

TUDOR SCOARȚĂ

Software Engineer
(Embedded & Industrial IoT)



+40 754 535 980

tudorscoarta@gmail.com

github.com/tudorscoarta

Cluj-Napoca, Romania

SUMMARY

Embedded Software and Industrial IoT Engineer with hands-on experience developing production firmware for ESP32, ARM Cortex-M, and PIC microcontrollers. Skilled in hardware bring-up, debugging, and integrating CNC machines and PLCs with cloud platforms through industrial communication protocols. Holds a Master's degree in Cyber-Physical Systems, with a strong foundation in electronics and a practical approach to engineering, from circuit-level troubleshooting to complete connected systems.

WORK EXPERIENCE

Software Engineer (Embedded & Industrial IoT), Zynk

Nov 2024 – Present

- Develop production firmware for ESP32, ARM Cortex-M and PIC microcontrollers in C/C++ (FreeRTOS, bare-metal): Wi-Fi/LTE, MQTT over TLS, encrypted sub-GHz radio, OTA updates and power-safe storage.
- Bring up, debug and rework hardware, and review schematics; reduced a battery/solar LTE device's sleep current ~300x through low-power firmware and leakage analysis.
- Helped take an energy-metering device to its first production release, building its automatic calibration against a reference power analyzer.
- Built an industrial data-collection service connecting CNC machines and PLCs to the cloud over MQTT with mutual TLS; programmed PLC ladder logic for machine-state retrofits.
- Develop Windows services and desktop tools in C#/.NET (WPF, WinForms), a Python CAD/CAM add-in, and test automation in Python and PowerShell.
- Contribute code reviews, releases and technical documentation in an Agile team.

Internship, Universal Alloy Corporation

Aug 2023 – Sep 2023

- Maintained and troubleshoot Allen-Bradley PLC systems on production lines.
- Implemented new features for existing production lines.

EDUCATION

Master of Engineering, Cyber-Physical Systems

Oct 2024 – Jul 2026

Technical University of Cluj-Napoca

Thesis: **Automatic Detection of Performance Degradation in Drummers Using Machine Learning**

Bachelor of Engineering, Systems Engineering

Sep 2020 – Jul 2024

Technical University of Cluj-Napoca

Thesis: **Automatic Guitar Tuner**

KEY SKILLS

- | | | |
|-------------------------------|---------------------------------------|--------------------------------------|
| • Embedded C / C++ | • Electronics & circuit analysis | • Industrial communication protocols |
| • Firmware development & RTOS | • Hardware debugging & board bring-up | • IoT & cloud connectivity |
| • Microcontroller programming | • Low-power design | • C# / .NET & Python |

LANGUAGES

Romanian (native), English (C1, Cambridge CAE), French (A2)