

# Connie Liou

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## EDUCATION

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**Rutgers University — B.S. Aerospace Engineering, Physics minor** New Brunswick, NJ | Expected Grad. May 2022  
GPA: 3.98/4.00; Dean's List

- Relevant Courses:

Spacecraft & Mission Des.	Dynamic Sys. & Controls	Compressible Fluids	Intermediate Quantum Mech.
Aerospace Structures	Aerospace Materials	Elem. of Electrical Eng.	Principles of Astrophysics

## WORK EXPERIENCE

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### NASA Goddard Space Flight Center — Pathways Intern

#### Flight Dynamics Branch (Code 595)

Remote | Sept. 2020–Present

- Develop trajectory simulations for Space Weather Follow On mission in Sun-Earth L1 orbit using GMAT
- Support Integration and Test activity for the Roman Space Telescope (RST) propulsion system such as X-ray gantry structures and surge testing manifold analysis

#### Propulsion Branch (Code 597)

Remote | Summer 2020

- Implemented Model Based Systems Engineering (MBSE) for RST propulsion system using MagicDraw and researched applications of MBSE for branch activities
- Created simulations of propellant slosh in STAR-CCM+ to explore effects of fluid contact angle on simulation results
- Served as Promoting Agency Cross-Center Connections center chair to organize events for interns from all centers

#### Power Systems Branch (Code 563)

Greenbelt, MD | Aug. 2019–Jan. 2020

- Developed and deployed a power system design web application for user-friendly and versatile energy balance analysis in the branch and the Mission Design Lab using Python
- Built and tested high voltage optocoupler driver circuitry for development of Dragonfly Mass Spectrometer (DraMS)
- Wrote battery life cycle testing control software using LabView to test new flexible 3D printed battery technologies

### Burlion Research Labs — Undergraduate Researcher

New Brunswick, NJ | Jan. 2020–Present

- Work with Dr. Laurent Burlion and STAR to develop Rutgers' first CubeSat mission proposal from scratch, centered around testing propellant slosh-oriented control algorithms for the NASA CubeSat Launch Initiative (CSLI)
- Support the development of CubeSat experiment plan for satellite sloshing maneuvers and on-board data collection
- Developed plans for summer student researcher to integrate inverted pendulum standing controls test platform

### Hybrid Micro/Nanomanufacturing Lab — Undergraduate Researcher

New Brunswick, NJ | Summer 2019

- Worked under Dr. Jonathan Singer to develop and test methods for the growth of zinc oxide nanostructures to improve adhesion between copper and thermoset plastics
- Researched mechanical properties of graphene nanocomposites to develop thermally conductive electronics coatings
- Performed thermal analysis on composites, shadowed scanning electron microscope and X-ray diffraction analysis

## LEADERSHIP EXPERIENCE

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### School of Engineering (SOE) Ambassadors — Ambassador

New Brunswick, NJ | Jun. 2020–Present

- Represent SOE in weekly virtual events for admitted and prospective students such as panels and chat sessions
- Support Tour Engagement Committee in developing virtual tours and complete monthly mentorship assignments

### Space Tech. Association at Rutgers (STAR) — Vice Pres., CubeSat Lead

New Brunswick, NJ | Jan. 2020–Present

- Lead Systems Engineering team and collaborate with Dr. Burlion's lab to meet CSLI proposal requirements
- Create new project organizational structure for 20 members, and communicate CubeSat system needs to weekly subsystem meetings for Flight Dynamics, Mechanical, and Electrical teams
- Develop a CubeSat thermal analysis tool based on existing SatTherm design tool with Structures team using Python
- Mentor incoming club members and other system leads about space systems engineering and industry standards

## SKILLS/AWARDS

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**Technical Skills:** Python, Solidworks, MATLAB, STAR-CCM+, MagicDraw, LabView, Photoshop

**Awards:** SOE Continuing Students Scholarship, Rutgers Career Excellence Award, Code 563 Intern Performance Award