

Samuel Erickson

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EDUCATION

KTH Royal Institute of Technology

Ph.D. Electrical Engineering

2024 – Present

Research topic: scalable and resource-efficient optimization for machine learning. Advised by Prof. Mikael Johansson and Prof. Cristian Rojas.

Stanford University

GPA: 3.9 (4.0)

Visiting Graduate Student

2022 – 2023

Selected as 1 of 2 students for a full academic year at Stanford. Coursework includes: large-scale convex optimization, statistical learning, stochastic calculus and control.

Linköping University

GPA: 4.6 (5.0)

M.Sc. Applied Mathematics

2022 – 2024

Coursework includes: functional analysis, advanced statistical theory, matrix analysis.

B.Sc. Mathematics

2019 – 2022

Coursework includes: real analysis (honors), linear algebra (honors), complex analysis.

B.Sc. Applied Physics and Electrical Engineering

2019 – 2022

Coursework includes: modern physics, electromagnetic field theory, signals and systems.

EXPERIENCE

Lynx Asset Management, Stockholm, Sweden

Master's Thesis Student

Jan 2024 – Jun 2024

- Introduced new method for estimating sparse inverse covariance matrices with non-asymptotic guarantees.
- Released Python package with implementation of the method written in Rust, which is 5-10x faster than scikit-learn's GraphicalLasso.
- Proved non-asymptotic convergence rate matching the state-of-the-art under weaker distributional assumption.

Stanford University, Stanford, CA.

Student Researcher

Apr 2023 – Jun 2023

- Project on sequential convex optimization for constructing mean reverting portfolios.
- Advisor: Prof. Stephen Boyd.

Ericsson Research, Linköping, Sweden

Research Intern

Jul 2023 – Aug 2023

- Researched Scalable Video Coding (SVC) in 5G radio networks.
- Developed scheduling and queue management algorithms that made SVC competitive with rate adaptation.

PUBLICATIONS AND MANUSCRIPTS

S. Erickson and M. Johansson (2026). *Clipping Makes Distributed and Federated Asynchronous SGD Robust to Stragglers*. ICML 2026.

S. Erickson and M. Johansson (2026). *Karula: Laplacian-constrained Personalized Federated Learning*. Submitted.

S. Erickson and T. Rydén (2025). *Non-asymptotic Estimation of Sparse Partial Correlation via Joint Partial Regression*. Submitted.

SKILLS

Programming languages: Python (PyTorch, NumPy, Sklearn, CVXPY), Rust, Julia, C++, Matlab, Java, $\LaTeX$.

Spoken languages: English (fluent), Swedish (native), French (elementary).

AWARDS AND HONORS

Linköping University, Institute of Technology

Full tuition covered for studies at Stanford University (40,000 EUR). 2022 & 2023

Carl Erik Levin Foundation

Two scholarships to support studies at Stanford University (6,000 EUR). 2022 & 2023

Dr. Felix Neubergh Foundation

Scholarship to support studies at Stanford University (2,000 EUR). 2023

Tryggve Holm Scholarship

Scholarship for outstanding performance as a graduate student (2,000 EUR). 2022

Engineers of Sweden

Scholarship to support studies at Stanford University (2,000 EUR). 2022

TEACHING AND OTHER EXPERIENCE

KTH & Linköping University

Teaching Sep 2020 – Dec 2023

- Coauthored *An Introduction to Metric Spaces*, which is used as supplemental course literature in *real analysis*, *honors course*, and has been downloaded over 5,000 times.
- Taught linear algebra, foundations in mathematics, model predictive control.

Linköpings Y-teknologsektion, Linköping, Sweden

Chairman of Educational Committee Jul 2021 – Jul 2022

- Elected leader of a 30-member committee responsible for program-wide course evaluations.
- Voting member of the Board of Studies for Electrical Engineering, Physics and Mathematics at Linköping University.

THESIS SUPERVISION

S. Veríssimo Simões. *Fast Stabilisation and Robust Control of Micro Quadrotors for In-Flight Launch from a Mothership Aircraft*. Master's thesis, KTH, 2026.

M. Larsson. *Hybrid Retrieval-Augmented Generation (RAG) for Candidate-Job Matching*. Master's thesis, KTH, 2026.

J. Hedstrand Welander. *Benchmarking Agentic LLMs for Market Monitoring*. Master's thesis, KTH, 2026.

M. Trende. *Reduction of Vertical Acceleration for Hydrofoil Boats in Wavy Conditions*. Master's thesis, KTH, 2025.

F. Nilsson. *House Valuation using Laplacian Regularized Stratified Modeling*. Master's thesis, KTH, 2025

E. Collin. *Reducing vertical Accelerations in Electric Hydrofoil Boats Using Model Predictive Control*. Master's thesis, KTH, 2025.

J. Bukorovic and S. Lü. *Interaction Between Building Systems and Building Occupants' Behaviors: Modeling Occupants' Actions*. Bachelor's thesis, KTH, 2025.