Hassan McGinnis

Software & Controls Engineer
Natick, MA

Summary

Software Engineer and SDET with experience developing and testing surgical robotic control software using MATLAB, Simulink, Python, and C++. Working knowledge of control systems. Experience with requirements for ISO-13485, ISO-14971 and IEC-62304.

Contact

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Software Skills

Languages: MATLAB, Python, Bash, C++

Tools & Environments: MATLAB, Simulink, Stateflow, GNU/Linux, Git, Emacs

Projects

MedAcuity Software | Controls Software Verification for Robotic Assisted Surgery System

Aug 2017 - present

- Created and implemented 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 | Python System Object for Simulink Support Package for Raspberry Pi

May 2016

- Developed a MATLAB system object/Simulink block for the Raspberry Pi support package that interfaces with the Python/C API, enabling simulation data to be streamed to a Python application on the Raspberry Pi in soft real-time.
- Created a proof of concept 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*

Additional Info

Résumé generated with Emacs & org-mode