

Jesse Couch | Résumé

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Aerospace engineer and computer scientist, looking to provide an intelligent, hardworking, and team-oriented attitude to a fast-paced and challenging environment.

Employment

Adaptive Aerospace Group, Inc.

R&D Engineer, Computer Scientist

Hampton, VA

May 2015–Present

Develop MATLAB/Simulink-based simulation and control laws for HLS demonstrations and handling quality studies.

Develop MATLAB/Simulink-based simulation and Monte Carlo analysis approach for a hypersonic flight research vehicle aimed at validating controls robustness to off-nominal conditions.

Develop Monte Carlo approach for fixed wing sUAS simulation aimed at the statistical variation of off-nominal trajectories following simulated flight failures.

Head-mounted-display application development for pilot alerting for loss-of-control prevention.

Software design, development, and simulation for Safe Autonomy Flexible Innovation Testbed (SAFIT™) UAS flight management system, including waypoint following, traffic and obstacle avoidance, geospatial containment, and flight envelope protection.

sUAS design, construction, maintenance, and mission operations.

Assist with data collection flights as Flight Test Engineer.

Develop software to interface with various certified and experimental avionics instruments on-board a general aviation aircraft for data collection and display.

Configure and maintain I.T. equipment.

Adaptive Aerospace Group, Inc.

Apprentice R&D Engineer, Computer Scientist

Hampton, VA

October 2012–May 2015

Aircraft simulator design and development in Simulink for handling qualities analysis. Interface with aircraft telemetry and communications systems for Sense and Avoid applications. Hardware and controller development for an Active Ride Improvement System.

Fighter Factory WWI & WWII Aircraft Restoration Facility

Internship

Virginia Beach, VA

June 2010–August 2012

Assist A&P mechanics in repairing and maintaining war era aircraft.

Education

Old Dominion University

Aerospace Engineering (ME)

Current GPA: 3.820

Norfolk, VA

August 2020–December 2022 (Expected)

North Carolina State University

Aerospace Engineering (BS), and Computer Science (BS)

Overall GPA: 2.976, AE GPA: 2.918, CSC GPA: 3.616

Raleigh, NC

August 2009–May 2015

Technical and Personal Skills

Programming Languages: C, C++, C#, Fortran, Java, JS, JSP, MATLAB, PHP, Python, Ruby

Markup Languages: HTML5, LaTeX

Industry Software Skills: Android Studio, Ansys, AVL, AutoCAD, Bazel, Circuit Maker, Eagle, eCalc, Eclipse, Electron, GitLab, GTest, IntelliJ, Jenkins CI, Mathematica, MATLAB, MissionPlanner, .Net, Simulink, Solidworks, Unity, QGroundControl, Qt, Visual Studio, XFLR5

Other: Embedded Systems/Microcontrollers, sUAS Autopilots, Soldering, Git, SVN, SQL, MongoDB, Windows and Unix Platforms

Certifications and Training

Instrument Airplane Rating, Oct 2019

RTCA DO-178C Training, Sep 2018

Part 107 sUAS License, Sep 2016

Private Pilot License, May 2016

Amateur Radio License, Dec 2013

Publications

Johnson, Sally, and Couch, Jesse, "A Wrapper Paradigm for Trusted Implementation of Autonomy Applications," AIAA Aviation Technology, Integration, and Operations Conference, June 2017.

Stringer, Mary T., et al. "Piloted Simulation Assessment of the Impact of Flexible Structures on Handling Qualities of Generic Supersonic Aircraft." AIAA Conference (2013): 1-18.