Thijn Kroon

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Introduction

Computer science graduate with a strong foundation in program analysis, testing, and formal methods, combined with hands-on industry experience. I've built symbolic execution tools, developed production-grade software for clients, and created widely used automation systems. I bring a mix of academic rigor and entrepreneurial execution, with a focus on delivering robust, scalable solutions.

Education

MSc Computing Science *Utrecht University* **2023 - 2025**
Magna Cum Laude (8.61/10) Master

- Specialization in Programming Technology.
- Thesis: **Dynamic symbolic execution (DSE) for automated Java test generation** (8.8).
  - Designed and implemented **MAZE**, a modular DSE engine for Java bytecode, enabling systematic comparison of search strategies for test generation.
  - Combined formal theory and practice by developing an **operational semantics** for symbolic execution of MAZE.
  - Experiments showed that MAZE, using informed and interleaved strategies, outperforms traditional strategies (DFS, BFS) and tools (Randoop), and **matches performance of EvoSuite** on a custom benchmark set.
- Relevant courses: Program Semantics & Verification (9.1), Language Based Security (9.57), Concepts of Programming Language Design (9.5), Cloud & Edge Computing (9.1), Advanced Functional Programming (8.7).

BSc Computing Science *Utrecht University* **2020 - 2023**
Magna Cum Laude (8.96/10) Bachelor

- Completed the selective honors program for high-achieving students.
- Relevant courses: Software Testing & Verification (9.4), Languages & Compilers (9.8), Data Structures (10), Modelling & System Development (9.4), Functional Programming (10), Security (9.7), Concurrency (9.2).
- Thesis: **Decentralized autonomous organization (DAO) for SecureSECO** (9/10, top of cohort).
  Co-developed a DAO for the SecureSECO project in a team setting. As part of the honors program, authored a comparative analysis paper on distributed ledger platforms for SecureSECO.

Secondary Education *Minkema College* **2014 - 2020**
E&M with Mathematics B and Informatics Secondary Education

Experience

QuickCode **2021 - Present**
Co-Founder and Full Stack Developer

- Deliver custom software solutions for clients, focused on automations, scrapers, dashboards and (Discord) bots.
- Work independently or in small teams and handle both client communication and technical implementation.
- Technologies: TypeScript, Node.js, React, Next.js, Express, SQL, Puppeteer, APIs.

Skills

Programming Languages: Java, Haskell, TypeScript, C#, Python, SQL

Frameworks & Libraries: JUnit, ASM, Z3, React, Next.js, Express, Puppeteer

DevOps & Infrastructure: Docker, Git, Kubernetes, CI/CD, Grafana, Prometheus, cloud platforms

Verification & Testing Techniques: Symbolic execution, automated test generation, mutation testing, model checking, formal specifications

Languages: English (fluent), Dutch (native), German (B2)

Projects

Alpha Warden *Discord moderation bot* **Jul 2022 - Present**

https://www.alphawarden.com/

- Independently develop, and maintain a Discord moderation bot used by **300+ servers**, serving over **200k users**.
- Built with Node.js and a custom Next.js dashboard for server admins to manage the bot.

Lead Academy *Scrapers and lead generation tools* **May 2024 - Present**

https://leadacademy.io/

- Develop and maintain custom web scrapers to collect B2B lead data from various online sources (e.g., Google My Business, Trustpilot, Clutch).
- Automated lead generation workflows, integrating tools like PandaMatch, Smartlead, and MillionVerifier.

Konnector *Email conversation management API* **Sep - Nov 2024**

- Built an API that uses the IMAP protocol to track and manage email threads with real-time synchronization, for use in automated workflows.

Autoreach *AI-powered Twitter outreach* **Nov 2023 - Sep 2024**

- Built a tool to scrape followers and replies from X (Twitter) posts, organize users into collections, and send automated, personalized DMs with AI-powered filtering and message generation.
- Developed a user-friendly dashboard to manage collections, customize messages, and control outreach campaigns.

TI-Basicli *REPL for TI-Basic* **Mar 2024**

GitHub

- Built an interactive parser and interpreter for the TI-Basic 83 language, emulating GHCi-style interaction.
- Implemented in Haskell with support for file I/O, command autocompletion, and basic graphical output via Gloss.

GCL Verifier *Bounded symbolic verification for GCL* **Oct 2023**

GitHub

- Developed a bounded symbolic verifier for guarded command language (GCL) programs.
- Built in Haskell using Z3, with support for multiple heuristics (e.g., loop invariants, path pruning, query optimization), benchmarking, and mutation testing.

Publications

Upgradeable diamond smart contracts in decentralized autonomous organizations **Dec 2024**

Frontiers in Blockchain

https://doi.org/10.3389/fbloc.2024.1481914

Investigated how DAOs can use the Diamond Pattern to enable modular, upgradeable smart contracts governed by community consensus. Demonstrated a flexible, non-technical proposal and voting system that avoids admin centralization.

Honors & Awards

Graduate Honours Interdisciplinary Seminars **Oct 2023 - July 2024**

Utrecht University

Honors program focusing on interdisciplinary research and collaboration.

2nd Place – DAO Global Hackathon **April 2023**

Aragon

Awarded 2nd place in the world's largest DAO-focused hackathon for co-developing a DAO starter template.