Matthew Feldman

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EDUCATION

Bachelor of Science, Electrical Engineering — May 2014
Minor in Physics, concentration in Japanese Language
University of Florida, Gainesville, FL
GPA: 3.96/4.0

ACADEMIA

Teaching Assistant, Linear Control Systems Course and Lab — August 2014 – Present
University of Florida, Gainesville, FL

- Conducted lab sessions for students to gain experience with Matlab for linear controls applications
- Taught students basic concepts, such as state space system modeling and lead and lag controller design
- Graded homework and exams

Computer Vision Programmer, Machine Intelligence Laboratory — August 2014 – Present
University of Florida, Gainesville, FL

- Designed and implemented SLAM algorithms through visual and odometer sensor fusion to assist a mobile robot navigate a course for the IEEE Autonomous Robot competition
- Produced an undergraduate thesis on computer vision, Kalman filtering, and perspective geometry

Optics in the City of Light REU Researcher, Biophotonics Group — June 2013 – July 2013
Institut d'Optique, Palaiseau, France

- Constructed 3-dimension Full-Field Optical Coherence Tomography setup to support a cell-level biological study
- Characterized spherical aberration and image quality degradation as a function of conjugation position by programming LabVIEW control system and Matlab data-processing script

NanoJapan REU Researcher, Ajayan Lab — June 2011 – July 2011
Rice University, Houston, TX

- Enhanced batteries and supercapacitors by creating new nanostructures and graphene coating using chemical vapor deposition
- Grew and transferred graphene samples for international collaboration projects on graphene devices

REU Researcher, Materials Research Institute — June 2011 – July 2011
Pennsylvania State University, State College, PA

- Designed and fabricated tunable microchip coils, using CST Microwave Studio to assess model feasibility and a Vector Network Analyzers for hardware testing
- Scanned small-scale phantoms using an MRI machine and newly-designed 600MHz microchips to improve tools available to biologists and antenna designers, with results published in yearly journal

Research Assistant, Instrumentation and Imaging Laboratory for Biomechanics — January 2011 – May 2012
University of Florida, Gainesville, FL

- Created and debugged LabVIEW programs that model the kinematics of multi-joint mechanical arms for National Instruments' database
- Modeled a functioning Klann Linkage system with dimensions similar to those of a "StrandBeest"
- Constructed and developed software to control a pneumatic Instron tensile stress machine from basic components to be used in future engineering courses at the university

INDUSTRY

Avionics Hardware Development and Integration Intern, SpaceX — August 2012 – August 2014
Hawthorne, CA

- Developed Altium extensions in C# and Python with unsupervised learning algorithms for streamlining the avionics design process
- Worked on thermal imaging systems on Falcon 9 Reusable to improve reliability and reduce cost
- Designed harnesses and data acquisition circuit boards for flight on Falcon 9 Reusable and Dragon
- Compiled data on various electronic interfaces for all current and future satellite missions
- Developed and qualified proprietary avionics systems to improve safety and reliability of all future Falcon 9 and Falcon Heavy flights, using Matlab, C++, and Bash

Engineering and Science Tutor, instaEDU.com May 2013 – Present
Gainesville, FL

- Taught science, math, and engineering concepts to students ranging in age from middle school to college
- Designed and developed a proof-of-concept math training resource to visually teach students algebra

Sponsored Engineer, Integrated Product and Process Design Program August 2013 – May 2014
Stryker Sustainability Solutions at University of Florida, Gainesville, FL

- Lead and worked with in a multidisciplinary team of engineers
- Designed, manufactured, and tested a C-based embedded system and fixture to rapidly test the integrity of the circuitry inside a particular ultrasonic scalpel surgery tool

Director of Energy and Environment, The Dynamo Policy Research Group September 2010 – May 2012
University of Florida, Gainesville, FL

- Published a policy recommendation on Smart Grid Systems in the "10 Ideas- Energy and Environment" publication and Roosevelt Institute's peer-reviewed "Solutions for the South" online publication, where policy makers are known to extract ideas
- Discussed political topics regarding Energy and Environment via the Dynamo's blog for the university community to read and consider

LEADERSHIP

Founder, "Five for Tanzania" Charity Fundraiser for Rhotia Valley, Tanzania September 2010 - Present
University of Florida

- Raised $2000 for the Rhotia Valley children's home from the publicity of setting the fastest 400m while juggling five balls world record
- Raised $1000 for tsunami victims in Japan from the publicity of setting the fastest 400m while juggling five balls world record

Vice President, "Objects in Motion" (Juggling Club) August 2010 – May 2011
University of Florida

- Designed novel juggling props and developed mass production techniques
- Designed choreography for live performances in Gainesville

Space Florida Academy, NASA-oriented engineering program sponsored by Lockheed Martin March 2011
Cape Canaveral, FL

- Designed, constructed, and launched a weather balloon payload during the week of Spring break with numerous other engineers from Florida in order to stream images of Earth from the stratosphere
- Worked and interacted with engineers and physicists from NASA, Lockheed Martin, and United Launch Alliance throughout multiple panel discussions

ACHIEVEMENTS

Undergraduate financed 100% of college tuition with merit-based scholarships August 2010 - present
Guinness World Record Holder, Fastest mile while juggling 5 objects July 2012
Guinness World Record Holder, Fastest 400m while juggling 5 objects July 2011
Guinness World Record Holder, Fastest 5k while juggling 5 objects May 2011
Commissioned Student Ambassador to Miyazu, Japan for the city of Delray Beach, FL April 2008 – June 2010

AFFILIATIONS

Member, IEEE Professional Engineering Society October 2010 – Present
Member, Student Small Satellite Design Club November 2010 – December 2011
Benton Engineering Council Representative, Gator Amateur Radio Club January 2011 – December 2011
Licensed Amateur Radio Technician January 2011 – Presen

PUBLICATIONS

- **Feldman M**, Lanagan M, Perini S. MRI microcoils for imaging individual cells. *Annual Research Journal Electrical Engineering Research Experience for Undergrads*. IX:169-179, 2011 August
- Legel L, **Feldman M**. Smart grid deployment plans for Florida's utilities. 10 Ideas for Energy & Environment. 14-15, 2011 July
- **Feldman M**, Gullapalli H, Reddy LM, Vajtai R, Ajayan PM. Fluorine-etched nanostructures for energy storage applications. *RQI Symposium*. Rice University, 2012 August 3.