



# LIVIU-MIHAI STAN

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.

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## 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](https://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](https://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](https://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<sup>2</sup>C

**Tools & DevOps:** Git, GitHub, Docker, CMake, OpenOCD, GDB, nRF Connect SDK

## Interests

**Aikido** (5 years)

**Tennis** (3 years)

**Motorcycles**

**Embedded DIY**