network to classify handwritten strokes (text, formulas, diagrams) from the IAMonDo-db dataset, modeled as graphs. Research paper.
- Extended the baseline with GRU-based edge updates, a Virtual Node for global context, and GATv2 dynamic attention; built the data processing and feature engineering pipeline (42 geometric/time features, custom augmentation).
- Reached 97.8% binary accuracy and raised multiclass Balanced Accuracy from 79.3% to 84.4% over the baseline, with fewer parameters.

Benchmarking Kolmogorov-Arnold Networks (KAN) vs. MLP (Course Project)
Python, PyTorch — Dec. 2024 – May 2025

- Benchmarked KAN against MLP at matched parameter counts on 4 UCI datasets (Breast Cancer, Musk, Gamma Telescope, Dry Bean) with 5-fold cross-validation, using learnable B-spline edge activations (grid size 3, order 3). Research paper.
- Found KAN's advantage was largest at small budgets: ∼20% higher accuracy on Breast Cancer at ∼300–650 parameters.

Nutrition Estimation from Food Images (Personal Project, in progress)
Python, PyTorch — Sep. 2026 – Present

- Building a modular, model-agnostic pipeline to benchmark a CNN baseline, fine-tuned ResNet18, and fine-tuned Swin-T on RGB images from Nutrition5k; new architectures plug in via config changes.

TradePulse (Team Project)
Python, Docker, Telegram API, Yahoo Finance API — Sep. 2026 – Nov. 2026

- Co-developed a modular-monolith backend delivering LLM-driven market analysis through a Telegram bot, with a provider-agnostic LLM layer that can be swapped easily; worked in 2 Agile sprints (ClickUp).
- Implemented market data fetching and the memory and buy/sell decision logic, and integrated them with the Yahoo Finance API.
- Authored the project's Business Model Canvas and delivered the final team presentation, connecting the technical work to business value.

eBay-style Marketplace (Team Project, 3 people)
C#, ASP.NET Core, Entity Framework Core — Jan. 2022 – Nov. 2022

- Backend for a microservices marketplace: designed much of the SQL schema, EF Core entities/migrations, API endpoints, and authentication/registration.
- Implemented real-time bidding with automatic price updates and anti-sniping auction extension.

Technical Skills

ML/AI: PyTorch, PyTorch Geometric, scikit-learn, NumPy, Pandas, Matplotlib
Languages: Python, C#, SQL, C++, HTML/CSS/JS
Databases: PostgreSQL, MS SQL Server, SQLite, Entity Framework Core
Tools: Git, Docker, Jupyter, LaTeX, Linux (Fedora), VS Code, ClickUp
Languages (spoken): English (B2), Ukrainian (native)