

Theo Guegan

Robotics Software Engineer - Internship

Nationality: French Citizen | Email: theo.guegan.perso@gmail.com | Phone: +33 7 82 95 45 55

LinkedIn: linkedin.com/in/guegan-theo | GitHub: github.com/theguega | Portfolio: theguega.github.io/robotics-portfolio/

SUMMARY

Engineering student with strong expertise in C++, Python, and Rust for embedded systems, real-time control, and robotics. Proven ability in developing and integrating complex software for autonomous vehicles and drones, with hands-on experience in simulation and on-hardware validation. Seeking a Robotics Software Engineer Internship to contribute to innovative projects.

SKILLS

Programming: C++ (14/17/20), C, Python, Rust, MATLAB, Bash, Lua, Go

Robotics Software: Controls, Kinematics, Motion Planning, Real-time Systems, ROS/ROS2, Behavior Trees

Embedded Systems: Embedded Linux, Cross-compilation, Multithreading, FreeRTOS, HAL, UART/I2C/SPI, Low-level Debugging, CAN/Ethernet, Computer vision

System Tools: Git, Linux systems, CMake, Makefile, Docker, Test Automation

Simulation & HIL: Gazebo (ROS/Robotics), Simulation/Hardware Validation

PROFESSIONAL EXPERIENCE

Autonomous Vehicle Control Lead

Feb 2024 – Jun 2025

UTonome

UTAC Challenge

- Designed and implemented **target-based navigation**, adaptive cruise control (ACC), and **obstacle avoidance** algorithms in **MATLAB**, achieving 99% safety in simulation.
- Collaborated on real-time system integration, porting the control system to a Renault Zoe using **Python** and **ROS** for **on-hardware validation** and testing.
- Led development of an autonomous navigation stack, applying advanced controls and robotics principles to secure 1st School Award (2024) and Open Category (2025).

Embedded Drone Software Engineer Intern

Sep 2024 – Feb 2025

Thales Land & Air Systems

Vélizy-Villacoublay, France

- Architected a **real-time embedded** Lua scripting engine in modern **C++** (TDD) for on-drone customization, reducing mission prototyping time by 4x.
- Streamlined build processes using **Makefiles** and an **Alchemy build system** for efficient **cross-compilation** and deployment to **embedded Linux** targets.
- Integrated a local LLM using **Rust** and **Docker** for natural-language drone commands, achieving 85% accuracy and demonstrating advanced system integration.
- Contributed to **hardware/software debugging** in a lab environment and validated system behavior in real-world scenarios, including a high-profile live demo.

EDUCATION

Université de Technologie de Compiègne (UTC)

Sep 2021 – Jun 2026

Master's Degree in Computer Science - GPA 4.0/4.0

Compiègne, France

Specialization: Embedded Computing, Autonomous Systems

Coursework: Robotics Control, Embedded Systems, Autonomy, Kinematics

University of Waterloo

Sep 2025 – Dec 2025

Exchange Student - Computer Engineering

Waterloo, Canada

Courses: SYDE577 (Deep Learning), SYDE575 (Image Processing), ECE358 (Computer Networks)

PROJECTS

Real-Time Kernel (RTOS)

2025

- Designed a preemptive **RTOS** on **STM32H747I-DISCO** with mutexes, semaphores, and priority inversion handling.
- Implemented both with **stm32-hal** in Rust and in pure **C** for bare-metal control, demonstrating deep embedded systems understanding.

LeRobot: Teleoperated Robotic Arm

2025

- Built dual-arm robotic system achieving 80% task success at 50 Hz with $\pi 0$ general **VLA**.
- Explored **reinforcement** and **imitation** learning (**PyTorch**, HuggingFace) for teleoperation.

FIT Coding Challenge

Bosnia-Herzegovina, 2025

- Solved advanced algorithmic problems under time constraints using **C++**, demonstrating strong problem-solving skills relevant to robotics.