James O'Neil

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Education

Ph.D., Aeronautics and Astronautics (09/2017 - In progress)
University of Washington, Seattle, WA

B.S., Aeronautics and Astronautics (09/2015-06/2017)
University of Washington, Seattle, WA

A.S., Aerospace Engineering (09/2012-06/2015)
Everett Community College, Everett, WA

Awards

- Outstanding Performance Award Senior capstone project, UW (Spring 2017)
- NSF Summer Undergraduate Research Fellowship (Summer 2016)
- Mary Gates Scholarship (Autumn 2015)
- NASA Space Grant Community College Transfer Scholarship, one of five selected among hundreds of applicants (Autumn 2015)
- Outstanding Graduate Award from the Math and Sciences Division, EvCC (Spring 2015)
- Maintained a 4.0 GPA while attending EvCC (2012-2015)

Research Experience

Title: Research Assistant (06/2016 – Present), Laboratory for Engineered Materials and Sciences, UW
Advisor: Professor Jinkyu Yang
Roles: Studied the utilization of origami structures for engineering applications. Main goal is to design lightweight, durable, and tunable structures for impact mitigation, robotics, and structural engineering. During the summer of 2016, was awarded NSF fellowship (see accomplishments) to conduct research in this lab.

Title: Senior capstone design leader under sponsorship of Daher Aerospace
Advisors: Professor Marco Salviato and Professor Anthony Waas
Roles: Developed a method to optimize cure cycles for carbon-composite prepregs and demonstrated comparable quality between vacuum-bag only curing and autoclave curing. Was also the project lead.

Title: Structures Lead (10/2016 – 06/2017), UW CubeSat Club
Location: Seattle, Washington
Roles: Organized team of students to conduct structural analyses on the club's CubeSat, presented work to University of Washington faculty and industry representatives.

Teaching Experience

Instructor (University of Washington)

- ENGR 197 STARS MATH 124 Workshop (01/2020 – Present)

Teaching Assistant (University of Washington)

- AA320 Aerospace Instrumentation (09/2017 – 12/2017)
- AA 321 Aerospace Laboratory I (12/2017 – 03/2018)
- AA 322 Aerospace Laboratory II (03/2018 – 06/2018)
- AA 320 Aerospace Instrumentation (09/2018 – 12/2018)
- AA 321 Aerospace Laboratory I (01/2019 – 03/2019)
- AE 540 Mechanics of Solids (03/2019 – 06/2019)
- ENGR 120 STARS Math Problem Solving (09/2019 – 12/2019)

Mentoring

- Undergraduate Students University of Washington
  - Hannah Lee, Norman Lei, and Hannah Stevens (06/2017 – 09/2017)
  - Jason Teh (02/2019 – Present)

Journal Publications

Submitted or In Preparation

1. **A. Deleo, J. O'Neil, M. Salviato,** and **J. Yang**, Origami-based Deployable Structures Made of Carbon Fiber Reinforced Polymer Composites (submitted).

Conference Proceedings

1. **J. O'Neil, Y. Miyazawa**, and **J. Yang**, "Mitigation of impact applied to payload via origami-based mechanical metamaterials," *SPIE Smart Structures + Nondestructive Evaluation 2020*
2. **J. O'Neil**, **A. Deleo**, **H. Yasuda**, **J. Yang**, and **M. Salviato**, Deployable Structures Constructed from Composite Origami, *33rd ASC*
3. **A. Deleo**, **J. O'Neil**, **H. Yasuda**, **J. Yang**, and **M. Salviato**, Composite origami: foldable structures based on Tachi-Miura-Polyhedron origami technique, *SAMPE* 2018
4. **J. O'Neil**, and **J. Yang**, Design of robotic arms based on Triangulated Cylindrical Origami, *2017 AIAA Region VI Student Conference*

Conference Presentation

†Presenter

1. **J. O'Neil†, Y. Miyazawa,** and **J. Yang,** "Mitigation of impact applied to payload via origami-based mechanical metamaterials," *SPIE Smart Structures + Nondestructive Evaluation 2020*, Anaheim, California, April, 2020 (upcoming)
2. **J. O'Neil†**, **A. Deleo**, **H. Yasuda**, **J. Yang**, and **M. Salviato**, "Deployable Structures Constructed from Composite Origami," 33rd *ASC*, Seattle, Washington, September, 2018
3. **A. Deleo†**, **J. O'Neil**, **H. Yasuda**, **J. Yang**, and **M. Salviato**, "Composite origami: foldable structures based on Tachi-Miura-polyhedron origami technique," *SAMPE 2018*, Long Beach, California, May, 2018
4. **D. Hsu†**, **J. O'Neil†**, and **Stanley Xie†**, "Design and development of a 3U CubeSat Satellite Chassis," *UW ESS Research Gala 2017*, Seattle, Washington, April, 2017
5. **J. O'Neil†**, and **J. Yang**, "Design of robotic arms based on triangulated cylindrical origami," *AIAA Region VI Student Conference*, San Jose, California, March, 2017

Journal Review

7th International Conference on Origami in Science, Mathematics, and Education (7OSME)

Skills

- Excellent use of MATLAB
- Familiar with Abaqus, FEMAP, and SolidWorks
- Experience with C++ and Python
- Proficient with Microsoft Office
- Basic machining experience
- Composites VBO manufacturing
- Comfortable in teams
- Effective time management
- Work well under pressure