

Silviu Roberto Popitanu

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PROFILE

Robotics Software Engineer with experience in autonomous vehicles, Linux-based systems, distributed robotic software, hardware/software integration and industrial automation. Background spanning full-scale autonomous racing vehicles, ROS2-based robotic systems, industrial communication, state estimation and real-time software deployed in operational environments. Seeking robotics and autonomous-systems roles focused on real-world intelligent vehicles from research to deployment.

EXPERIENCE

Software Developer

Jan 2023 – Present

ForJ Engineering Software Solutions | *Python, Linux, Docker, MQTT, Modbus, MELSEC, ESP32*

- Led development of a commercial Linux platform for real-time monitoring and control of active vessel stabilization systems.
- Built modular Python services with Docker Compose and Systemd for Linux deployment; prototyped ESP32 integrations.
- Integrated Mitsubishi PLCs via MELSEC with PostgreSQL configuration and MQTT publish-subscribe messaging.
- Integrated asynchronous Modbus services with industrial controllers, distributed networks and marine systems from Garmin, Raymarine, Furuno, Simrad, Böning and TEAM Italia.
- Built logging and remote synchronization pipelines for commissioning, diagnostics and troubleshooting.

PROJECTS

Indy Autonomous Challenge – EuroRacing

May 2020 – Nov 2021

- Integrated distributed ROS2 software with vehicle hardware and validated full-scale autonomous race cars at speeds up to **250 km/h** during on-track testing with a multidisciplinary team.
- Developed safety-critical C++ software for emergency stop, failure detection and Race Control communication using ROS2.
- Implemented autonomous pit-lane entry/exit and race-state management logic in C++ and ROS2.

Roborace – Systems Integration Engineer

Jan 2020 – Feb 2022

- Deployed, debugged and validated autonomous software with multidisciplinary teams at international competitions in Europe and the USA.
- Designed integration architecture and C++/ROS2 state machines; used Docker and GitLab CI/CD for repeatable deployments.

Graph-Based Autonomous Navigation and SLAM

Feb 2025 – Jan 2026

- Developed real-time graph-based mapping and autonomous navigation in Assetto Corsa at up to **50 km/h** mapping and **150 km/h** driving.
- Built a C++/Python ROS2 motion-planning pipeline with Pure Pursuit tracking and online speed-profile optimization.
- Built an Xbox 360 bridge for Assetto Corsa and used Rerun to debug mapping, planning and control.

Unscented Kalman Filter

Jan 2023 – Sep 2023

- Implemented an Unscented Kalman Filter for attitude, position and velocity estimation and localization on a 1:10-scale rover.
- Fused IMU, GNSS and barometer measurements and developed C++/ROS interfaces for Navio2 sensors on Raspberry Pi.

PUBLICATION

er.autopilot 1.0: The Full Autonomous Stack for Oval Racing at High Speeds

Field Robotics, 2024

- Co-authored a full-stack paper on perception, planning, control, simulation, telemetry and safety in autonomous oval racing.

EDUCATION

M.Sc. Robotics and Automation Engineering | *University of Pisa*

Expected 2027

B.Sc. in Computer Engineering | *University of Pisa*

SKILLS

Programming: Python, C++, SQL, MATLAB, C#

Robotics: ROS2, Motion Control, Pure Pursuit, MPC, SLAM, State Estimation, Sensor Fusion

Linux & Systems: Linux, Systemd, Docker, Docker Compose, Bash

Embedded Platforms: ESP32, Raspberry Pi

Middleware: MQTT, Publish-Subscribe Architectures

Industrial Communication: MELSEC, Modbus, CANopen

Tools: Git, GitLab CI/CD, VS Code, Visual Studio

LANGUAGES

Italian: Native | **Romanian:** Native | **English:** Professional working proficiency