

Max Andersson

Aspiring Software Engineer

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Building innovative, efficient, high-performance software solutions for real-world impact!

Technical Skills

Programming Languages: Python, C++, Kotlin, SQL, R, JavaScript, MATLAB, TypeScript, L^AT_EX

Frameworks: PyTorch, TensorFlow, Scikit-learn, MLflow, React, Git, Docker

Domains: AI, Machine Learning, MLOps, Computer Vision, Automation, GUI, Anomaly Detection

Experience

Software Engineer and Physics Researcher

CERN

February 2025 - Present
Geneva, Switzerland

- Optimized and automated DAQ software, saving 600 hours per year.
- Identified and optimized oscilloscope-PC communication bottleneck, reducing TCT measurement time by 80%.
- Supervised and mentored a student on technical, theoretical, and workflow aspects.
- Developed **PENGUIN**, a Python-based environment for GUI-driven analysis using Pyside6 and Git. Enabled real-time data synchronization from 4500+ measurements with one-click access to analysis results. PENGUIN empowers effective collaboration within a team of 6, streamlining workflows and saving individual analysis hours.
- Conducted annealing studies of neutron irradiated p-type silicon diodes for the CMS HGCAL endcap upgrade. Provided novel knowledge of the expected electrical characteristics of the silicon sensors during the 10-year operation of HL-LHC.

Machine Learning Engineer

CERN

July 2024 - September 2024
Geneva, Switzerland

- Developed and enhanced Computer Vision ML models for anomaly detection in silicon sensor quality control.
- Combined four individual software programs to one user-friendly GUI. Developed grid scan algorithm to automatically align laser to the opening of silicon diodes.
- Enrolled in CERN Summer Student Programme (2.3% acceptance rate). Lectures in Quantum Computing, GPU Programming, Reinforcement Learning, and Particle & Detector Physics.

Full-Stack Developer

Ericsson

June 2023 - December 2023
Gothenburg, Sweden

- Developed an end-to-end software tool using HTML/CSS, JavaScript, Python, and Docker to communicate with 3G, 4G and 5G cells, monitoring and modifying its live status, range and bearing. Project presented to the CEO.
- Developed an Android app in Kotlin to monitor serving and secondary 3G/4G/5G cells, implemented real-time streaming via MQTT protocol, and created a heatmap feature to optimize connection coverage.

Automated Assembly Line Operator

Charkuterifabriken Sverige AB

Oct 2019 - Aug 2022
Halmstad, Sweden

- Optimized and led the production line to ensure maximum efficiency for a 12-person team.
- Quickly identified and resolved mechanical issues to minimize production downtime.

Event Coordinator

Uppsala Union of Engineering and Science Students

Sep 2021 - Nov 2021
Uppsala, Sweden

- Coordinated pre-fair events for UTNARM, a major career fair with 100+ exhibiting companies.
- Led planning and logistics for two event weeks preceding the fair.
- Moderated a panel discussion with five professors with an audience of 230 attendees.

Education

M.Sc. Engineering Physics, Computer Science and AI

Uppsala University

August 2020 - January 2026

Uppsala, Sweden

- Computer Science:** Machine Learning, Deep Learning (advanced), Algorithms, Scientific Computing, Databases
- Physics:** Quantum Physics, Electromagnetism, Solid State Physics, Mechanics, Special Relativity
- Mathematics:** Partial Differential Equations, Transform Methods, Linear Algebra, Optimization, Statistics
- Engineering:** Robotics, Automatic Control, Electronics, Signals and Systems
- GPA:** 4.74 / 5.00
- Awards:** Carlson, H. W. Scholarship
- Bachelor Thesis:** Dark Matter signals at the Large Hadron Collider with Deep Learning

- Simulated proton-proton collisions with Monte Carlo simulation using MadGraph and MadAnalysis on HPC clusters and classified the possible dark matter candidates using deep learning models.

International Studies in AI

Ghent University

January 2024 - July 2024

Ghent, Belgium

- Courses:** Large Language Models, Natural Language Processing, Causal Machine Learning, Deep Generative Models

Engineering Preparatory Year

Lund University

Aug. 2018 - Jun 2019

Lund, Sweden

Economics and Management

Aspero Sports High School

Aug. 2015 - Jun 2018

Halmstad, Sweden

- Founded and managed a student company as part of the Junior Achievement / Ung Företagsamhet programme, gaining experience in entrepreneurship, budgeting, and marketing.

Publications

Exploiting the Asymmetric Uncertainty Structure of Pre-trained VLMs on the Unit Hypersphere

2025

- Journal:** NeurIPS
- Keywords:** Vision Language Models, Uncertainty Quantification, Multimodal, Contrastive Learning

Temperature dependence of the long-term annealing behavior of neutron irradiated diodes from 8-inch p-type silicon wafers

2025

- Journal:** JINST
- Keywords:** Radiation Damage, Silicon Sensors, Annealing, CMS, HGCAL

Soft Skills & Language Skills

Soft skills: Leadership, Innovative Thinking, Time Management, Effective Communication, Team Collaboration

Languages: Swedish (fluent), English (fluent), Spanish (B1), French (A1)