
RICHARD VIDAL-DORSCH

964 Springfield St., Costa Mesa, CA 92626 | Cell: (714) 829-6831 | Email: richard.dorsch@gmail.com | LinkedIn Profile: <https://rvido.github.io>

PROFESSIONAL PROFILE

Senior Engineer with 20+ years of experience in high-performance networking and embedded systems. Expert in C++ cross-compilation and memory-constrained environments, with specific success optimizing VPN tunnels and packet-parsing engines for iOS and Android. Proven track record of solving complex challenges at the hardware/software intersection while scaling engineering operations and mentoring teams. Combines deep technical mastery with leadership insight to ensure architectural integrity and drive technical excellence.

- **Technical Leadership & Architecture:** Guides strategic technical direction and architectural decisions to ensure scalability, reliability, and long-term maintainability of complex embedded platforms.
 - **Engineering Process & Scalability:** Implements robust development processes, tools, and best practices that enhance team productivity and enable the efficient scaling of engineering operations.
 - **Talent Development & Mentorship:** Cultivates high-performing engineering teams through hands-on technical coaching, knowledge sharing, and a focus on elevating collective expertise.
 - **Cross-Functional System Solutioneering:** Excels at diagnosing and solving systemic challenges by integrating deep hardware-level understanding with software innovation to deliver elegant, full-stack solutions.
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TECHNICAL SKILLS

- **Languages:** C/C++, Rust, iOS Extensions, Python, Golang, Node.js, Shell Scripting (Bash/Zsh), Assembler (68k/x86)
 - **Embedded Systems & RTOS:** Firmware Development, Driver Development, Linux Kernel/Userspace, RTAI, QNX, VxWorks, U-Boot
 - **Hardware Architectures:** x86/x86-64, ARM (Cortex-A/M series), MIPS32, ESP32/ESP8266, Raspberry Pi, VME-Bus, TI DSP C67xx
 - **Build Systems & Toolchains:** XCode, VS Code, Antigravity, CMake/Makefile, Cross-Compilation (ARM64, MIPS32, x86_64), Static & Dynamic Linking
 - **Methodologies & Tools:** Agile/Scrum, SDLC, CI/CD, Technical Mentorship, Project Lifecycle Management, JIRA, Confluence, Git, CMake, AI Context Engineering
 - **Networking & Security:** OpenVPN, SSL/TLS (mbedTLS/OpenSSL), Socket Programming (ASIO, POSIX), TCP/IP, WiFi (802.11), VPN/NAT/VLAN, Industrial Protocols (RS-232/USB), Wireshark, Packet Analysis
 - **Infrastructure & Cloud:** Linux (RHEL, Ubuntu), Unix, Virtualization (Docker), System Optimization, AWS
 - **Linguistic Fluency:** English (Professional), French, German, Spanish
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OPEN SOURCE PROJECTS

GitHub Portfolio: github.com/rvido

- **LANwatch (Rust/CLI):** Engineered a high-performance network discovery tool utilizing DHCP, mDNS, SSDP/UPnP and IEEE-OUI identification, leveraging Rust's memory safety and concurrency for real-time device tracking on complex networks.
 - **Whois-rdap (Rust/CLI):** Designed a streamlined CLI tool for RDAP server queries, modernizing IP information gathering with a focus on clean UX and efficient API consumption.
 - **NetOrigin (Rust/CLI):** Retrieves network ownership data and IP ranges.
 - **BME280_Linux (C++17):** Developed a high-performance, environmental Linux sensor driver (I2C/SPI).
 - **iManager (C/Linux Kernel):** Developed and maintained the core Linux driver suite for Advantech Embedded Boards; architected low-level hardware abstraction layers (HAL) for seamless proprietary hardware integration.
 - **AppID_finder (Rust/Web):** Architected a full-stack Rust web application for instantaneous iOS and Android bundle ID discovery. Optimized for high-speed querying and minimal server overhead.
 - **AncileNet™ (Rust/Service):** An Intrusion Detection System (27k+ lines-of-code) - **work-in-progress**
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PROFESSIONAL EXPERIENCE

