MIHAI-GEORGE LICU

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EDUCATION

ETH Zurich — Zurich, Switzerland
MSc in Computer Science — Sep 2024 - Present

University of Bucharest — Bucharest, Romania
BEng in Computer Science — Sep 2020 - Jul 2024

WORK EXPERIENCE

ETH Zurich — Zurich, Switzerland
Research Assistant — Aug 2025 - Present

- Extended a **Python/Java** pipeline that generates synthetic populations to run **agent-based** transport simulations, adapting its modules to process new geographical data.
- Automated the generation of geospatial visualizations from simulation data, providing key metrics for urban planning analysis using **geopandas**.

CERN — Geneva, Switzerland
Security Engineer Intern — Jun 2023 - Sep 2023

- Overhauled a critical security scanner by migrating its codebase from **Python 2** to **Python 3** and integrating **Kerberos SSO** authentication, enabling automated detection across 1000+ previously unscannable web applications.
- Contributed to a live incident response effort by performing forensic analysis on attacker-provided artifacts (source code, logs) to assist in post-breach investigation.
- Authored a detailed technical report on the viability of a unified **YubiKey** authentication system, analyzing **FIDO2** protocol limitations and OS-level integration challenges for **SSH** across the complete Linux, macOS, and Windows ecosystem.

Deutsche Bank — Bucharest, Romania
Software Engineer Intern — Mar 2023 - Aug 2023

- Accelerated development for a new internal training platform built with **Java Spring Boot** and **React** serving 1500+ employees by architecting a complete **CI/CD** pipeline on Google Cloud Platform that automated all builds, testing, and deployments.
- Improved user retention and engagement for the platform by engineering its primary notification microservice with **Google Cloud Functions**, delivering event-driven communications.

ETH Zurich — Zurich, Switzerland
Research Assistant — Jul 2022 - Aug 2022

- Engineered a portable, **Docker**-based lab environment for a graduate-level Systems Security course, providing 200+ students with a consistent platform for hands-on exercises in memory corruption, static/dynamic analysis, and sandboxing.
- Wrote a series of targeted benchmarks against a novel **WebAssembly** sandbox that leverages Intel Memory Protection Keys to analyze its performance and stability.

PERSONAL PROJECTS

fabridyne | Rust

- Developed a cycle-accurate, out-of-order superscalar processor simulator in **Rust**, capable of executing a subset of the **RISC-V** instruction set.
- Modeled a complete microarchitecture, including a 32-entry reservation station, register renaming, and precise exception handling to manage data hazards and ensure correct state.

Sound Synth | C++

- Built a real-time, polyphonic audio synthesizer leveraging the **SDL2** library for low-latency, cross-platform audio processing and event handling. The synthesis engine features multiple waveform oscillators, dynamic ADSR amplitude envelopes, and a collection of distinct virtual instruments.

SKILLS

Programming Languages: Python, C++, Rust, Java, C, Go, JavaScript

Developer Tools: Docker, Linux, GCP, Git, Kubernetes, IDA Pro, Wireshark, Burp Suite