

Jeffrey A. Houston

jeffrey.a.houston@outlook.com • 56 George Street, Medford, MA 02155 • +1 (908) 432-9369
<https://jiffipop.github.io/portfolio/> • <https://www.linkedin.com/in/jeffreyalanhouston/>

OBJECTIVE: Self-starting professional seeking to advance my professional career with an engineering position alongside passionate colleagues to create solutions for design, testing, and product lifecycle management.

EDUCATION:

Syracuse University, College of Engineering and Computer Science
Bachelor of Science, Aerospace Engineering, GPA: 3.1
Syracuse University Abroad at Florence, Italy

August 2016 – May 2020

SKILLS:

Technical: Inventor, SolidWorks, AutoCAD, Femap (NX Nastran), Ansys Fluent, SPiiPlus MMI Application Studio, Simulink
Programming: Python, MATLAB, CSS, HTML

EXPERIENCE:

SCHNEEBERGER, Inc., Mechanical Engineer

March 2021 – Present

- Automated data processing tasks for assemblers by creating GUI in PyQt5 and exported to executable file with PyInstaller
- Calculated tooling deflections via hand calculations/computation, proprietary FEA software, and stress analysis in Inventor
- Replaced parts at 30% of original cost by creating CAD models and drawings of optics fixtures/components in Inventor
- Ensured customer-specific requirements (straightness, flatness, pitch, yaw, etc.) were met via interferometry testing
- Developed and documented test procedures and assembly instructions for various multi-axis linear motion prototype stages
- Successfully troubleshooted various software (C#) and hardware issues with ACS Motion controllers (CMhp)
- Tuned rotary motors in dual loop with linear feedback in SPiiPlus software using control theory to optimize performance
- Simplified manufacturing process by changing parts via ECOs/ECRs for two systems in production
- Provided technical support on company's products to internal employees and customers

Northrop Grumman Corporation, Associate Aerospace Engineer - Pathways Program

September 2020 – March 2021

- Simulated acceleration spectral density (ASD) response of electromechanical components to random vibration in Femap
- Reduced time to create component level test specification (data inputted into a shaker table from FEM) by 80% by creating MATLAB algorithm to read in ASD data from Femap simulation, and output ASD data that meets shaker table specifications and NASA's minimum workmanship
- Participated in development of program Preliminary Design Review (PDR) and Critical Design Review (CDR)

Aerospace Engineering Senior Design Competition, Curriculum

January 2020 – May 2020

- Created parts and assembly of aircraft design in SolidWorks based on specifications used in conceptual design review
- Predicted the aircraft's weight and balance, stability, optimal size, and flight performance by writing MATLAB scripts
- Verified the assumed thrust by experimentally obtaining data for thrust-endurance curve of motor
- Verified structural stability by simulating wingtip loading tests using structural finite element analysis (FEA) software
- Evaluated and determined optimal material choice to optimize overall system performance

Syracuse University Bionics and Control Systems Laboratory, Mechanical Design Engineer

May 2019 – August 2019

- Developed mechanical design of exoskeleton suit to fit patients of body types within 99% of the population
- Designed and manufactured controls system tested with actuation and measurement methods for joints in exoskeleton suit
- Created drawings and bill of materials for exoskeleton suit parts and assemblies using GD&T and DFM in SolidWorks
- Fabricated aluminum and 3D printed parts for the exoskeleton with milling machine, bandsaw, CNC machine and 3D printer
- Calibrated and controlled hacked treadmill motor using Simulink and MATLAB to implement safety system

Mechanical and Aerospace Lab, Curriculum

September 2018 – December 2018

- Measured aerodynamic forces in MATLAB on a Clark-Y airfoil mounted to a sting balance through use of a wind tunnel
- Investigated vortex shedding downstream of a cylinder with an accelerometer attached inside
- Compared three-dimensional flows and two-dimensional flows by measuring pressure induced drag on various cylinders
- Analyzed boundary layers around a cylinder and formation near the wall of the wind tunnel using a pitot-static tube rake
- Performed tensile stress testing on metals, plastics, and polymers on an MTS testing machine utilizing an extensometer to ultimately draw conclusions on each materials' physical properties based on their respective stress-strain curve
- Calculated natural frequency of a cantilever from fast Fourier transformations of data in the time domain using MATLAB

LEADERSHIP/ACTIVITIES:

Society for Asian Scientists and Engineers (SASE), Member

September 2019 – May 2020

American Institute of Aeronautics and Astronautics (AIAA), Member

October 2017 – May 2020

The GREEN Program, Participant

June 2017 – July 2017

- Studied and compared forms of renewable energy at Reykjavík University throughout program in Iceland

Boy Scouts of America, Eagle Scout

October 2004 – June 2016

- Adopted multiple leadership positions and participated in National Youth Leadership Training camp
- Participated in planning and execution of fundraisers such as Christmas tree sale, church rummage, and Chester Day