Silicon Mobllity

Internship Description

Implementation of an innovative electric motor control solution on FPGA

(SM-STC 008 / 2025)

Company	**SILICON MOBILITY SAS** *(registration number 815 085 659 000 RCS Grasse)* The Automotive industry is living a revolution. Electrification, autonomous driving, diverse mobility, and connectivity are trends that are changing the industry's rules. Among all decisive topics revolutionizing cars in the next future, Silicon Mobility is committed to supporting the rapid advent of electric and hybrid cars. Silicon Mobility is a technology leader for cleaner, safer, and smarter mobility. The company designs, develops and sells flexible, real-time, safe, and open semiconductor solutions for the automotive industry used to increase energy efficiency and reduce pollutant emissions while keeping passengers safe. We are looking for a motivated candidate to join our company in Sophia-Antipolis on the French Riviera. Please contact us: **recruitment@silicon-mobility.com**
Subject – Offer title	Implementation of an innovative electric motor control solution on FPGA
Duration	5-6 months– between February/March/April and September 2025
Work hours	35 hours per week, job location at Silicon Mobility office
Education	Last year of Master (BAC+5 or equivalent)
Content/ mission	As part of the Product architecture advanced technology team, the intern will contribute to prototyping an innovative control solution of an electric motor for automotive traction application. For this internship, the candidate will have the opportunity to grow its skill and knowledge at the crossroad of several engineering domains including semiconductor, embedded software, and automation and system control. Main responsibilities: • Use a control algorithm from Silicon Mobility and assist in its integration onto a FPGA target. • Participate in the Hardware-in-the-Loop (HIL) development and validation processes. During the internship period, several tasks will be addressed: • Learning phase The intern will get familiar with the Silicon Mobility development environment using the Model In the Loop environment, as well as learn about various control theories. • Specification and implementation Based on the existing MIL algorithm and the Silicon Mobility target libraries, the intern will port the solution on the chosen FPGA from model, trough HDL code generation, synthesis, place and route, to the FPGA programming with bitstream. The intern will then propose a test plan to evaluate the performances of the control algorithm. • Test and documentation The intern will use the proposed test plan to verify and evaluate the performance of the control algorithm under various scenarios (static and dynamic) using Hardware-in-the-Loop (HIL). The intern will also be responsible for analysing/debugging the results and identifying potential improvements (algorithm and implementation). The intern will then draft a detailed report to assist future users. This documentation will serve as a key resource and will need to be clear, comprehensive, and aligned with company standards.
Profile required	Engineer in control systems, automatic, FPGA system or embedded software

Expected Skills/knowledge	Control Algorithm Development in MATLAB/Simulink VHDL/Verilog, MATLAB HDL coder Embedded software development in C code Inverter and motor control application Neural Network architecture Model Predictive Control algorithm
Remuneration	€1400/month + Tickets Restaurant + Public transport