

Nilo Edson Menezes da Silva

+55 (92) 98289-3211 | niloedson.ms@gmail.com | [linkedin.com/in/nedson](https://www.linkedin.com/in/nedson) | Manaus, AM, Brazil

EXPERIENCE

Senior Technical Assistant

June 2022 – Present

Instituto de Pesquisas Eldorado

Manaus, AM

- **Baseband Stack Integration:** Integrated proprietary chipsets and modem firmware (Qualcomm/MediaTek) during Android Core OS upgrades, bridging vendor codebases with Motorola's custom system architecture
- **Low-Level Protocol Debugging:** Investigated and resolved timing and synchronization anomalies between application and baseband processors (RIL, IMS, 5G/4G) utilizing C and Java
- **GCF/PTCRB Certification:** Led modem software compliance and verification, securing strict 3GPP Specification alignment for global products launch programs
- **Modem Stability & Ramdump Analysis:** Investigated modem silent panics by analyzing post-mortem ramdumps, differentiating consumer and developer crash signatures to isolate, root-cause, and implement critical stability fixes

Embedded Software Developer (Bare-Metal and Systems)

Oct. 2021 – May 2022

Instituto Centro de Pesquisa e Desenvolvimento em Tecnologia de Software - Grupo ICTS

Manaus, AM

- **Bare-Metal ARM Firmware:** Developed high-efficiency bare-metal firmware for STM32 (ARM Cortex-M) microcontrollers, utilizing CMSIS tools and low-level drivers to optimize memory and execution overhead
- **Register-Level Integration:** Programmed physical communication protocols (I²C, UART, SPI) via direct peripheral manipulation, implementing low-level hardware state machines
- **Hardware Abstraction:** Authored modular custom C libraries, providing clean, portable HAL components for STM32 targets
- **Connectivity Drivers:** Built LoRaWAN communication interfaces for ESP32 systems utilizing PlatformIO and AT-command parsing for low-power wireless telemetry

Research Fellow (Embedded Systems)

May 2020 – Sep. 2021

Federal University of Amazonas (UFAM)

Manaus, AM

- **ARM R&D Collaboration:** Co-developed high-performance ARM-based IoT systems in a joint R&D partnership between CETELI/UFAM, Grupo ICTS, and TPV, bridging hardware prototyping with custom low-level firmware
- **RTOS Firmware Engineering:** Engineered real-time, multi-threaded firmware using FreeRTOS on ARM microcontrollers, managing concurrent safety-critical tasks including battery management systems (BMS) and low-latency audio processing

Software Developer

Apr. 2012 – May 2015

INDT (formerly Nokia Institute of Technology)

Manaus, AM

- **Performance Optimization:** Profiled code execution limits to optimize telecommunication simulation tool execution
- **Protocol Stack Modeling:** Engineered discrete-event software simulators modeling protocol stack messaging
- **Virtual Prototyping:** Simulated custom protocols, validating latency and throughput prior to 5G standardization
- **Power Modeling:** Benchmarked mobile hardware dynamics to engineer software models for battery drain profiles

TECHNICAL SKILLS

Languages: ANSI C/C++, Python, Java, C#, Assembly (ARM), Lua

Embedded & Systems: ARM Cortex-M, CMSIS, FreeRTOS, Bare-Metal, Device Trees, RIL/IMS

Developer Tools: Git, GCC, PlatformIO, STM32CubeIDE, Gemini CLI (Agentic AI Diagnostics), LLM Tooling

Protocols & Interfaces: I²C, UART, SPI, LoRaWAN, HIDL/AIDL, 3GPP (5G NR/4G LTE)

EDUCATION

Faculdade Martha Falcão - Wyden

Manaus, AM

B.S. in Electrical Engineering

Expected 2027

Federal University of Amazonas (UFAM)

Manaus, AM

B.S. in Electrical Engineering (Coursework Transferred)

2018 – 2022

Fundação Nokia de Ensino (Nokia Technical School)

Manaus, AM

Technical Degree in Telecommunications

2009 – 2011