

# Sfarghiu Traian Adrian

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## OBJECTIVE

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Backend-focused CS student (Python/C++) with expertise in high-performance workflow management. Passionate about Linux environments and designing distributed systems to solve complex automation challenges.

## EXPERIENCE

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**AROBS** | *Embedded & AI Software Engineering Intern*

Jun 2026 – Aug 2026

- Increased robot payload and traction capacity by **100%** by upgrading the firmware from a **2-wheel** to a **4-wheel** drive system, implementing multi-timer quadrature encoder decoding and PID algorithms in C.
- Built a real-time Fleet Management dashboard (FastAPI, WebSockets) to orchestrate multiple autonomous robots, featuring interactive SLAM map visualization and live telemetry tracking
- Developed a robust inter-board communication protocol (Python, UDP, JSON) to parse and synchronize high-frequency telemetry between the master controller and ROS LiDAR navigation units

## EDUCATION

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**Babeş-Bolyai University, Faculty of Mathematics and Computer Science**  
*B.S. in Mathematics and Computer Science (3rd Year)*

Cluj-Napoca  
2024 – Present (Expected Jul 2027)

## PROJECTS

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**Parking Automation & Monitoring** | *Kotlin, Python, OCR, Tensorflow*

Feb 2026 – Apr 2026

- Developed an android specialized application for police vehicle cameras aimed at automating parking subscription verification.
- Utilized OCR and a Yolo model to accurately identify license plates from real-time feeds.

**Image Processing Library** | *C++17* | [GitHub](#)

Apr 2025

- Built a comprehensive C++ image processing engine from scratch, prioritizing memory efficiency and low-level performance.
- Developed algorithms for Gamma correction, custom kernel convolutions, and frequency-based filtering.

**Caesar Cipher Frequency Analysis** | *Security & Algorithms* | *C* | [GitHub](#)

Jun 2025

- Developed a C program to automate the decryption of Caesar ciphers via statistical frequency analysis.
- Implemented three distinct mathematical metrics to calculate language distribution accuracy: Chi-Squared ( $\chi^2$ ), Cosine Distance, and Euclidean Distance.

**Development Environment & Tooling** | *Workflow Engineering* | *Lua* | [GitHub](#)

2024 – Present

- Developed a customized Neovim environment to maximize coding throughput.

## LEADERSHIP & VOLUNTEERING

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**Technovation Girls** | *Technical Mentor*

Jan 2026 – Present

- Providing technical guidance on app architecture, coding logic, and project management, fostering the next generation of women in STEM.

## SKILLS & CERTIFICATIONS

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- **Primary Languages:** Python, C/C++, SQL, Java, TypeScript.
- **Backend & Tools:** Tensorflow, EasyOCR, JVM, Next.js, Git, Unix/Linux, Maven/Gradle, REST APIs, Neovim.
- **Certifications:** Cambridge English Level 2 (Advanced C1); Certificate of Professional Competency in Mathematics-Informatics.