Eugene Brodsky

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Experience

MetaSense • Embedded Firmware Engineer - **May 2022 - Present**

Primary responsibilities lie in the design, implementation, and test of our sensor subsystems for real time motion capture. Worked alongside cloud and hardware engineers to bridge the gap between hardware and SAAS infrastructure.
Accomplishments in firmware application development:

- Outperformed market competition in sensor output data rate. Our wireless protocol is capable of a 360hz data rate from 12 sensor nodes, an increase from the 240hz outlined in the original design.
- Streamlined user experience by automating configuration and calibration procedures.
- Defined lexical specifications in the development of terminal capabilities to enable remote system management and logging.
- Migrated codebase to use the latest SDK offerings.
- Created abstraction layers to support various hardware platforms (combinations of dev kits and custom PCBs using nRF52840 and nRF52832 SoCs).

Made hardware recommendations based on improving user experience and accounting for constraints imposed by firmware. Accounted for dependencies in firmware when optimizations are made in hardware design. Listed are several accomplishments leaning in the hardware direction:

- Extended sensor battery life from 2 hours to 12 hours.
- Increased wireless data throughput by stewarding RF performance testing for the redesign of our RF antenna and PCB housing to reduce signal attenuation.
- Advised in the bring-up process for a smart sensor charger. Provided failsafe measures to perform firmware flashing serially in case of memory corruption.
- Prevented the bulk purchase of faulty hardware by means of hardware test software.

Skills

- System design and documentation
- Software testing and debug strategies
- Embedded power optimization
- Real time wireless communication systems
- IMU sensor integration
- WiFi module integration

Languages/Tools

- Nordic nRF52 development environment
- Logical analyzers/oscilloscopes
- Lex, Jflex
- Excel
- C, Java, Python, Make, Git

Education

University of California, Berkeley - **2018 - 2021**

Degree: BS in Applied Mathematics
CS Coursework: Structure of Programs, Data Structures, Algorithms, Security, Numerical Analysis
Math Coursework: Discrete Math, Linear Algebra, Abstract Algebra, Real Analysis, Complex Analysis

Coursework Projects

RaceRunner - **2D tile-based game in Java.**

- Designed a pseudo-random world generation algorithm.
- Other contributions – race mode, game architecture, and graphic design.

File Sharing Client - **An interface for an end-to-end secure encrypted file sharing system.**

- Developed logic to solve the enforcement of file ownership and privileges.