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SUMMARY

Passionate about architecting and delivering advanced sensing solutions that provide meaningful benefit to human beings. Experienced in constructing optimized embedded sensing stacks—especially for atypically-constrained systems—by leveraging a multidisciplinary background designing and executing firmware, digital hardware, and platform specifications.

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PRINCIPLE TECHNICAL SKILLS

**Embedded System Architecture:** translation of feature requirements into system design, SoC & sensor silicon architecture specification, full-stack modeling, end-to-end optimization, interface protocol design

**Firmware** (C & ASM, ARM systems): core system infrastructure, sensor interface architecture, signal processing, power optimization, high-speed communications, hardware abstraction, silicon bringup

**Software** (C, Python, Make...): build-system architecture for multi-target low-level code-bases, simulation framework infrastructure, interprocessor communications

**Digital Design for FPGAs** (VHDL, Verilog): high-bandwidth hardware interfaces, real-time DSP

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SELECTED PROFESSIONAL EXPERIENCE

**Apple** — July 2013–Present

Responsible for architecture design, functional specification, behavioral modeling, and spearheading team delivery of new embedded sensing solutions. Deliverables include scalable firmware infrastructure design and implementation, custom silicon specification, and system architecture definition.

**Lincoln Lab VI-A Fellowship** — June–August 2011, January 2012–June 2013

Designed and built a high-speed channel emulator for airborne communication networks to complete an M.Eng. fellowship degree in June, 2013.

**MITRE Corp. Internship Program** — June–August 2010

Designed and prototyped a hardware encryption concept; demonstrated it to funding authorities.

**BAE Systems Internship Program** — June–August 2009

Designed, implemented, and validated FPGA algorithms for thermal-imaging sensor defect correction and data corruption detection.

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EDUCATION

**Massachusetts Institute of Technology** (Cambridge, MA)

**2012:** B.S. Course VI-2 (Electrical Engineering & Computer Science)

**2013:** M.Eng. EE&CS *Channel Emulation* (J. Francis Reintjes Excellence in 6-A Industrial Practice Award)

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PATENTS

**System and method for multiplexing an optical sensor**, U.S. Patent 11,571,135 (2023)

**Wireless power systems with concurrently active data streams**,

U.K. Patent 2,587,051 (2021) et al.

**Wireless power system with battery charge indicators**, U.S. Patent 10,938,253 (2021) et al.

**Wireless charging systems with multiple power receiving devices**,

U.S. Patent 10,110,030 (2018) et al.

**Methods and apparatus for rapid switching of hardware configurations with a speed limited bus**, U.S. Patent 10,102,176 (2018)

**Dynamic adjustment of a sampling rate for an optical encoder**,

U.S. Patents 9,651,405 (2017) et al.