

Cameron Urban

cameronurban.com | github.com/camUrban

Academics

Cornell University

- Expected Graduation: 05/2027
- Ph.D. Candidate:
Aerospace Engineering
- Focus in Dynamics and Control
- Studying bio-inspired robotics under
Dr. Elizabeth Farrell Helbling

Washington University in St. Louis

- Graduation: 12/2021
- B.S. in Mechanical Engineering
- Awarded a position on the Dean's List
for four semesters

Sigma Xi Research Honor Society

- Nominated as a full member
- Cornell University chapter

Publications

- Design of a Swimming Microrobot
Powered by a Single Piezoelectric
Bender.
IROS 2025
- Stability Derivatives of a Flapping
Wing-Body System.
75th Annual Meeting of the Division
of Fluid Dynamics
- Validation and Optimization of Ptera
Software: An Open-Source Unsteady
Flow Simulator for Flapping Wings.
AIAA SCITECH 2022 Forum
- Aerodynamic Analysis of V-Shaped
Flight Formation of Flapping-Wing
Drones: Analytical and Experimental
Studies.
AIAA SCITECH 2022 Forum

Skills

- Robotics
- Flight Vehicle Design
- Controls and Dynamical Systems
- Computer-Aided Design (SolidWorks,
Onshape, AutoCAD, etc.)
- Computational and Experimental
Aerodynamics
- Finite-Element Analysis
- Rapid Prototyping/Additive Manufac-
turing
- Software Development (Python, MAT-
LAB, Simulink, Java, etc.)

Experience

Cornell University

Graduate Research Assistant

September 2022 – Present

- Conducting PhD research under Dr. Elizabeth Farrell Helbling on modeling and control of bio-inspired robots operating in fluid environments
- Developing computational tools for unsteady aerodynamic and hydrodynamic analysis of flapping locomotion, with applications to both aerial and aquatic microrobots
- Designed a swimming microrobot powered by a single piezo-electric actuator (published at IROS 2025)

Brown University

Research Engineer

January 2022 – July 2022

- Facilitating unsteady fluid mechanics research under Dr. Kenneth Breuer
- Experience conducting experimental fluids research with wind and water tunnels
- Particular research focuses on bat and bird flight

Ptera Software

Founder and Lead Developer

January 2020 – Present

- Created Ptera Software, an open-source unsteady aerodynam-ics simulator for flapping-wing flight
- Began collaboration with WUSTL's Aerodynamics Research Laboratory to validate software
- Co-authored a conference paper with Dr. Ramesh K. Agarwal for AIAA SCITECH 2022

MIT Lincoln Laboratory

Structural & Thermal-Fluids Engineering Co-Op

June 2019 – April 2020

- Granted a security clearance at the secret level
- Contributed to several defense-related aerospace programs
- Completed classified courses regarding United States defense programs in the space, air, and undersea domains
- Worked on an open program designing components to be launched on the next NASA crewed mission to the Moon

HAX Accelerator in Shenzhen, China

Mechanical Engineering Intern

June 2018 – August 2018

- Designed a testing platform for high-fidelity autonomous vehicle algorithms
- Designed and manufactured a frame and electric powertrain for a solar-powered agricultural robot
- Advised a startup in creating a VTOL fixed-wing aircraft on composite material manufacturing

Washington University Design Build Fly

President of Engineering

January 2017 – December 2018

- Received 12th place out of 138 teams in 2017
- Worked as president to teach new members engineering skills, manage interpersonal conflicts, and foster a productive team environment
- Used computational fluid dynamics and aerodynamic theory to design for stability and control