Salvatore Granata
Automation and Robotics Engineer

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Born : December 14th 1999

Key Skills

Robotics	Orbital Robotics, Mobile Robotics, Aerial Robotics and Robot Manipulation Design and Control, Robot Kinematics and Dynamics, Force Controllers, Grasping, Perceptions, Walking Robots, Motion Planning, Vision-Based Control, Human Robot Interaction.
Controls	Linear Control Theory : PID Control, System Analysis, Root Locus, Nyquist, Control of multi-variable systems, Optimal control, LQ control, Kalman filter, LQG Control, Optimal H-infinite Control, MPC. Nonlinear Control Theory : Lyapunov Controllers Synthesis, Feedback Linearisation Control, Sliding Control, Switching Control, Hybrid Control, Gain Scheduling Control, Adaptive control, NMPC, Intelligent Control, Reinforcement and Deep Learning Controls.
Firmware	Programming of asynchronous tasks with multiple processes, threads, timers, interrupts. Use of Dockers. Efficiency with STM32 (ARM MCUs), Arduino, ESP32/8266 boards and hardware protocols/interfaces (PCIe, Ethernet, SPI, I2C, NMEA, CAN, BT). FreeRTOS embedded firmware.
PLC	Ladder,SFC,Structured Text (ST) languages with CODESYS, TwinCAT3, Siemens TIA Portal.
Programming Languages	C, C++, Python for Software/Firmware Development, MATLAB, Simulink Mosel, ProLog.
Technical Drawing	CAD/CAE Software : Solidwork, Catia V5, FEM Analysis, Siemens Tecnomatix Jack Simulator.
Electronics	Transformers, Power Electronics, Inverter, Boost and Buck Converters, Analog and Digital Electronics Circuit Design, Electric Motors Design and Control.
Networks	DNS,DHCP,TCP/IP protocols, routing, switching, HTTP.

Education

2022 - now **University of Naples Federico II - 4.0 GPA -** Master's degree in Automation and Robotics Engineering.

2018-2022 **University of Naples Federico II - full marks -** Bachelor's degree in Automation Engineering.
Thesis Title : Vibration frequency and amplitude measure for induction motors' predictive maintenance.

2013-2018 **ITI Galileo Ferraris - with honors -** Electronics and Electrotechnical diploma specialization in Automation.
Thesis Title : Industry 4.0

Professional Experience

September 2025 — **Orbital Robotics Engineer, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Weßling, Germany**
- On Orbit Servicing Robotics (OOS-SIM)
- Space Robot Interaction and Control
- Free Floating Robot Control

MATLAB | SIMULINK | COPPELIASIM | C++

November 2023 – November 2021 — **Unina Corse E-Team : Power Unit and Dynamic Controls, Univeristy of Naples "Federico II", Naples, Italy**
- Inverter Design and Control. Battery Pack Design
- Control and Regulation of Electric Motors
- CAN communication between the onboard devices
- ECU Programming with Simulink and C++
- Traction Control System (TS) and Torque Vectoring Control

EMBEDDED | C++ | CANBUS | TVC | TCS | ECU

September 2019 – July 2019 — **Maintenance and Testing of RF devices, Leonardo S.p.A., Naples, Italy**
- Experience as a tester and maintainer of radio frequency electronic devices, involving the industrialization of X-band devices and maintenance of L, S, and C-band devices.
- Developed proficiency in reading electronic circuits, performing maintenance by identifying and replacing faulty components and utilizing high-resolution measurement instruments.

SOLDERING | OSCILLOSCOPES | SPECTRUM ANALYZERS | TESTING | MANUFACTURING

Projects

Minimum Snap Trajectory and Control Strategies for a Racing Drone Flight 2024
Minimum Snap Trajectory | Planning | QP | MATLAB | quadprog | NMPC | Geometric Control | Hierarchical Control | Simulink

Manipulator System For Plasma Facing Components Mouting in a Nuclear Fusion Reactor (Tokamak) 2024
CATIA V5 | CAD Design | FEM Analysis | Human-Centered Design | Siemens Tecnomatix Jack

Vision-based Navigation of a Mobile Robot in a Closed Environemnt 2024
ROS | C++ | Linux | Docker | Gazebo | Mobile Robot

Modeling, Testing and Validation of Viscoelasticity Measurement System for VesEvo 2024
MATLAB | Simulink | Digital Twin | Python | Arduino | C | Testing and Validation

Modelling, Planning and Control of a SCARA Manipulator 2023
MATLAB | Simulink | Manipulability | CLIK Algorithms | Robust Control | Adaptive Control | Operational Space Inverse Dynamics Control

Indirect Field Oriented Control for speed control of an Asynchronous Motor powered by a VSI Inverter 2023
MATLAB | Simulink | Inverter | Field Oriented Control | Electric Motors | PWM Control

Awards and Recognition

June 2024 – September 2023
2024 CanSat Competition, American Astronautical Society, NASA, U.S. Naval Research Laboratory, Virginia, USA
- Hands-on experience in satellite design and mission execution.
- Development of Ground Station Control for Telemetry.
- Development of Flight Software for the CanSat to manage data collection and transmission.

Python | C/C++ | Antennas

May 2023
Best Technology For Industry 4.0 Award @ INNOVATION:DONE 2023, MES Group, Naples, Italy
Vibration frequency and amplitude measure for induction motors' predictive maintenance.
C/C++ | MATLAB | Machine Learning | Embedded Software

May 2018
1st Place @ "Tecnicamente" Competition, Adecco, Italy
3D printed parachute system for drones safety
C/C++ | Arduino | 3D Printed | Embedded Software

May 2018
Utility Award "Creare Con L'Elettronica XI" Competition, ITI Galileo Ferraris, Naples, Italy
Embedded-based automated Smart Underground Garage with remote booking control
Arduino | HTML | Embedded Software | Electronics | Circuit Design

May 2018
Innovative Project Award @ "Digitalini in Campania" Competition, Cisco Networking Academy, Naples, Italy
Embedded-based automated Smart Underground Garage with remote booking control
Arduino | HTML | Embedded Software | Electronics | Circuit Design

Languages

Italian ●●●●●
English ●●●●○
(C1 Certification)

Strengths

- Advanced Technical Skills
- Ambitious and Determinated
- Precise and Results-Oriented
- Creative and Innovative
- Competitively Experienced
- Eager to Grow
- Continuously Learning