



# MARKKU KIRJAVA

Embedded Software Engineer

## About me

I am a recently graduated ICT engineer and currently pursuing a Master's degree with a major in Embedded Systems. I have over two years of experience in embedded software development and a strong motivation to deepen my expertise in the field.

My work combines problem-solving skills, creative thinking, and effective teamwork, for which I have received consistent positive feedback. I am now seeking new challenges where I can apply my strengths while further advancing my skills in embedded software development.



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[LinkedIn](#)



[Portfolio](#)



[GitHub](#)



[Video introduction](#)

## Programming languages

- C
- C++
- Python
- Rust
- Assembly (ARM)

## Work experience

### **Junior Software Developer**

**Wapice Oy**

**02/2021 - 06/2021**

I worked as a software developer in an internal project at Wapice, where I researched and implemented a solution between an embedded Linux system and the internal network infrastructure.

- Worked mainly with C, C++, and Python programming languages.
- Took full responsibility for the project and had the freedom to design, experiment with, and implement different software solutions.
- Strengthened my expertise in programming embedded Linux systems as well as in the architecture of networked systems.

### **Junior Software Developer**

**Vaisala Oyj**

**05/2019 - 12/2020**

I worked on the software development of the Indigo500 measurement device in the field of embedded systems and Linux environments. My main tools were C, C++, and Python, alongside a Yocto-based Linux system.

- Started by researching the integration of a barometer into the device via the SPI bus and implemented a process for monitoring bus traffic.
- Expanded my expertise to cover the full software stack and, among other tasks, replaced synchronous D-Bus listening with an asynchronous solution. Learned to use the project's state machine for process control.
- Gained experience with the Modbus TCP/IP protocol.
- Contributed to test automation development with Robot Framework and created several test cases.
- Supported production briefly during the product release in spring 2020.
- Worked in a Scrum team of about 10 people and participated in various phases of the development process.

## Embedded systems & Tools

- Embedded Linux ● ● ● ● ○
- RTOS (FreeRTOS) ● ● ○ ○ ○
- RTIC ● ● ○ ○ ○
- Yocto ● ● ○ ○ ○
- SPI, I2C & UART ● ● ○ ○ ○
- DBus ● ● ○ ○ ○
- Modbus (TCP/IP) ● ● ○ ○ ○

## Version control, Build & Testing

- Git ● ● ○ ○ ○
- GCC ● ● ○ ○ ○
- CMake ● ● ○ ○ ○
- Unit testing ● ● ○ ○ ○
- CI/CD

## Languages

- Finnish ● ● ● ● ○
- English ● ● ○ ○ ○

## Other Information

- Driver's license (own car not in use)
- Mandatory National Service 01/2015 - 12/2015 (leadership training)
- Member of Mensa 12/2017 ->

## Education

### M.Sc. in Embedded Systems

Tampere University

Expected graduation 05/2027

Focus on embedded software, real-time systems, and system-on-chip design. Coursework and projects involve STM32 and ESP32 microcontrollers, FreeRTOS and RTIC real-time frameworks, and embedded Linux development. Emphasis on dependable and resource-constrained software architectures, hardware integration, and team-based applied research.

### B.Eng. in Information and Communication Technology

Häme University of Applied Sciences

Graduated 12/2024

Designed and implemented a Django-based full-stack web application for managing equipment reservations at the mechanical engineering department. The system, deployed on the school's internal network, featured user authentication, email confirmations, an interactive booking calendar, and an admin panel for device management.

### Construction Worker, Graduation 05/2014

Tampere Vocational College Tredu (Tredu), Kangasala

## Hobbies & Interests

In addition to programming, I have a strong interest in cybersecurity. In my free time, I have explored ethical hacking exercises, such as breaking into virtual environments and conducting various security tests.

To balance desk work, I actively exercise by going to the gym and taking walks. I also enjoy playing video games and following esports.

## Referee

### Ilari Virta

Lead software engineer (Vaisala)  
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### Asko Lemmetyinen

RnD Engineer (Wapice)  
Contact details available upon request