Liviu-Mihai STAN

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Master's in Automation & Robotics with experience in **ROS2/ROS1**, **C++/Python**, **multi-sensor perception**, and **simulation** (**Gazebo**, **RViz**, **Isaac Sim**). Skilled in trajectory planning, autonomous navigation, and system testing for robotic platforms.

Experience

Robotics Engineering Research Intern — Sep. 2024 – Aug. 2025

Tohoku University – Tough Robotics Laboratory — *Sendai, Japan*

- Developed real-time **path planning** algorithm in **ROS2** (**C++/Python**) for environments with movable obstacles
- Integrated **LiDAR**, **IMU** and **camera** data; built sensor models and tested on both **hardware** and in **simulation**
- Extended open-source stack for navigation, mapping and real-time detection, using **Git** and **Docker**
- Work accepted for presentation at the international **ICAR 2025** conference; implementation to be released open-source

Embedded Prototype Engineering Intern — May 2024 – Aug. 2024

Valeo Lighting Systems — *Bobigny, France*

- Supported development and testing of firmware on **nRF5340** using **Zephyr RTOS** with **SPI/UART/CAN** interfaces
- Built an HD-projector demo: video-game in **Python**, image/video projection in **C++** and mobile app in **Flutter**
- Designed and assembled the complete hardware setup, including power, PCB connections and inter-module wiring
- Used a **logic analyzer** and **oscilloscope** to debug and verify low-level signals and timing on hardware interfaces

Projects

Autonomous Navigation TurtleBot3 Burger | github.com/leaveyoustun/autonomous-turtlebot
Developed a **ROS1** package for mobile robot navigation:

- Line following via camera, obstacle avoidance and tunnel navigation via **LiDAR**
- Validated in **Gazebo/RViz** simulation and on the real robot; integrated ROS teleop

Embedded Systems with STM32 (C, FreeRTOS) | github.com/leaveyoustun/accelerometer-pwm
Firmware development and debugging on **STM32 MCUs**:

- LED brightness control via **IMU** (**I2C + PWM**)
- Drivers for **timers, interrupts, GPIO, CAN, RTC**; debugging with **OpenOCD**, **GDB**, logic analyzer
- Bare-metal drivers and multitasking with **FreeRTOS** (tasks, semaphores)

Mario Kart Mini (Python, Pygame) | github.com/leaveyoustun/mario-kart-mini

- 2D racing game with human and AI modes; includes **A* pathfinding**, boost/lava logic and checkpoint system

Education

Master's in Automation and Robotics — Sep. 2023 – Aug. 2025

Sorbonne University — *Paris, France*

- **Object-oriented programming (C++, Python)**, **AI** and **Computer Vision**
- Hands-on work with **ROS1**, **robotic arm control**, and **Git** version management
- Exchange year at **Tohoku University** (Japan): technical courses and robotics research

Bachelor's in Electronics, Electrical Energy and Automation (Ranked 1st) — Sep. 2019 – May 2022

University of Lille 1, Faculty of Science and Technology — *Lille, France*

- **Power electronics**, **industrial computing** and **schematic reading**
- **Microcontrollers**, **C**, **VHDL/FPGA**; proficient with **UNIX/Linux**

Bachelor's in Japanese and French Philology — Sep. 2018 – Aug. 2021

University of Bucharest, Faculty of Foreign Languages and Literatures — *Bucharest, Romania*

Skills

Languages: Romanian (native), French (C2), English (C2), Japanese (intermediate oral, advanced written)
Programming: C, C++, Python, Assembly, Matlab/Simulink
Robotics & Embedded: ROS1/ROS2, Gazebo, Isaac Sim, STM32, ESP32, FreeRTOS, Arduino
Sensors & Protocols: LiDAR, cameras, IMU; CAN, UART, SPI, I^2C
Tools & DevOps: Git, GitHub, Docker, CMake, OpenOCD, GDB, nRF Connect SDK

Interests

Aikido (5 years) | **Tennis** (3 years) | **Motorcycles** | **Embedded DIY**