

# Kathryn Lampo

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## EDUCATION

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**Columbia University, School of Engineering & Applied Science**, New York, NY

**Expected May 2025**

Bachelor of Science in Mechanical Engineering; GPA: 3.98/4.0

Relevant Coursework: Heat Transfer, Dynamics & Vibrations, Mechanics of Solids, Thermodynamics, Fluid Mechanics, Mechanical Engineering Laboratory I & II, Linear Algebra, Ordinary Differential Equations, Foundations of Data Science

**Universidad Carlos III de Madrid**, Leganés, Spain

**January-May 2023**

Relevant Coursework: Electronics Engineering, Modeling in Aerospace Engineering (numerical modeling), Engineering Graphics

## PUBLICATIONS

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- F. Vega, J. Phillips, **K. Lampo**, R. MacCurdy, Z. Manchester. “An Architecture Study for Low-Power Satellite-Based Wildlife Tracking”, *IEEE Aerospace Conference*, Big Sky, Montana, March 2024.
- **K. Lampo**, Z. Manchester. “Next-Generation Wildlife Tracking for Conservation”, *Robotics Institute Summer Scholars Working Papers Journal*, August 2023.
  - Work presented at RISS Research Showcase, August 2023
- D. Kipping, **K. Lampo**. “A Solar-Powered Interstellar Centrifugal Catapult” [forthcoming]

## GRANTS AND AWARDS

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- Robert D. Lilley Award for Socially Responsible Engineering [\$4,000, May 2024]
- New York Space Grant, 2x awardee [\$2,000, Dec. 2022; \$2,000, Dec. 2023]
- Discovery Education Young Scientist Challenge Alumni Grant [\$1,000, May 2023]
- NASA CubeSat Launch Initiative (proposal co-author) [\$300,000, March 2023]

## RESEARCH EXPERIENCE

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**NASA Ames Research Center**, Mountain View, CA

**June 2024-Present**

*Fluid Mechanics Research Intern, Supercomputing Division — Mentor: Patricia Ventura Diaz*

- Generating novel rotor blade meshes for use with NASA’s OVERFLOW CFD code to conduct a trade study on blade configuration efficiency for the Dragonfly mission to Saturn’s moon Titan.
- Comparing CPU and GPU performance to advise on best practices for similar future simulations.

**Robotic Manipulation and Mobility Lab, Columbia University**, New York, NY

**Feb. 2024-Present**

*Undergraduate Researcher — Advisor: Matei Ciocarlie*

- Developed a paired gripper system that maps human-controlled grasping tasks to a robotic end effector.
- Designed and manufactured hardware components, optimized motor linkage design to reduce servo torque, developed control structures in ROS, aided with the development of serial communication methods between Arduino boards.

**Robotic Exploration Lab, Carnegie Mellon University**, Pittsburgh, PA

**June-Aug. 2023**

*Undergraduate Researcher (Robotics Institute Summer Scholar) — Advisor: Zac Manchester*

- Developed a MATLAB algorithm to extract location data from radio frequency pulses collected by several receivers tracking a moving beacon simulating a bird. Resulted in an average location error of ~22m in a kilometer squared area.
- Designed & built a lightweight, long-lasting radio transmitter payload to attach to a heavy-lift drone for experimentation.

**Astronomy Department, Columbia University**, New York, NY

**Nov. 2021-Sept. 2022**

*Research Assistant — Advisor: David Kipping*

- Developed a Python program to simulate maximum forces, determine plausible payload exit velocities, and optimize the effects of tapering relevant connectors to optimize mass for a novel spinning solar sail design.

## ENGINEERING PROJECTS

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**Columbia Cube Satellite Team**, New York, NY

**Sept. 2022-Present**

*Structures & Thermals Lead — Advisor: David Schiminovich*

- Leading a small team of students to develop structural and thermal analyses for a 1U cubesat slated for 2025 launch.
- Concurrently working on development for a 6U spectrograph satellite. Previously drafted power and link budgets, explored communication systems, created 3D models of the design, and researched thermal properties and behaviors.

**NASA Micro-G NExT Challenge**, New York, NY

*Autonomous Boat Team Lead — Advisor: Mike Massimino*

**July-Dec. 2022**

- Led a team of 25 students to design and prototype a vehicle to locate and deliver supplies to astronauts during water landings using an emergency distress signal. Contributed heavily to modeling and construction of the multihull design.

*Lunar Gripper Team Member*

**Aug. 2021-June 2022**

- Designed and built a gripping and anchoring for use in microgravity. Focused on foot design, actuation, and assembly.
- Selected by NASA as a national finalist and traveled to the Neutral Buoyancy Laboratory to present and test the design.

## INTERNSHIPS

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**Lockheed Martin Space**, Longmont, CO

*Systems Engineering Intern & Intern Scrum Master — Mentor: Davis Driver*

**May-Aug. 2022**

- Worked as a part of the Relay Integration/Verification team to test satellite uplink configuration code.
- Led 10-person intern team in scrum to develop automated tools to aid with Agile framework management in Jira.

*Software Engineering Intern — Mentor: Taneal Fulton*

**June-Aug. 2021**

- Collaborated with a small intern team to aid with program-wide tasks, including creating Agile tool documentation and updating a Java plugin to CAMEO Systems Modeler to speed up model development.

## TEACHING EXPERIENCE

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**Columbia University**, New York, NY

*Teaching Assistant*

- PHYS 1402: Introduction to Electricity, Magnetism, and Optics — *Professor Hector Ochoa*
- PHYS 1201: Introduction to Mechanics and Thermodynamics — *Professor Philip Tuts*

**Spring 2024**

**Fall 2023**

## LEADERSHIP & SERVICE

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**Columbia Space Initiative**, New York, NY

*Co-President*

**Feb. 2024-Present**

- Leading the largest engineering club at Columbia, home to 200+ members working on 13 technical projects. Responsible for managing a 30-student leadership team & representing the club to media and university administrators.
- Proposed increasing university club funding by \$60,000 (90%) by creating a thorough budget/portfolio/finance system.
- Continuously expanding industry and academic partnerships. Hosting campus-wide events and speakers with astronauts, space policy experts, industry representatives, researchers, and alumni. Running weekly full-club meetings.

*Director of Educational Outreach*

**July 2022-May 2024**

- Delivered hands-on space science/engineering lessons to 1,000+ students at six underserved middle schools in New York.
- Spearheaded an annual model rocketry project that allows students to design, build, and launch custom rockets.

**Columbia Engineering Office of Admissions**, Tour Captain & Campus Tour Guide

**Aug. 2021-Present**

**Columbia New Student Orientation Program**, Orientation Leader

**Aug.-Sept. 2023**

## SKILLS

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**Modeling:** Solidworks (including FEA), Ansys CFD, NASA OVERFLOW CFD, Fusion 360 (including CAM), SolidEdge

**Machining:** 3D printing (PLA/SLS/TPU), lathe, mill, waterjet, laser cutter, vertical bandsaw, etc

**Software/Electronics:** ROS, Java, Python, MATLAB, Git, LaTeX, microprocessors, soldering, circuit assembly