



Summary Designing Firmware architecture and embedded algorithms for ultra-low power systems with sensors.

Experience

2019 – now **Sensors and Algorithm Engineer – Apple Inc.** 09/08/2019 – now
Full time



2018 – 2019 **Embedded Software Engineer – Simplehuman LLC** 12/12/2018 – 09/06/2019
19850 Magellan Dr, 90502 Torrance Full Time

simplehuman

Development of the new **Sensor mirror hi-fi**, smart mirror with Voice Assistant:

- Low level drivers for sensors and lighting system
- Application level OTA update – dual bank method on Cortex M0
- Analysis and firmware development to handle ESD event
- Math modelling of the new TRU-LUX lighting system, using mixing LEDs technology

2016 - 2018 **Team Lead - Embedded Software Engineer - Game Your Game, Inc.** 05/02/2016 – 12/11/2018
653 Bryant St, 94107 San Francisco Full Time



Connected device for golf players: new generation product development (GAMEGOLF PRO).
Project management and technical development of a low power embedded system to put on a golf club.

Project management

- Team Lead since the Alpha phase our latest product (May 2018). Team of 10.
- Coordinating a distributed team in California, Ireland, and Ukraine, prioritizing tasks according to our launch roadmap, working with each member on task decomposition, regular feedback, and documentation.
- Higher level coordination with Management for product launch, popularization of technical concepts for Executives and Investors, improvement of the bond between Business, Product, and Engineering.

Technical development

- Firmware architecture design and development for low power CPU (Cortex-M4, Cortex-M0)
- Real-time algorithms on board (swing detection, activity & power related algorithms)
 - On-the-fly sensor calibration on board (Magnetometer, Accelerometer, and Gyroscope)
 - Embedded Sensor Fusion for real-time orientation estimation (6 and 9 axis)
 - General motion analysis for sport application, and design of Golf specific models (MatLab)
 - **Provis. US Patent on motion detection models and motion analysis**
 - **Provis. US Patent on low power management algorithm (always-on embedded system powered by a coin cell battery)**
- Machine Learning on the back-end (Genetic Algorithm in C/Python)
 - Framework for data collection and algorithm testing
 - Genetic Algorithm for swing detection, classifiers compatible with our embedded system
 - Feature propagation to the embedded system through a config file transferred over BLE

2014 - 2016 **Entrepreneurship - Sensor network for sport industry – SportSense** 09/01/2014 – 04/27/2016
405 chemin des Moyennes Bréguières, 06600 Antibes, France Part-Time

Sensor network for Gymnastics National Training Center



- Full conception of hardware, firmware and software
 - ToF sensors (ultra-sound and laser) integration
 - PCB design, Micro-control, Data analysis, Bluetooth, Embedded Linux process, User interface
- Entrepreneurship Award – by the Foundation of the University of Nice (10/2015)**

2014 - 2015 **Firmware developer - Professional Seismometer design - CNRS GeoAzur**
 250 rue Albert Einstein, 06905 Sophia Antipolis

12/01/2014 – 06/29/2015
 Part-Time

End-to-end project management: Python digital signal processing and data analysis, user interface to display real-time graphs, backend management for long term data storage (SEED compliant)



Education

2011 - 2016 **University of Nice Sophia Antipolis, France**
Master of Sciences in Electrical Engineering
 Embedded Systems

Graduated: 09/2016



2014 - 2015 **University of Nice Sophia Antipolis, France**
Certificate of Small Business Management & Entrepreneurship

Graduated: 09/2015



Skills and Tools

Engineering

Language: C, Python, Php, Javascript, SQL, MatLab, C++, Java

Software: Eclipse IDE & variants, Keil µVision5, Matlab, Jupyter IPython, Intel CoFluent Studio, Git, Jira, Asana

Hardware: CortexM4, CortexM0, NXP and STM sensors, NXP BLE stack

Communication

Language: English – French

Miscellaneous

2019 **Provis. US Patent** – AN 62/778,654 – Jan 2019
Electronic tag for shot detection

2016 **Provis. US Patent** – AN 62/557,225 – Nov 2016
Motion and gesture analysis from a Magnetic and Inertial Measurement Unit

2015 **Entrepreneurship Award** – Foundation of the University of Nice Sophia Antipolis – Oct 2015
Student Startup Contest

2015 **Junior Project Award** – STMicroelectronics – Nov 2015
E-Same Contest

2009 - 2015 **Elite Athlete: French Olympic Team - Trampoline**

Portfolio: www.mireweb.com