ROBOTICS AND EMBEDDED SYSTEMS ENGINEER

Autonomous Systems, SLAM and Embedded Intelligence

Name: SOULARD Milo (17/08/2005)

@ milosoulardgeii@gmail.com (+33) 6 95 99 48 60 Nantes, France https://github.com/mil0sou
in https://www.linkedin.com/in/milosou/

EXPERIENCE

- **Pilgrim Technology — SLAM & ROS2**
  Research and Development Engineer (Apprenticeship)
  2023–2026 La Chevrolière, France

  Development of an autonomous navigation framework for mobile robots within the R&D team.
  - Designed and implemented a full ROS2-based SLAM pipeline (Cartographer, SLAM Toolbox, RF2O) for 2D mapping and localization.
  - Integrated LiDAR (RPLIDAR, LD06) data acquisition and visualization in RViz and Gazebo, including custom bridges between ROS2 and Gazebo.
  - Developed exploration and autonomous navigation using Nav2 and Frontier Exploration algorithms in simulation and on real hardware.
  - Built and maintained a custom simulation environment (`furiasimu`) with odometry, costmaps, and teleoperation nodes.
  - Worked on hybrid control modes (manual / guided / auto) combining Pixhawk (ArduPilot) with ROS2 through MAVROS and Lua scripting.
  - Contributed to embedded deployment on Raspberry Pi and Jetson companion computers for onboard SLAM and obstacle avoidance.
- **Pilgrim Technology — Raspberry Pi & ROS2**
  Research and Development Intern
  Apr–Jun 2023 La Chevrolière, France

  Explored the integration of a Raspberry Pi as an onboard computer for robotic control under ROS2.
  - Set up ROS2 Humble on Raspberry Pi 4 and developed communication interfaces over UART and CAN between Pixhawk, Raspberry Pi, and Arduino.
  - Implemented ROS2 nodes for telemetry, motor control, and data exchange across subsystems.
  - Evaluated latency and reliability to assess real-time feasibility for embedded robotic applications.

PROJECTS

Autonomous Mapping & Exploration (SLAM)
Research Project
2023 – 2025 Nantes, France

- Developed a full ROS2-based SLAM pipeline (SLAM Toolbox / Nav2 / explore) with LiDAR for mapping and localization.
- Integrated Nav2 and frontier exploration in Gazebo and on real hardware.
- Built a custom simulation environment and tooling for navigation tests.

PERSEUS/CNES Rocket Tracking Turret
Volunteer Engineering Project
2025 – 2026 France

- Designed a pan–tilt turret with automatic rocket tracking using YOLO.
- Implemented ONVIF camera control and touchscreen Raspberry Pi HMI.
- Built a real-time streaming pipeline for live video feedback.

Mathematics Tutoring
University of Nantes
2022

Gave weekly support sessions in calculus and algebra for first-year engineering students.

EDUCATION

- **Ecole Centrale de Nantes**
  Master's Degree in Engineering (Robotics and Artificial Intelligence)
  2023 – 2026 Nantes, France

  Highly selective French Engineering School ("Grande École") conferring a diploma equivalent to a Master of Science.
- **University of Nantes — Bachelor's Degree in Engineering**
  Electronics and Industrial IT specializations
  2021 – 2023 Nantes, France

  Comprehensive undergraduate program covering electronics, automation, and computer science for industrial systems.
- **Baccalauréat S (Scientific) — Equivalent to a High School Diploma**
  Lycée Clemenceau
  2019 – 2021 Nantes, France

  Specialized studies in mathematics and physics.

SKILLS

- **Programming:**
  Python C++ / C Assembly VHDL LaTeX Kotlin Git
- **Robotics:**
  ROS2 SLAM Nav2 Gazebo MAVLink Machine Learning basics UART / I2C / SPI / CAN Bus / MQTT / SSH
- **Microcontrollers & Embedded:**
  Arduino Jetson Pixhawk ESP32
- **Electronics & Control:**
  Automation Petri Nets Sensors / Actuators Analog / Digital Circuits Signal Conditioning
- **Linux:**
  Shell scripting Kernel Compilation RTOS

LANGUAGES

- French — Native
- English — Fluent
- Japanese — Conversational
- Spanish — Basics