

TOBIAS LIFSCHITZ

Embedded Systems Engineer

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My real passion lies at the intersection of hardware, software, and algorithms, and I have found embedded design and development to be a field that satisfies all of these interests. I strive to make things smarter by applying innovative solutions to complex problems. As a maker, I love tinkering and always enjoy bringing creative ideas to life through hands-on projects and experimentation. My endless curiosity drives me as a lifelong learner, constantly discovering and mastering new technologies and improving my skills.

Experience

MAPER

Buenos Aires, Argentina

Mapper is a technological startup that provides turnkey industrial condition monitoring solutions while developing its hardware and software in-house. I joined the team at an early stage before going out to market.

Senior Embedded Systems Engineer

Jul. 2023 - Present

- Coded the firmware of wireless vibration sensors with support across 4 hardware versions, sustaining 10 rollouts per year with 100% sensor adoption. This firmware has supported the scaling of the company from 0 to 2000 sensors in the last 4 years.
- Oversee hardware manufacturing and testing process by an overseas contract manufacturer.
- Implemented automatic builds and test pipelines across firmware products, reducing 50% the deployment time and making them more reliable.
- Designed and implemented an advanced continuous vibration capture mechanism unlocking new business opportunities in niche markets for the company by monitoring specific asset types.
- Led the implementation of a monitoring backend to digest firmware metrics, providing visibility of field devices. This allowed us to solve hard-to-track bugs in the firmware.
- Coded a sleep method that prevents 5% of devices scrap per year because of battery leakage.

Embedded Systems Engineer

Mar. 2021 - Jun. 2023

- Perform full firmware lifecycle, from development to binary release and field update.
- Optimized vibration sensor low-power consumption, increasing battery life by 50%.
- Implement DSP algorithms to improve the sensor monitoring features.
- Engineered an automatic testbench using a Raspberry Pi to perform end-of-line QA checks.
- Developed a Python API wrapper to fetch sensor measurements and perform data engineering and algorithm development in Jupyter Notebooks.

Embedded Systems Developer Intern

Aug. 2019 - Feb. 2021

- Requirements definition, hardware and firmware design for a wireless vibration sensor.
- Performed PCB bring-up, and defined and executed validation tests using lab equipment.
- Developed drivers for peripheral and onboard sensors.
- Integrated OpenThread protocol stack library to application code.

Education

Instituto Tecnológico de Buenos Aires (ITBA)

Buenos Aires, Argentina

Electronics Engineering

2015 - 2020

From an early stage of my academic studies, I have been interested in embedded systems and hands-on development. Some interesting projects I have built:

- IIOT Gateway (final project)
- RISC-V core in FPGA
- MP3 Player
- FSK modem
- IMU 3D control
- RGB Matrix Display

Awards

- **Premio Amigos del ITBA (2021)** Awarded for the second-best GPA of the cohort
- **IEEEXtreme 12.0-15.0 (2018 - 2021)** Ranked above 96% of teams worldwide (CorDamp team)
- **Electronic Fair Winner (2019)** First place for RISC-V team project in a university contest.

Others

Technical Skills: C / C++, makefile, cmake, DSP algorithms, ChibiOS, embedded Linux, Python, Jupyter notebooks, communication protocols (UDP, CoAP, MQTT, Thread/Matter, MODBUS, UART, I2C), CI/CD pipelines, PCB design, Grafana, SQL / PostgreSQL, Django, GIT

Languages: Spanish (native), English (fluent)
