GE YIN

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Education

University of Washington Seattle, WA
B.S., Aeronautics & Astronautics Engineering Sep. 2018 – Jun. 2022 (Anticipated)
Cumulative GPA: 3.89/4.00

Research Experience

Laboratory of Engineered Materials and Structures, UW Seattle, WA
Undergraduate Research Assistant & Summer Intern (Advisor: Professor Jinkyu Yang) *Jun. 2020 – Present*

- Studying unique wave dynamics in mechanical metamaterials.
- Conducting an independent project mentored by a PhD student to investigate the wave dispersion relation and topology of one-dimensional origami chain composed out of Kresling origami and/or Yoshimura origami.
- Performing theoretical studies by Python, including static analysis on origami lattice and dynamic analysis on the wave dispersion relation of the origami chain.
- Fabricated origami lattices, conducted compression tests, and contributed to the experimental study of the wave dispersion relation.
- Submitted & presented research result in AIAA Region VI Student Conference undergraduate category and awarded 2nd place.

Publications

†Equally contributed author

2. Y. Miyazawa†, **G. Yin**†, R. Chaunsali, G. Theocharis, J. Yang, "Tunable topological insulator in origami lattice," (in preparation).

1. Y. Miyazawa, C. Chen, T. Gormley, R. Chaunsali, **G. Yin**, G. Theocharis, J. Yang, "Tunable dispersion and topological state transfer in origami lattice," (to be submitted).

Conference Proceeding

1. **G. Yin**, "An Origami-based System for Frequency Bandgap Tuning," *AIAA Region VI Student Conference*, Long Beach, California, April, 2021.

Conference Presentation

†Presenter

1. **G. Yin**†, "An Origami-based System for Frequency Bandgap Tuning," *AIAA Region VI Student Conference*, Long Beach, California, April, 2021.

Academic Projects

Nature-inspired Topological Interlocking Seattle, WA
UW A&A junior team project (Group of 4; Advisors: Dr. Ed Habtour & Dr. Erik Hurlen) *Mar. 2021 – Jun. 2021*

- Studied the effects of element-spacing and material hardness on the motion of a topological-interlocking structure; manufactured a topological-interlocking structure prototype emulating snake-vertebrate system.
- Individually created a nonlinear mathematical model to study the dynamics of the structure.
- Conducted theoretical analysis on the dynamics of the structure in MATLAB.
- Designed experiments to evaluate the mathematical model and developed testing plans to instruct the department faculty to execute the experiments.
- Orally presented in front of the whole class and submitted a final report.
- Peer evaluation 10/10 & top grade.

Aerospace Laboratory Seattle, WA

UW A&A junior course team work (Group of 4) *Jan. 2021 – Mar. 2021*

- Strengthened the understanding of fundamental principles of aerodynamics, structures, vibrations, material properties, and propulsion through experimental learning.
- Gained experience of the use, the calibration, and the measurement techniques of facilities such as wind tunnel, strain gauge, Dillon Testing Machine, accelerometer, etc.

Vortex Panel Mini-Project Seattle, WA

UW A&A junior course independent project *Feb. 2021 – Mar. 2021*

- Learned how to use XFOIL to design and analyze airfoils.
- Simulated four different NACA airfoils under viscous effects and obtained corresponding aerodynamic coefficient data at different angles of attack.
- Plotted the obtained coefficient data in MATLAB and made comparative evaluation of the advantages of each type of airfoil.

Aerospace Instrumentation Seattle, WA

UW A&A junior course independent work *Sep. 2020 – Dec. 2020*

- Studied analytical and practice-oriented electronics tools and their applications in aerospace engineering, including Ohm's law, Kirchhoff's Laws, DC and AC circuits, electronic components, op-amps, and data acquisition.
- Designed, constructed, and tested practical circuits.
- Implemented circuit control via Arduino microprocessor and MATLAB Simulink.

Technical Skills

Programming & Softwares: MATLAB, Python, Java, R, Abaqus, Arduino, Mathematica, XFOIL, LaTeX
CAD: SolidWorks
Fabrication: Laser-cutting

Leadership

Foundation for International Understanding Through Students, UW Seattle, WA

Facilitator *Nov. 2018 – Jun. 2019*

- Facilitated intercultural events such as campus tours, orientations, and conversation groups for international students.

Awards

Undergraduate Research Competition, 2nd Place, *AIAA - Region VI Student Conference* Apr. 2021
Research Experiences for Undergraduates (REU) Fellowship, *NSF* Summer 2020
Dean's Lists, *UW* 2018 – Present

Membership

AIAA Student Membership 2021