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DAVID EASON SMITH

Github: @EasonNYC
Linkedin: @in/easonsmith
Projects: EasonRobotics.com

Senior Software Engineer with 9 years experience in ARM Firmware and Embedded Linux development.

HARDWARE AND SOFTWARE COMPETENCIES

Technical:	ARM Firmware Development, Embedded Linux Development, Communication Protocols and Sensor Integration, Bluetooth LE (BLE), I2C, SPI, CAN, UART, Modbus, TCP/IP, MQTT, WiFi, FreeRTOS, U-Boot
Languages:	C /C++ (Primary, 16yr), Python (9yr), Bash, Assembly
Software:	Linux (9yr), Git, Jira, Confluence, Gitlab CICD, Grafana, Influx, sqlite, Make/CMake, GNU ARM toolchain, STM32Cube
Test Equipment:	Soldering (16yr), Oscilloscopes (13yr), JTAG / SWD debugging (13yr), Multimeters, Logic Analyzers

PROFESSIONAL EXPERIENCE

InductEV (Automotive & EV) King of Prussia, PA
Embedded Software Engineer **May 2023 – July 2025**

Part of an embedded software team developing a wireless charging system for electric cars, busses and yard tractors. This role largely uses C/C++ across a range of interconnected embedded systems from smaller ARM based TI microcontrollers to larger embedded Linux platforms running Ubuntu. In this role I worked on the ground-side high voltage inductive charging systems, as well as on the vehicle-side FliR camera foreign object detection system.

- Implemented an alignment algorithm for better driver feedback and safer inductive charging directly above the ground coil.
- Discovered and helped fix a grounding issue in the vehicle side FLiR Camera based Foreign Object Detection system (OpenCV).
- Debugged cell modem connectivity issues using low level AT commands and fixed an enumeration issue using udev.
- Tested and improved the cabinet watchdog monitoring system by switching the fleet to a better more reliable WDT.

Miku Inc (Health & IoT) Woodbridge, NJ
Embedded Software Engineer **Oct 2017 – May 2023**

Core member of the engineering team at a startup which brought to market multiple generations of an IoT smart baby monitor camera with radar-based breathing rate detection capabilities and AWS IoT cloud integration. My role used C/C++ in a multithreaded embedded Yocto Linux environment.

Miku Original (Version 1)

- Designed and implemented NightVision mode, Two-way-Talk, Music and White Noise playback
- Performed hardware and software bring-up for camera ambient light sensor, IR LEDs, speakers and microphone

Miku Pro (Version 2)

- Co-invented patent-pending AI algorithm for contactless illness detection (US20240206745A1) combining radar sensing, computer vision, and machine learning for early fever detection in sleeping individuals
- Designed onboarding Pairing Mode and handshake flow and its camera-side software implementation (BLE / WiFi)
- Developed and implemented room ambiance audio level capture process (gstreamer)
- Scripted a python-based software GUI for non-technical 3PL warehouse staff to use for mass-updating cameras.
- Configured an STM32H743 using STM32CubeMX a to evaluate the runtime of FFTs as part of chip evaluation.

Persistent Systems, LLC (Defense) New York, NY
Embedded Software Engineering Intern **May 2016-Sept. 2016**

- Performed board bring-up, HW/SW debugging, schematic review, and documentation for an NXP ARM Cortex-M based HDMI to MyDP peripheral for the company flagship MPU5 Android military/civilian radio platform.
- Ported 40,000+ lines of 8-bit 8051 C code to run on a pin compatible 32-bit NXP / Freescale ARM microprocessor using Kinetis.

OTHER EXPERIENCE: American Jewish World Service (2007-2013) | Best Buy, NYC (2005-07) | Footlight Records, NYC (2003-05)

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PATENTS AND IP

Co-Inventor, US Patent Application US20240206745A1 (Published 2024)

"System and Method for Monitoring a Person for Signs of Sickness"

- Developed contactless health monitoring system using radar, computer vision, and ML
- Created statistical analysis framework for early illness detection through biometric pattern recognition
- Integrated multi-modal sensor fusion (radar, IR imaging, audio) for robust vital sign extraction
- Designed real-time alerting system with cloud connectivity and mobile app

EDUCATION

NEW YORK UNIVERSITY | *Tandon School of Engineering*

Dual Degree B.S. in Electrical and Computer Engineering
May 2017

RELEVANT COURSEWORK:

Real Time Embedded Systems (*Grad.*)	Artificial Intelligence (*Grad.*)	Sensor-Based Robotics (*Grad.*)
Circuits I, II, & Electronics I	Data Structures and Algorithms	Feedback Control

PRIOR EDUCATION: City University of New York, (2014) | The New Actors Workshop, NY (2002) | Valencia College, FL (2000)

LEADERSHIP AND TECHNICAL PROJECTS

Camelot AI: A 5 DOF Robotic Manipulator and Camelot game playing Artificial Intelligence Engine
http://github.com/EasonNYC/Camelot

- Written in Python. Themed after the sentient computer 'HAL' from "2001: A Space Odyssey."
- Created an AI agent which controls a robotic arm to move pieces on a game board. Compatible with VREP Robotics Simulation environment.
- Implements Iterative Deepening, Alpha-beta Pruning, and partial Move Ordering.

NYU CubeSAT 2016-2017: Embedded Systems Engineer
https://github.com/EasonNYC/NYUSat

- Worked on the payload module for a 1U-sized mini satellite collecting weather science data.
- SW: Used FreeRTOS and STM32CubeMX to synchronize low level sensor device drivers with on-chip peripherals on an STM32 F3.
- HW: Performed Schematic Capture and PCB design in Altium. Tested and simulated mixed signal sub-circuits using LTSpice.

NYU 2014-2015 NASA Robotics Competition Team: Captain / Project Manager
http://www.easonrobotics.com/?portfolio=nasa-lunar-mining-robot

- Captain and Project Manager to 13 BS and MS students in a year-long NASA sponsored autonomous lunar robot design project.
- Created robot Wi-Fi communications link watchdog timer safety feature with auto reconnect ability on TCP/IP connection dropouts.
- Misc. contributions include: Team budget, recruitment, Sensor Test / R&D, Electrical Layout, LabVIEW Teleop+GUI programming.

ARM Cortex-M4 Low Level Device Driver for the Bosch BMP085 Pressure Sensor
https://github.com/EasonNYC/BMP085

- I2C based firmware for STM32F407 utilizing the BMP's EOC pin to an external interrupt for faster data acquisition rates.

(Proof of Covid-19 Vaccination available upon request)