

ERIK KRONKE

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EDUCATION

KTH Royal Institute of Technology

Stockholm, SE

M.Sc. in Engineering, Theoretical Computer Science

Aug 2022 – May 2027 (Expected)

- **Master's Degree:** Theoretical Computer Science (2025 – 2027), specializing in cryptography and formal methods.
- **Bachelor's Degree:** Computer Science (2022 – 2025)

EXPERIENCE

Safello

Stockholm, SE

Quality Assurance Engineer (Part-time)

Jun 2024 – Jun 2025

- Developed and maintained automated unit and End-to-End (E2E) test suites using Jest and Maestro, improving test coverage and ensuring platform stability.
- Partnered with cross-functional engineering teams to triage and resolve software defects, reducing production bugs and improving deployment speed.

KTH Royal Institute of Technology

Stockholm, SE

Teaching Assistant – Programming Paradigms

Jan 2025 – Jun 2025

- Mentored 250 students in Programming Paradigms (DD1366), breaking down complex concepts in Haskell, functional programming and syntactical analysis.
- Led weekly lab sessions and conducted examination of assignments.

Swedish Armed Forces

Luleå, SE

GMU Flygbassäk Squad Leader, F21

Aug 2020 – Jun 2021

- Commanded a 9-person squad during military training, directing daily operations and ensuring personnel welfare.
- Executed critical decisions and solved complex logistical problems in high-stress, fast-paced environments.

PROJECTS

Sketching for Linear Algebra | Python, C++, NumPy, pybind11

Oct 2026 – Present

- Developing a randomized linear algebra library implementing Gaussian, SRHT and CountSketch sketches to accelerate least-squares regression and low-rank approximation (randomized SVD) on large matrices.
- Implemented the fast Walsh–Hadamard transform and CountSketch as C++ kernels exposed to Python via pybind11, achieving a 4× speed-up over the NumPy implementation.
- Individual research project at KTH, combining proofs of subspace-embedding guarantees with empirical benchmarks of accuracy and runtime.

TECHNICAL SKILLS

Languages: C++, C, Java, Python, Haskell, SQL

Tools & Frameworks: Git, Linux, Docker, CMake, pybind11, Cypress, Jest

Theoretical CS: Cryptography, Formal Methods, SAT-solvers, Sketching Algorithms (Linear Algebra/Data Analysis)