Michele Motta, PhD

Senior Electrical and Software Engineer

+39*******330 | m.motta319@gmail.com | ingmichelemotta

Summary

- 7 years of experience in embedded software design, development and debugging
- 5 years of experience in control algorithms and models for power electronics
- Experience in working and leading large projects in geographically distributed cross-functional teams
- Vision and thinking from system level to component level
- Strong communication skills with customers and stakeholders
- Enthusiastic about new technologies with a pragmatic approach to problem solving

Work Experiences

R&D Senior Software Engineer, December 2019 - Present
ABB, Terranuova Bracciolini (AR), Italy

- Management of critical activities with product managers to meet software releases timing
- Designed the software architecture for embedded systems (bare metal, RTOS, Linux)
- Provided technical support in critical situations (memory management, RTOS scheduling)
- Developed software in a large and international SCRUM team (C++11, Azure DevOps)
- Daily code review in order to ensure the quality standard of the company
- Cutting edge research for the next generation of electric vehicle (EV) chargers
- Control system design for power electronics and for EV charging stations
- Performed HIL simulations to test complex real-time embedded systems

Lead Control Software Engineer, November 2018 - November 2019
General Electric (GE Aviation), Prague, Czech Republic

- Involved in one of the most innovative programs of a digitally controlled turboprop
- Designed the electrical and software integration between the engines under test and the test facility
- Collected requirements and designed automatic systems to ensure safe operations during engine tests
- Developed data mining tools in order to elaborate the huge amount of data coming from the engine tests
- Provided technical leadership to cross-functional teams supporting the assigned project
- Actively participated in technical and in program reviews
- Conducted FMEA sessions and root cause analysis

Electrical and Software Engineer, Research Fellow, December 2017 - October 2018
University of Calabria, Rende (CS), Italy

- Led the technical team through rapid prototyping and testing of algorithms
- Planned activities for the software development team
- Developed a connected smart meter for active and reactive energy measurement
- Developed an embedded control unit to monitor power electronics units remotely
- Designed and developed a supervisory control and data acquisition (SCADA) for a DC microgrid (Qt/QML)
- Diagnosis of electrical equipment failures and evaluation of corrective actions to meet deadlines

Electrical and Control Software Engineer, PhD Student, November 2014 - October 2017
University of Calabria, Rende (CS), Italy

- Developed power converters from research and concept design, through prototyping, test and validation
- Designed more than 10 custom feedback controllers for power converters (DC/DC, DC/AC)
- Designed, developed and tested software and firmware for control units of power converters
- Developed multi-platform applications and graphical user interfaces in embedded Linux (Qt/QML)
- Developed a communication interface between power converters and a battery management system (CANOpen)
- Experience with various communication protocols and network applications (ModBus, CAN, TCP/IP, RS485)
- Organized oscilloscopes, signal generators, power supplies and standard lab equipment
- Presented results in seminars, conferences and technical meetings

Core Competencies

Computer Science

- C, C++, Python, Qt/QML (Windows, Linux), shell scripting, unit testing (Google Test)
- Linux, FreeRTOS, Nuttx, Yocto
- Bare metal programming (TMS320, TM4C, STM32F, MSP430, AVR32)
- Requirements analysis, software architectures, object-oriented programming (OOP), UML
- Agile methodologies (SCRUM), Git, Gerrit, continuous integration (CI), Jenkins, Docker containers
- Burp Suite, Wireshark, Dirbuster, Hydra, Metasploit, Nikto, Nessus, nmap
- Machine learning and deep-learning (Scikit-learn, TensorFlow, Keras)
- Matlab/Simulink (Control Toolbox, Stateflow, Code Generation)
- LabView Real-Time, LabView FPGA

Electrical Systems

- Electrical systems, renewable energy technologies, future power systems, DC and AC microgrids
- Distributed energy sources, storage systems, smart metering, power and energy management
- Control design and simulation models of power converters and electrical machines
- EMI issues in power electronics and power systems, power quality and active filters

Control Systems

- Stability analysis, system linearization, system identification, frequency and time analysis
- System requirements analysis, control design and tuning (linear and non-linear)
- Kalman filters and state observers, design of hybrid systems (FSM, behavior tree)
- Simulation and modelling of dynamical systems (ANSYS Electromagnetics, Matlab/Simulink, PLECS)
- Software in loop (SIL), Processor in loop (PIL), Hardware in loop (HIL), model-based design, code generation

Personal Skills

- Fluent in oral and written English
- Excellent written and verbal communication skills
- Technical leadership of small teams
- Excellent contributor in cross-functional teams
- Excellent planning, coordination and leadership skills
- Pragmatically oriented towards problem-solving
- Enthusiastic about tackling engineering challenges
- Innovator, intuitive, systemic thinker
- Reliable, flexible and ambitious

Education

- PhD in Electrical Engineering, University of Calabria, Rende (CS), Italy – 2014-2018
- Master's Degree in Energy Engineering, University of Calabria, Rende (CS), Italy – 2012-2014
  Cumulative GPA: 4.00/4.00
- Bachelor's Degree in Mechanical Engineering, University of Calabria, Rende (CS), Italy – 2009-2012
  Cumulative GPA 3.78/4.00

Activities and Interests

- Interested in the energy, automotive and avionics industry
- Interested in artificial intelligence algorithms and autonomous systems
- Passionate about research and new technologies
- Passion in spreading technical and technological knowledge
- Developing a custom control unit for a model gas turbine engine
- Learning the PX4 open source flight control software
- Excellent sportsman (beach-volley, tennis, cycling) and lover of outdoor activities