Kathryn Lampo

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EDUCATION

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

- 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

- 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

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 model the effects of tapering relevant connectors to optimize mass for a novel spinning solar sail design.

INTERNSHIPS

NASA Ames Research Center, Mountain View, CA **June 2024-Present**
Fluid Mechanics Intern, Supercomputing Division — Mentor: Patricia Ventura Diaz

- Performing rotor blade analysis for the quadcopter Dragonfly mission to Saturn's moon Titan.

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.

ENGINEERING PROJECTS AND LEADERSHIP

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.
- Proposed increasing university funding to the club by $60,000 (90%) by developing a thorough budget, project portfolio, & finance system. Streamlined processes for managing external sponsorships by developing a guide for project leads.
- 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.
- Streamlining technical workflows by introducing best-practice project management techniques and tools, including Gantt planning, Notion, Confluence, project check-ins, technical workshops, and structured documentation.
- Responsible for managing a 30-student leadership team & representing the club to media and university administrators.

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 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.
- Helping lead early systems engineering work for a 6U CubeSat designed to house a spectrograph. Developed satellite power and link budgets, specced solar panels, batteries, and ADCSs, compiled information about and met with various ground station providers, created 3D models of the design for thermal analysis and component placement.

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.

TEACHING EXPERIENCE

Columbia University, New York, NY

Teaching Assistant

- PHYS 1402: Introduction to Electricity, Magnetism, and Optics — *Professor Hector Ochoa* **Spring 2024**
- PHYS 1201: Introduction to Mechanics and Thermodynamics — *Professor Philip Tuts* **Fall 2023**

LEADERSHIP & SERVICE

Columbia Engineering Office of Admissions, Tour Captain & Campus Tour Guide **Aug. 2021-Present**
Columbia New Student Orientation Program, Orientation Leader **Aug.-Sept. 2023**

SKILLS

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 (Pandas, CoolProp), MATLAB, microprocessors, soldering, circuit assembly
Other: Git, LaTeX, Office suite, Google suite, Jira, Confluence