

STAGES & MSc FINAL PROJECTS BY **STMicroelectronics srl**



TOPICS

Proposals from Systems Research & Applications (SRA)

- **Motor Control and Industrial**
 - Optimization of zero speed position sensorless control algorithms for Switched Reluctance Motors – Industrial & Automotive Applications
 - Optimization of zero speed position sensorless control algorithms for Synchronous Reluctance Motors – Industrial & Automotive Appl.
 - Optimization of the performance of fault tolerant drives – Industrial & Automotive Application
- **Power Conversion**
 - Bidirectional converters for automotive applications
 - Optimization of passive components and filters
 - Tecniche avanzate per lo studio di EMI nei convertitori di potenza
- **Automation**
 - Robotics systems based on position control of three-phase PMSM
- **Energy harvesting**
 - An energy-autonomous and battery-free wireless sensor platform
- **Spectral Analysis**
 - Color recognition with Ambient Light Sensor (VD628x) supported by A.I.
- **Wireless Connectivity**
 - Localizzazione indoor/outdoor per sistemi IoT

And others...

- IIoT, PdM, USBPD, ...

METHODOLOGY

Common: STM32 MCU, C language, embedded programming, basics of electronics, team working, English language

Specific: Power electronics, SW tools for signal processing, SPICE, MATLAB, BLE, ...



FOR INFORMATION:

maria-celvisia.virzi@st.com

SEND YOUR CV BY EMAIL TO:

giuseppe-hr.finocchiaro@st.com

1

STAGES & MSc FINAL PROJECTS BY **STMicroelectronics srl**

TOPICS

Proposals from Automotive & Discrete group (ADG)

- **Analog to Digital Converter (ADC)**
 - In-depth Study of the possible topologies: Flash ADC, ADC SAR, ADC Sigma-Delta
 - Theoretical base for ADC Sigma Delta dimensioning vs characteristics of the signal to be converted
 - Accuracy: in-depth study of the possible techniques to enhance conversion accuracy vs temperature and voltage / current level
 - Advanced analog and digital techniques for Gain and Offset compensation
 - Exploration of possible management techniques and of possible techniques to maximize conversion speed in this context
- **Functional Safety Mechanisms**
 - Analysis of possible advanced Safety Mechanisms, to monitor, notify or even automatically react on possible faults on the safety path
 - Data transfer consistency through a communication interface and between different subsystems
 - ADC Self Test: comparison between different techniques in terms of coverage, cost, complexity
 - Specific subsystem Self Tests • Power Stage Stuck On, Stuck Off
- **Current Sense**
 - All DC-DC converters, whatever the used topology, need a current sense.
 - The current sense could be an interesting block to explore in terms of topology, speed, accuracy

METHODOLOGY

Common: basics of electronics, team working, English language



FOR INFORMATION:

andrea.trecarichi@st.com

SEND YOUR CV BY EMAIL TO:

giuseppe-hr.finocchiaro@st.com

2

STAGES & MSc FINAL PROJECTS BY **STMicroelectronics srl**

Proposals from Microcontroller Division (MCD)



TOPICS

- **Digital verification**

- *Discover the Digital Functional Verification techniques to grant the best quality to our STM32 Microcontrollers*
- *Discover how to find bugs in a Digital Design and how to simulate a functional behavior and the STM32 microarchitecture.*

METHODOLOGY

Common: good knowledge of digital design, Object Oriented programming, HDL languages, English language and team work.



FOR INFORMATION:

Mirella.negro@st.com

SEND YOUR CV BY EMAIL TO:

giuseppe-hr.finocchiaro@st.com

3

STAGES & MSc FINAL PROJECTS BY **STMicroelectronics srl**

Proposals from Analog,Mems&Sensor (AMS)



TOPICS

- **Digital design of a custom Single-Wire Test Interface (SWTI) IP for the test time reduction of Power Management Ics**
- **Complete Acknowledgement of Power Simulation for Ultra-Low-Power SoC Designs: linking and understanding Power Quality of Results from RTL SAIF annotation to final Digital Layout voltage and current measurement.**
- **UPF (Unified Power Format) flow Power Assessment over Digital Design Implementation Cycle: a case study, power driven awareness, from RTL2Layout.**
- **CDC (Clock Domain Crossing) and RDC (Reset Domain Crossing) flow generation and integration for Post-Synthesis Netlist: a perspective of completeness for metastability and race condition issues @post-RTL design level.**

METHODOLOGY

Common: good knowledge of RTL languages (Verilog, VHDL, SystemVerilog) and a general understanding of ICs design flow (RTL, synthesis),English language and team work.



FOR INFORMATION:

Francesco.pappalardo@st.com

SEND YOUR CV BY EMAIL TO:

giuseppe-hr.finocchiaro@st.com

4

STAGES & MSc FINAL PROJECTS BY **STMicroelectronics srl**



WHAT WE OFFER:

- Monthly reimbursement of €800
- Canteen and company buses
- Exciting experience in a multicultural and challenging environment
- Boost for your employability
- Living the world of a big company



FOR INFORMATION:
giuseppe-hr.finocchiaro@st.com