

Matias Nieminen

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tl;dr

I'm currently working on my master's thesis at Aalto Intelligent Robotics group. I research using object-centric scene representations in end-to-end vision-language model-based self-driving. I take interest in applied ML and software engineering.

Previously, I've worked on deep fault detection systems at Aalto ARotor Lab, spam detection at University of Helsinki, and founded/chaired an AI club for Finland's AI enthusiasts, AaltoAI, where I hosted a podcast, led a software team to create a cloud compute platform, and much more.

Experience

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| Thesis Worker , Aalto Intelligent Robotics Group | 2025 Spring - Ongoing |
| • I research using object-centric scene representations in end-to-end vision-language model-based self-driving. | |
| Research Assistant , ARotor Research Laboratory | 2024 |
| • Developed a baseline model for intelligent fault detection using deep autoencoders. | |
| Software Engineer Internship , Happeo Oy | 2023 |
| • Worked as part of Happeo's mobile development team. | |
| • Received a full-time offer after internship | |
| Machine Learning Engineer Intern , University of Helsinki / Minna Learning Oy | 2022 - 2023 |
| • Developed an intelligent spam filter using Hugging Face, TensorFlow, Pandas, and SQL. | |
| • Engineered and cleaned data sets, optimized data gathering, and constructed effective ML models. | |
| • Received a full-time offer after internship | |
| Software Engineer Internship , Nokia Oyj | 2022 |
| • Built a full-stack web application for monitoring 5G base station data. | |
| • Gained proficiency in gRPC and Grafana. | |
| • Received a full-time offer after internship | |
| Software Engineer , Webso Oy | 2021 - 2022 |
| • Developed a React Native front-end for a startup client. | |
| • Received a full-time offer after internship | |

Projects

- | | |
|---|---------|
| AaltoAI Association | website |
| • I built an association from the ground up with a team. We became organized in Autumn 2023 with me serving as chairman of the board. In the span of a year, we attracted over 2000 students to follow our communication channels as well as hundreds of official members. We created a partnership with Microsoft, DataCrunch Oy, and an industrial AI consultancy Smartbi Oy. In marketing efforts, I hosted a podcast called the Dataset Podcast (link). In addition, we created a platform where our members can lend compute from our partner DataCrunch (link). | |
| Multilayer Perceptron C++ | git |
| • Built a multilayer perceptron, any amount of hidden layers, any width, with C++ from scratch. | |
| • Tools: C++, gcc, make | |

Financial modeling for SMBs

git

- I developed a financial modeling tool for SMBs where they can project sales outcomes based on probability distributions and quantities. The tool generalizes outside financial purposes as well ([link](#)). I plan to extend the project with bayesian inference and LLM support.
- Tools: Scipy, fastapi, React.js

Education

Aalto University, MS in Data Science

Sept 2023 – May 2025

- **Coursework:** Bayesian inference, deep learning, computer vision, computational methods in stochastics, entrepreneurship

University of Helsinki, BS in Computer Science

Sept 2020 – May 2023

- GPA: 4.22/5.0
- **Coursework:** Software engineering, computational theory, real analysis, linear algebra

Technologies

Languages: Python, C++, R, Stan, Java, C#, SQL, TypeScript, SQL

Technologies: PyTorch, Keras, TensorFlow, Scipy, brms, Next.js, Pandas, seaborn