

# Volodymyr Hirnyj

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Embedded Systems Leader | Systems Architect | Building Products & Engineering Organizations

Engineering leader with 14+ years of experience building embedded products from concept through manufacturing and developing the engineering organizations that enable teams to scale. My background spans system architecture, electronics, firmware, manufacturing, and quality, with a focus on reducing technical risk through thoughtful architecture, modern development practices, and strong cross-functional collaboration. I enjoy creating environments where clear technical direction, continuous improvement, and pragmatic execution allow engineers to consistently deliver exceptional products.

## Leadership & Technical Expertise

### Engineering Leadership

- Engineering Strategy & Technical Roadmaps
- Engineering Organization Development
- Cross-Functional Leadership
- Engineering Process & Quality Systems

### Embedded Systems

- Embedded & IoT Systems Architecture
- Embedded Firmware (C/C++, RTOS, Bare Metal)
- MCU & Linux Platforms
- Mixed-Signal Electronics & PCB Design
- Wireless Connectivity

### Engineering Excellence

- CI/CD & Development Automation
- Verification & Validation (V&V)
- Technical Risk Management
- Unit Testing & Static Analysis
- Production Test, DFM & DFT

## Professional Experience

Cooler Heads

**Lead Electronics Engineer  
Consultant**

Jul 2024 - Present  
Jan 2024 - Jul 2024

Lead the architecture and development of electronics and embedded systems for an FDA Class II medical device while establishing the engineering practices, technical standards, and development workflows that enable scalable product development. Partner across hardware, firmware, manufacturing, quality, and clinical teams to improve reliability, manufacturability, and execution from concept through production.

- Established modern embedded engineering practices including, CI/CD, automated testing, static analysis, coding standards, structured design reviews, AI-assisted development, and documentation workflows, improving software quality and enabling scalable development
- Defined the technical roadmap and architected next-generation electronics and firmware platforms emphasizing modularity, configurability, testability, and long-term product scalability
- Led cross-functional engineering initiatives spanning hardware, firmware, manufacturing, quality, and clinical teams, reducing complaints, lowering costs, and expanding product capability
- Provided technical leadership through architecture reviews, design reviews, mentoring, onboarding, and technical oversight of external engineering partners to align execution with product objectives
- Developed production and engineering test systems while improving manufacturing workflows, increasing production efficiency, and reducing technical risk across the product lifecycle
- Promoted rapid iteration through early prototyping, continuous validation, and short engineering feedback cycles, enabling faster learning while reducing technical and manufacturing risk

Q Harmonics

**Solo Founder & Principal Engineer**

Mar 2016 - Jul 2024

Founded and led an engineering consultancy providing embedded systems architecture, product strategy, and technical leadership for startups through Fortune 500 medical device companies. Partnered directly with founders and executive teams to define technology strategy, prioritize engineering investment, reduce technical risk, and lead products from concept through manufacturing. Contributed to successful acquisitions, NSF-funded research programs, and commercial product launches across medical devices, robotics, defense, and industrial automation.

- Served as trusted technical advisor to founders and executive teams, helping prioritize engineering investment, evaluate architectural tradeoffs, and align technology decisions with business objectives
- Established engineering foundations including architecture, development processes, and technical standards that enabled startups to scale from early prototypes into manufacturable products
- Led the systems architecture for an autonomous underwater robotics platform, enabling more than \$2M in NSF/SBIR funding through development of novel navigation technology
- Re-architected an automated manufacturing test platform, reducing production test time by 98% while improving scalability for commercial production
- Architected embedded firmware and signal-processing infrastructure for a neuromonitoring platform that successfully launched commercially and later became part of a company acquisition
- Defined electrical architecture and guided manufacturing transition for an RF drone defense platform that contributed to a successful company acquisition
- Architected a secure field-updatable firmware platform that reduced service turnaround by approximately five days while improving long-term maintainability

Plexus

**Test Design/Support Engineer**  
**Analog Design Engineer**

Sep 2012 - Apr 2016

May 2011 - Sep 2012

Progressed from Analog Design Engineer to Test Design & Support Engineer while supporting development and manufacturing of FDA Class I–III medical devices. Worked across engineering, manufacturing, quality, and production to improve test capability, accelerate new product introduction, and ensure reliable, scalable manufacturing.

- Developed automated production test systems using C++, custom electronics, and commercial instrumentation for complex medical devices
- Improved manufacturing yield, equipment uptime, and production throughput through systematic troubleshooting and test system optimization
- Supported new product introduction (NPI), verification, validation, and transition into regulated manufacturing environments
- Designed analog and digital electronics for production and engineering test systems while collaborating closely with design, manufacturing, and quality teams
- Built a broad foundation in regulated product development, manufacturing operations, quality systems, and cross-functional engineering collaboration across a diverse product portfolio

## Education

Bachelor of Science, Electrical Engineering | Milwaukee School of Engineering  
Diplom Ingenieur, Elektrotechnik | Technische Hochschule Lübeck