Kathryn D. Kwiecinski

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Objective

To obtain a challenging internship where I can apply my analytical and technical experience; learn practical, new skills; and gain insights into long-term career options.

Education

Bachelor of Aerospace Engineering and Mechanics   May 2020
University of Minnesota: Twin Cities, Minneapolis, MN   GPA: 3.28/4.00
- Coursework: Dynamics, Deformable Body Mechanics, Mechanics of Flight, Aerospace Structures, Orbital Mechanics.
- Dean's List Fall 2015.

Experience

Structural Dynamics Analysis and Testing for SLS Intern   Aug. 2017 – May 2018
NASA Marshall Space Flight Center, Huntsville, AL
- Visual Vibrometry: Translated tools for video analysis of small motions from MatLab to Python. Created and implemented Python image analysis tools live in order to observe a structural test. Utilized Python video analysis tools to retrieve natural modes of large structures from video of modal tests, then amplified motion to make modes more apparent in video.
- Stereoscopic Vision: Used commercially available stereo cameras as well as basic, two-camera setups to produce depth maps, perform modal analysis, and magnify out-of-plane motion.
- Finite Element Analysis (FEA): Learned and utilized common industry FEA tools such as NASTRAN and FEMAP to perform modal analysis of finite element models. Assisted senior engineers with performing sensitivity studies using finite element models.

Undergraduate Research Assistant   May 2017 – Sept. 2017
Minnesota Space Grant Consortium Ballooning Team
University of Minnesota: Twin Cities, Minneapolis, MN
- Lead efforts for the preparation, launch, and recovery of one of five stratospheric telemetry balloons to fly on the August 21, 2017 total solar eclipse in Lincoln, Nebraska. Successfully live-streamed video of the shadow at altitude.
- Troubleshot an eight-camera multiplexer designed to selectively stream video from a specific heading. Designed a payload container to secure device and optimize cameras.
- Lead and volunteered to facilitate workshops for K-12 students to encourage interest and engage them in STEM fields.

Undergraduate Research Assistant   June 2016 – Aug. 2017
Team Member – AEM 1905 Aircraft and Spacecraft Project   Jan. 2016 – May 2016
Unmanned Aerial Vehicles (UAV) Laboratory
University of Minnesota: Twin Cities, Minneapolis, MN
- Collected and analyzed thrust test data.
- Performed comprehensive assessment of servo properties and capabilities in order to inform selection.
- Developed programs for computer vision analysis of flights using OpenCV-Python bindings.
- Utilized MATLAB, C++, Python, and Arduino for experimentation, data analysis and visualization.
- Revised and updated models of aircraft controls systems using Simulink in order to perform computer simulations of flight hardware and software.

- Learned and used the aircraft geometry and analysis tool OpenVSP to perform control surface derivative analysis and parsed results using MATLAB.
- Designed and constructed an unmanned aerial vehicle using principles of flight to reduce stall speed by 20%.
- Conducted flight testing on the unmanned aerial vehicle, analyzed data, and presented results in a formal, written report.

Skills

Operating Systems and Programming Languages:
- Windows
- Mac
- Linux
- Python
- C/C++

Software:
- MatLab and Simulink
- Mathematica
- Arduino
- FEMAP

Microsoft:
- Visual Studio
- Excel
- PowerPoint
- Office

Other:
- Soldering
- Experimental Design

Organizations

American Institute for Aeronautics and Astronautics (AIAA)   Active Member, Jan. 2017 – Present

Society of Women Engineers (SWE)   Active Member, Jan. 2017 – Present

Northstar Philharmonia Orchestra   Cellist, Sept. 2016 – Present