Matthew Feldman

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EDUCATION

Doctor of Philosophy, Electrical Engineering   May 2020
Master of Science, Electrical Engineering
Stanford University, Stanford, CA

Bachelor of Science, Electrical Engineering   May 2014
University of Florida, Gainesville, FL

ACADEMIA

Teaching Assistant, Linear Control Systems Course and Lab   August 2014 - December 2014
University of Florida, Gainesville, FL
- Conducted weekly lab sessions for students to gain experience using 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 Lab   August 2014 - December 201
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 2012 - July 2012
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

EEREU 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

Student Technical Assistant, MIT Lincoln Laboratory   January 2015 - August 2015
Lexington, MA
- Designed simulations in C++, Matlab, and Java to thoroughly test the next generation flight collision avoidance system called ACAS-Xu, for manned and unmanned aircraft
- Used the Grid supercomputer to run millions of flight simulations in parallel, and analyzed the output data to make assessments of the operational suitability of various collision-avoidance logic
- Designed new portable algorithms for the surveillance and tracking modules on board unmanned aircraft

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