ANDREA DE PISAPIA

Embedded Systems Engineer

CAREER OBJECTIVE

Aspiring Automation Systems Engineer with a strong background in modeling, simulation, and control of complex systems. Passionate about control, robotics, and predictive modeling, with hands-on experience in FPGA-based communication, ROS-based robotic systems, and advanced control strategies. Seeking opportunities to apply my expertise in automation, intelligent control systems, and real-time applications in an innovative and dynamic environment.

WORK EXPERIENCE

Embedded Systems Engineer (Trainee)

Fusion for Energy

Oct 2024 – Present Barcelona, Spain

- Developed FPGA-based signal processing for high-speed ADC data acquisition in the **HotRIO control system** for ITER Gyrotron Plants.
- Integrated FPGA firmware with **CompactRIO**, optimizing real-time communication over fiber optics.
- Designed **diagnostic tools** and performed timing analysis, improving system reliability and performance.
- Simulated and tested VHDL designs using **ModelSim** for validation before deployment.
- Collaborated with **multidisciplinary teams**, participating in design reviews and technical discussions to enhance system capabilities.

ACADEMIC EXPERIENCE

- **AAS Drive with Asynchronous Motor** – Developed a Simulink-based control system with scalar regulation.
- **Smart Greenhouse Control** – Designed MPC, RMPC (Markov chains, ARIMA filter), and SMPC with Monte Carlo simulations for hydroponic cultivation.
- **Virtual Prototype of "Happy Seat" (FORD)** – Optimized ergonomic design using RFLP analysis for an assembly tilting seat system.
- **Real-time Systems & Fault Tolerance** – Developed real-time threading for encoder simulation, control loops with watchdog monitoring, and a FreeRTOS-based octal counter.
- **Nonlinear System Control** – Achieved zero steady-state error in thermo-hydraulic regulation; applied sliding mode control to a predator-prey model.
- **Robotic Systems & ROS** – Designed control algorithms and trajectory planning for SCARA, differential rovers, and 4-7 DOF robotic arms in Gazebo.
- **Autonomous Navigation** – Implemented ArUco marker-based mobile robot navigation with ROS.
- **Autonomous Vehicle Platoons** – Developed V2X-based control strategies for efficient merging/splitting maneuvers.
- **Energy-Efficient Control Systems** – Integrated multi-layered control for optimizing performance and sustainability in complex systems.

CONTACT INFORMATION

andreadepisapia3@gmail.com
linkedin.com
+39 3338756044
github.com
Barcelona, ES

SKILLS

- MATLAB
- Simulink
- Simscape
- Lattice Diamond
- FreeRTOS
- ROS
- Gazebo
- CATIA
- Xpress
- Linux
- Ubuntu
- C++
- C
- Python

LANGUAGES

Italian (Native Speaker)

English (C1)

Spanish (A2)

EDUCATION

Master of Automation Engineering and Robotics 110/110

University of Napoli Federico II

A.A: 2021/22 -> 2023/24

Napoli, NA

Thesis Title:
Development and Implementation of the HotRIO Control System for ITER Gyrotron Plants

Bachelor of Automation Engineering 101/110

University of Napoli Federico II

A.A: 2017/18 -> 2020/21

Napoli, NA

Thesis Title:
Arduino Controlled Rover Project