Hassan McGinnis

Software Developer | Controls Engineer

Natick, MA | (502) 295-8499

hassan.mcginnis@gmail.com | linkedin.com/in/hrmcginnis | hrmcginnis.github.io

Summary

I'm an engineer with professional software development and test experience using MATLAB, Simulink, Python and C++. I also have research experience in robust control of aircraft control surfaces and signal processing for structural vibration analysis.

Software Skills

Tools: MATLAB, Simulink, Stateflow, GNU/Linux, Emacs, Git, Bamboo

Languages: MATLAB, Python, C++, Bash

Projects

MedAcuity Software | Controls Software Verification for Robotic Assisted Surgery System

Aug 2017 - present

- Created, implemented, and documented a strategy for verification and MC/DC test coverage of state machines and control algorithms for robotic arm motion implemented in Simulink.
- Led a team of remote test engineers through verification of functional and non-functional software requirements implemented in Simulink and C++.
- Developed and validated a Python framework and Bamboo test plan for batch execution of C++ requirements tests and Simulink unit tests.

MathWorks | Development of Python System Object for Simulink Raspberry Pi Support Package

May 2016

- Developed a Simulink block in MATLAB and C for the Raspberry Pi support package that interfaces with the Python/C API, allowing users to easily send simulation data to any Python module on the Raspberry Pi in soft real-time.
- Created a demo using the Python System object block in Simulink to drive a servomotor with a Raspberry Pi using the RaspiRobot Python library.

Purdue University | Sensitivity analysis of wear prognosis in an H_∞ controlled F-16 simulation

Aug 2010 - Dec 2011

- Investigated the minimization of fault propagation in a hydraulic actuator through real-time adjustment in the commanded flight path.
- Developed a robust altitude controller for an F-16 fighter aircraft model using H_∞ synthesis.
- Performed sensitivity analysis of the path adjustment algorithm under modeling error.
- Demonstrated the improved control strategy using a hydraulic solenoid valve hardware-in-the-loop system prototyped in Simulink and driven by dSPACE software.

Work Experience

MedAcuity Software | Westford, MA

- **Software Specialist** | *July 2017 - present*

MathWorks | Natick, MA

- **Senior Application Engineer - Post Sales** | *Sept 2013 - July 2016*
- **Application Support Engineer** | *Sept 2011 - Sept 2013*

Education

Purdue University

MS Mechanical Engineering | Dec 2011 | GPA: *3.81/4.00*

University of Kentucky

BS Mechanical Engineering | May 2009 | GPA: *3.46/4.00*

Hobby Projects

Music Production

July 2016 - present

- Using Reaper DAW with several free VST plugins to record and mix tracks
- Recording guitar and bass through an audio interface, and recording drums via MIDI

Résumé

Generated with Emacs Org mode