EmmaFrance

Biomedical Instrumentation Engineer

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ekfrance/Portfolio

Education

Cornell University
Ithaca, NY

Masters of Engineering
GPA 3.99 | May 2016

Bachelor of Arts,
Psychology
GPA 3.72 | May 2014

Awards

Hunter Rawlings
Cornell Presidential
Research Scholarship
2012-2014

Software

Matlab ★★★★☆
Solidworks ★★☆☆☆
COMSOL ★★☆☆☆
MS Office ★★★★★
LabView ★★☆☆☆
Simulink ★★☆☆☆
Python ★☆☆☆☆

Soft Skills

Event Organization
Speaker Series, Final
Frontier Design

Spearker Series,
Paragon SDC

Technical
Communication
Tutoring, Cornell
Mathematics Outreach
Program

Work & Research Experience

Present **Crew Mission Management Intern** SpaceX

Responsible for customer insight into configuration change for all of F9 Crew, a major deliverable for two payment milestones totaling over $80 million.

- ➛Analyzing customer impacts for over 300 vehicle changes
- ➛Supporting certification team in assessment of configuration changes' impact to certification products
- ➛Organizing subsystem leads and certification teams across the vehicle to provide complete, up-to-date documentation of configuration status
- ➛Co-lead on NASA monthly CCtCap Management meetings and weekly F9 forums
- ➛Providing timely, comprehensive responses to technical questions on vehicle changes

Responsible for negotiating information products with customers on various Dragon and F9 requirements.

- ➛Defining scope of internal documentation to be released for NASA Production Control standards
- ➛Interfacing between NASA representatives and responsible engineers to define scope of ISS Interface Control Document

11/15 - 08/16 **Simulation of Exercise Under Artificial Gravity** Diaz Lab, Cornell University
Used in-depth understanding of physiology to update code base for ease-of-use and developed graphical user interface for real-time model control.

07/14 - 09/14 **Morning Course Instructor** Cornell Adult University Summer Program
Created a week-long science course for groups of teens ages 13-15 and engaged students in exploring advanced science topics through activity-based lectures.

06/13 - 08/13 **Computational Epidemiology** Independent, Cornell University
Developed a small-world network model of flu spread in the workplace and evaluated the model's output leading to the discovery of a distinct epidemic threshold.

06/12 - 08/12 **Computational Modeling of Retinal Signals** Brainard Lab, University of Pennsylvania
Developed Matlab scripts designed to simulate retinal output and integrated them with previous software to produce a complete simulator of retinal image perception.

Coursework and Projects

Relevant Coursework Analysis of Metabolic and Structural Systems, Electrical and Chemical Physiology, Electronics for Biomedical Engineers, Intro to CADD, Computer Aided Engineering

2015 - 2016 **Device for Assessment of Cervical Tissue** Biohaptix, Inc.
Early-stage development of a minimally invasive device that can characterize mechanical stiffness and electrical impedance in tissue to diagnose disease. **New prototype improved on previous iteration in portability, cost, and reliability.**

- ➛Led 5-person team of electrical and biomedical engineers
- ➛Interfaced with clients to provide technical progress updates and get feedback
- ➛Ideated, developed, and tested a novel vacuum generation system
- ➛Performed system level integration testing of electronic, mechanical, fluid, and software systems

Spring 2016 **Finite Element Analysis of Thermal Transfer During Astronaut EVA**
Modeled effects of perspiration on functionality of Liquid Cooling and Ventilation Garment (LCVG) for Astronaut Extravehicular Activity using COMSOL software.

Spring 2016 **Sensor System and Data Acquisition for Rudimentary Pulse Oximeter**
Built analog circuitry and designed analog filters for oscillating LED sensor system, followed procedure for incorporating PIC18 microcontroller-based data acquisition.