Aura Company | Burlington, MA *Senior Software Engineer* | 2021 – 2026

- Optimized iOS/Android VPN tunnel using **Objective-C++** and **Network Extension framework**, managing strict memory ceilings and high-throughput packet parsing.
- **Reduced memory footprint** of VPN tunnel agent to under **30 MB** to ensure stability within iOS Network Extension sandboxes.
- Expertise in interfacing C/C++ core libraries with Swift/Objective-C via bridging headers and Objective-C++ wrappers.
- **Architected a Rust-based Platform Builder** to scan and categorize ranked network domains; optimized data processing efficiency and streamlined mobile app integration for global platforms.
- **Engineered high-performance C-based lookup systems** using dynamically scaled vectors and hash tables for real-time parental controls, significantly improving throughput for fraud detection.
- **Transformed development velocity** by designing a Docker-based Firmware Builder and Domain Database; integrated with GitHub Actions to establish a robust CI/CD pipeline.
- **Led the migration and re-implementation** of the Domain Categorizer in Rust, achieving superior memory safety and system maintainability.

Circle Media Labs Inc. | Cypress, CA *Senior Firmware Engineer* | 2017 – 2021

- **Steered the design and development** of next-generation hardware, successfully porting parental control agents to **Netgear® router** ecosystems.
- **Revolutionized build systems** by transitioning to CMake and creating a configurable package builder, **reducing cross-platform build complexity by 80%**.
- **Configured complex cross-compilation toolchains** for embedded targets and mobile frameworks.
- **Architected a centralized Docker-based Jenkins Build Server**, providing unified support for major partners including T-Mobile, Sky Broadband, and Netgear.
- **Optimized Python-based data processing**, reducing domain database build times **by 90%**.
- **Mentored junior engineers** in AWS Cloud Service integration to support scalable, cloud-connected firmware deployments.

Advantech Corp. | Irvine, CA *Senior Software Engineer* (Embedded Linux) | 2007 – 2017

- **Technical Lead** for high-profile embedded Linux projects serving **Tier-1 clients: Seagate, GE, Amazon, Facebook, and Cisco**.
- **Developed mission-critical low-level software**, including custom drivers (I2C, GPIO, Watchdog) and optimized Android/U-boot bootloaders.
- **Established cross-platform toolchains** for iMX.31/53 architectures, providing the foundation for customized Linux driver development across the product line.

NDC Infrared Engineering | Irwindale, CA *Senior Embedded Software Engineer* | 2007

- **Developed high-precision X-ray scanner software** for industrial rubber thickness measurement using TI DSP C67xx architectures.

KIMTEC (Contract for Panasonic Avionics Corp.) | Lake Forest, CA *Application Software Engineer* | 2006

- **Developed core communication servers for In-Flight Entertainment (IFE)** systems, enabling critical aircraft-to-ground connectivity.

J. Müller AG | Effretikon, Switzerland *Software Engineer / System Administrator* | 2002 – 2006

- **Directed cross-functional projects** involving system/database administration and real-time Linux solutions (RTAI/RTOS).
 - **Expertly programmed low-level components** in 68k/x86 Assembler and VME-Bus/PPC systems for audio/video processing.
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EDUCATION

FHS St. Gallen University of Applied Sciences | St. Gallen, Switzerland

- **Executive Master of Science in Software Engineering.** Focus: Strategic Software Architecture, IT Management, and Enterprise Systems.
 - **Bachelor of Science in Electrical Engineering.*** Focus: Embedded Systems, Digital Signal Processing (DSP), and Microelectronics.
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AWARDS

Advantech Employee Excellence Award | 2009 & 2013

- Two-time recipient of the company's highest recognition for technical achievement and professional dedication.
 - Awarded for "outstanding contributions" to mission-critical embedded Linux projects for Tier-1 global clients and excellence in cross-functional collaboration.
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