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Software developer

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As a passionate Embedded Software Developer with a strong foundation in IT from Metropolia University of Applied Sciences, specializing in IoT and Smart Systems, I bring a unique blend of academic excellence and practical experience. My journey in technology began over a decade ago with a fascination for programming, leading to a bachelor's degree achieved ahead of schedule with a GPA of 4.7/5. My academic and personal endeavors have seen me dive into the realms of neural networks, firmware development, cutting-edge embedded systems and much more, with a keen eye on bridging the gap between software and practical hardware innovations.

At Metropolia University of Applied Sciences, I completed a Bachelor of IT, majoring in IoT and Smart Systems, which mirrors my deep interest in embedded programming. My education encompassed a broad spectrum of subjects, setting a strong foundation for my career in technology. This included in-depth studies in Embedded Linux, Digital Signal Processing, and Modern Computer Architecture, complemented by practical skills in Test Automation, Sensors, and Basic Electronics Engineering. Among my notable academic projects were a maze-solving robot and a 2D plotter firmware, both running on FreeRTOS, which greatly enhanced my practical understanding and application of embedded systems.

Education

• Degree: Bachelor of IT, IoT and Smart Systems Major.

• Institution: Metropolia University of Applied Sciences.

• Key Subjects: Embedded Linux, Digital Signal Processing, Modern Computer Architecture, Test Automation, Sensors.

• Notable Projects: Developed a maze-solving robot and a 2D plotter firmware, both utilizing FreeRTOS.

• Achievement: Completed degree ahead of schedule with a GPA of 4.7/5.

I began my professional journey at Nokia as a Test Engineer, focusing on the testing and enhancement of 4G base station software and the automated test suite. This role was a significant stepping stone in my career, deepening my understanding of software testing and optimization. Following Nokia, I joined Futurice as a Developer and IoT Consultant. Here, I played a pivotal role in developing an advanced dashboard for StoraEnso and overhauling an IoT application for KONE, along with setting up efficient DevOps processes.

Experience

• Nokia: Test Engineer; focused on 4G base station software testing and automated test suite optimization.

• Futurice: Developer / IoT Consultant; developed a new dashboard for StoraEnso and revamped an IoT application for KONE. Established DevOps processes.

Projects ⟶

My personal projects are where I express my creativity and technical skills. The maze-solving robot, which began as a university project, grew into a personal challenge, using neural network algorithms to navigate complex mazes. Another significant project was building a flight computer for a model aircraft, involving designing the PCB, writing firmware, and learning the Kalman filter for stabilization. Currently, I am working on a smartphone gimbal, a project that includes PCB design, firmware development, and learning about brushless motors and inverse kinematics.

In addition, I created a UI framework entirely in C++, showing my ability to build efficient solutions from scratch. This project involved recreating some STL containers, demonstrating my deep understanding of C++ and system-level programming.

With over seven years of experience in C/C++, my programming expertise forms the cornerstone of my technical skill set. This extensive experience is complemented by proficiency in languages like JavaScript, Java, Kotlin, and Python, allowing me to approach a wide range of projects with versatility and depth. In the realm of hardware, my skills extend beyond PCB design and electronics testing to include CAD and fundamental mechanical engineering principles. My projects have often required a deep understanding of digital signal processing, control systems such as Kalman filters and inverse kinematics, and the development of custom drivers for intricate hardware-software integration. Additionally, my familiarity with cloud platforms like AWS and Azure, coupled with strong capabilities in Git, CI/CD pipelines, and Docker, ensures a comprehensive approach to both software development and DevOps practices.

My soft skills and leadership abilities were highlighted during my academic and professional journey. I led a 15-member team in a 7-week IoT project at university, developing a smart modular lighting system. Additionally, I created and taught a full-stack development course, encompassing lecture preparation, student mentoring, and grading, demonstrating my abilities in knowledge sharing and team leadership.

Projects

- Maze-Solving Robot: Developed using neural networks, running on FreeRTOS.

- Flight Computer: Designed PCB, wrote firmware, and integrated a Kalman filter for a model aircraft.

- Smartphone Gimbal: Currently developing, involving hardware design, firmware, and motor control.

- UI Framework: Created a UI framework in C++, including custom STL container implementations.

- Neural network: Made a lightweight neural network library for embedded systems using C++.

Technical skills

- Programming Languages: Advanced expertise in C/C++ (over 7 years), along with JavaScript, Java, Kotlin, and Python.

- Embedded Systems: Proficient in FreeRTOS and firmware development for diverse applications.

- Digital Signal Processing: Practical experience in signal analysis and manipulation.

- Control Systems: Implemented Kalman filters and inverse kinematics for various projects.

- Driver and UI Development: Developed custom hardware drivers and a UI framework in C++.

- Hardware Design and Engineering: Skilled in PCB design, CAD, and basic mechanical engineering, with hands-on experience in electronics testing and debugging.

- Cloud Platforms and DevOps: Experienced with AWS, Azure, Git, CI/CD, and Docker.

Soft skills

- Project Leadership: Led a 15-member team in developing a smart lighting system, meeting and exceeding project goals.

- Educational Initiative: Created and taught a 7-week course on full-stack development, handling lecture creation, student support, and grading.

Timeline

Metropolia

Lecturing at Metropolia

Aug 2018	
	May 2020 — **Nokia**
	Sep 2020
	Mar 2021 — **Nokia** +Thesis work
Sep 2021	Sep 2021
Dec 2021	
	May 2022 — **Futurice**