Aatu Selkee

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Projects

Deep Learning Library   GitHub

- Developed a large-scale Python library for machine learning and deep learning using only PyTorch Tensor operations, without relying on autograd. In some cases, its performance surpasses the common libraries.
- **Tools**: Python, PyTorch, TensorFlow, SciKit-Learn, Numpy, Scipy, Matplotlib, Git, GitHub actions.
- The documentation for the library can be found here.

NeoGPT   GitHub

- Implemented a large language model from scratch with the same architecture as GPT-2. The training included pre-training, supervised fine-tuning, and reinforcement learning (direct preference optimization).
- **Tools**: Python, PyTorch, Huggingface, ssh.

Chess Engines   Javascript engine | C++ engine

- Developed two chess engines. Both engines used a negamax search with many pruning techniques combined with a hand-written evaluation function. The C++ engine is work in progress, but from the link, one can play against the Javascript engine.
- **Tools**: Javascript, HTML, CSS, Node.js, C++, GCC, CMake.

Other projects   GitHub

Experience

ML engineer intern, Bayesian optimization for material properties   May 2025 – Aug 2025

- I was responsible for communicating and developing a Gaussian process time series prediction model for a large potential client.

Research assistant, Aalto University   June 2024 – Aug 2024

- Implemented an algorithm to optimize the measurement setting in parallel beam X-ray tomography. The research project resulted in my Bachelor's thesis.

Skills

Python: PyTorch, TensorFlow, SciKit-Learn, Numpy, Scipy, Matplotlib, Pandas, PyMC, Pyro, etc.

Other languages: R, MATLAB, SCALA, Javascript, C++.

Technologies: GitHub, Git, ssh, LaTeX.

Education

Aalto University, Master of applied mathematics (MSc Tech).   Jan 2025 – Present

- Minor in Machine Learning, Data Science and Artificial Intelligence.   GPA: 5.0 / 5.0

Aalto University, Bachelor of mathematics and system analytics (BSc Tech).   Sept 2022 – Dec 2024

- Minor in Data Science with a specialization in machine learning.   GPA: 4.91 / 5.0

Achievements

- **Winner** of the Sustainable Finance in the Quantum Era Hackathon.
- Dean's Stipend 2023 and 2024, Scholarship from Professor E. J. Nyström funds in 2024, Technology Industries of Finland Centennial Foundation Stipend in 2021.
- Participant in the Nordic Mathematical Contest and Nordic-Baltic Physics Olympiad and finalist in MAOL Mathematics and Physics competitions.

References

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