



Nicolas Steven Miller
Software and Embedded Systems Engineer

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SUMMARY

Polyglot programmer, embedded hardware engineer and entrepreneur with over 12 years experience building production and research computing systems, from initial concept to market and beyond. Current R&D focus: dynamically reconfigurable, user-extensible embedded hardware platforms for signal processing.

LINKS

Web - *Company:* zrna.org, *Personal:* zrnsn.github.io

Github - *Company:* github.com/zrna-research, *Personal:* github.com/zrnsn

SELECTED PROJECTS

Zrna - Embedded platform for reconfigurable analog systems (C, C++, FreeRTOS, STM32/ARM, Python)

Akso - Embedded real-time audio DSP platform (C, C++, ChibiOS, STM32/ARM, Java)

Kosmische - Virtual analog synthesizer and sequencer for Android (Java, C++)

Pyculiarity - Time series data anomaly detection library (Python, R)

BotB - Algorithmic trading and backtesting framework for cryptocurrency (Python, SQLite)

EXPERIENCE

Founder, CEO, Principal Engineer

Zrna Research (5/16 - Present)

Invented novel embedded platform and API for standalone, real-time reconfigurable analog systems based on field-programmable analog array (FPAA) technology and state-of-the-art firmware running on ARM. Personally responsible for: hardware design, fabrication and test, firmware, application software, website and strategy. Consultant to **Okika Technologies** for their Pika FPAA Raspberry Pi HAT hardware project. (C, C++, FreeRTOS, STM32/ARM, Python, Protobuf, Golang, AppEngine, Stripe)

Software Engineer: Firmware, DSP, Java frontend

Axoloti (2/16 - Present)

Collaborated on embedded system that allows musicians to develop real-time audio DSP algorithms in a visual language for deployment to STM32F4-based hardware instruments. Ported firmware to more powerful STM32H7 and designed new compatible hardware around it (**Akso**). (C, C++, ChibiOS, STM32/ARM, Java)

Software Engineer: Backend, Data Science, Android

Hipmunk, acquired by SAP (6/14 - 1/16)

Maintained custom analytics toolchain that served data science and biz dev teams, directly impacting ad monetization. (Android, Java, Python, Javascript, Hadoop, HBase, AWS)

Contract Software Engineer: Mobile (iOS)

Vindow (2/14 - 6/14)

Contract Software Engineer: Backend (Ruby)

Rainforest QA (12/13 - 2/14)

Software Engineer: Backend, Android

Spotsetter, acquired by Apple (12/12 - 12/13)

Built web crawling and data technologies for local venue search that were ultimately incorporated into Apple Maps. (Python, Android, AWS)

Software Engineer: Full-stack Web (Java, Javascript)

FoundationIP (9/11 - 12/12)

Software Engineer in Test (Python)

Boston Scientific (03/09 - 5/11)

Software Engineering Intern (Java)

Seagate (5/07 - 12/07)

Software Engineering Intern (LAMP, C#)

Karges-Falconbridge (Summer 06)

PHILOSOPHY AND EXPERTISE

"We have seen the enemy and it is complexity." I strive to remove complexity above all else. I don't cling to particular languages, tools or theoretical techniques: they all imply trade-offs. I value pragmatism, first-principles thinking, evidence, testing and maintainability. I've shipped production code in a variety of languages including: C, C++, Java, Python, Golang, Ruby and Javascript. I'm skilled in what it takes to ship production embedded systems including: PCB design, layout, fabrication, testing and RTOS use.

EDUCATION

Bachelor of Computer Engineering, August 2008 - University of Minnesota, Minneapolis, MN

Undergraduate Honors Thesis - *Computer-Aided Color Appearance Design* (C++, OpenGL)