

Yefri Gonzalez

Embedded Systems Engineering Candidate | Full-Stack Developer

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Profile

Embedded Systems Engineering candidate with extensive experience in Linux environments and system programming. Currently pursuing a BSc in Embedded Systems at HAN University and complementing this with additional specialized courses in embedded development. Passionate about firmware, electronics, and low-level programming, with hands-on experience in microcontrollers and Linux systems.

Career Objective

Seeking an embedded software/firmware engineer role where I can apply my Linux expertise, embedded systems knowledge, and continuous learning to contribute to innovative hardware and firmware solutions.

Skills

Programming Languages

C, C++, PHP, JavaScript, Python, VHDL

Embedded Systems & Electronics

ARM Cortex-M, AVR | UART, SPI, I²C, DMA, Interrupts | FPGA (Quartus, ModelSim) | LTspice, ADC/DAC, Op-Amps, MOSFETs, BJTs

Linux & System Programming

Linux system programming (IPC, threads, FIFOs) | Bash scripting | Automation | Debugging

Tools & Frameworks

Docker, Git, CI/CD, Neovim, Laravel, Vue.js, REST APIs, Web Security, Automated Testing

Projects

Autonomous Guided Vehicle (AGV) | *bare-metal C on AVR (PID + ultrasonic sensing)*

Designed and built an AGV using front and side ultrasonic sensors for navigation and obstacle avoidance. Implemented a PID control loop to adjust motor speeds dynamically based on sensor distance readings. Developed drivers for timers, PWM, and GPIO, with safe fallback states. Built and flashed via avr-gcc and avrdude. github.com/Th3Cod3/agv-hhs

Beehive Monitoring IoT System | *C++ node (TTN/LoRaWAN) + Docker/Node-RED/Grafana*

Created an IoT solution to monitor beehive orientation, honey weight, and device health. Implemented a C++ microcontroller node communicating over LoRaWAN (TTN) with a structured payload. Designed a backend stack using Docker Compose with Node-RED for data flow, a database for storage, and Grafana dashboards for visualization. github.com/Th3Cod3/han-iot

Clock | *bare-metal C on ARM Cortex M + Node-RED (Docker)*

Implemented a digital clock on an ARM Cortex microcontroller using timer interrupts, UART, and low-level driver code. Integrated Node-RED in Docker to visualize and interact with real-time data, using serial passthrough via WSL/usbipd. Documentation includes KiCad hardware design. github.com/Th3Cod3/han-clock

Linux System Programming | C

Developed multithreaded C programs to explore concurrency, synchronization, and IPC on Linux. Implemented deadlock-free thread coordination, semaphore control, and inter-process communication using pipes and shared memory.

FPGA Digital Systems | VHDL (DE10-Lite)

Designed and simulated an 8-bit ALU (addition, subtraction, bit-shifts) and a digital piano interface. Verified synchronous logic and timing behavior in ModelSim and deployed the design on Intel DE10-Lite FPGA hardware.

Professional Experience

Web Developer

Web Whales – The Hague, Netherlands | 2021-02 – Present

- ❖ Developed features for SaaS platforms (ViaAvia, TruckIt, EasySign License Server, Examenwizard, OT-secure) using Laravel, Vue.js, and jQuery.
- ❖ Implemented unit & feature tests and CI pipelines, improving software reliability.
- ❖ Collaborated in Agile Scrum team, contributing to code reviews, design discussions, and API integrations.

Web Developer

Recovery Solutions & Investigations – Noord, Aruba | 2018-09 – Present

- ❖ Migrated a custom PHP MVC system to Laravel 12 + Vue.js/Vuetify, upgrading to PHP 8.3 and integrating automated tests.
- ❖ Designed and optimized RESTful APIs and user authentication systems.
- ❖ Integrated Bugsnag for error monitoring and reduced production bugs by ~40%.

IT Support & Networking (All Around)

Recovery Solutions & Investigations – Noord, Aruba | 2014-09 – 2018-09

- ❖ Installed, configured, and optimized LAN/WAN networks and peripherals.
- ❖ Maintained workstations, resolved malware issues, and supported 30+ employees.

Education

Bachelor of Science – Embedded Systems (HBO-Deeltijd)

HAN University of Applied Sciences – Arnhem, NL | 2023-09 – Present

Focus: ARM bare-metal, FPGA design, Linux system programming, electronics simulation.

Bachelor of Science – Mechatronics (Propedeuse)

The Hague University of Applied Sciences – Delft, NL | 2021-09 – 2023-06

Focus: AVR bare-metal programming, CNC design, material resistance.

Associate of Science – Electrical Engineering (MBO4)

Educacion Profesional Intermedio – Aruba | 2017-08 – 2021-07

Focus: electrical machines, residential wiring, digital logic, Arduino basics.

Languages

Spanish: Native

Papiamentu: Native

English: Professional proficiency

Dutch: Professional proficiency