

LIAM PACKER

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EDUCATION

Cornell University *Ithaca, NY* **August 2023–Present**
PhD—Applied Mathematics (Expected Graduation: May '29)

Swarthmore College *Swarthmore, PA* **Aug 2016–May 2020**
Bachelor of Arts—Double Major with High Honors in Mathematics and Physics

WORK EXPERIENCE

Johns Hopkins University Applied Physics Laboratory *Laurel, MD* **Jun 2020–Jun 2023**
Scientific Analysis, Machine Learning, and Software Design

SES/SRN: Space Analysis and Applications Group (Feb 2022–Jun 2023):
The SRN group of the space sector is a research group focused in aiding research across all levels of technology, from theoretical underpinnings to flight-ready design. Primarily NASA-sponsored.

AOS/QAT: Tactical Intelligence Systems Group (Jun 2020–Feb 2022):
The QAT group of the Asymmetric Operations sector focuses in building intelligent systems for flight-ready situations. Primarily sponsored by the DoD's Chief Digital and Artificial Intelligence Office (CDAO).

TEACHING

Teaching Assistant (Math 4710) *Cornell University* **Aug 2024–Dec 2024**
Upper-level introductory probability. Weekly recitations, office hours, and grading.

Teaching Assistant (Math 2240) *Cornell University* **Jan 2024–May 2024**
Honors accelerated first-year course. 2-hour weekly recitations for a class of ≈ 25 .

Teaching Assistant (Math 1920) *Cornell University* **Fall '23, Spring '25**
Held weekly recitations for ≈ 75 students. Hand-prepared quizzes and section materials.

Math Clinician *Math Department, Swarthmore College* **Sep 2019–May 2020**
Walk-in mathematics peer tutor for over a hundred students, in all math classes offered by the department.

Teaching Assistant *Physics Department, Swarthmore College* **Dec 2018–May 2020**
Held weekly three-hour office session for students in Mechanics, E&M, Thermodynamics, and Optics.

Algorithms Grader *Computer Science Department, Swarthmore College* **Fall 2018, Fall 2019**
Assessed 60-80 pages of proof-based work weekly for theoretical computer science course.

MENTORING

Directed Reading Program *Cornell University* **Aug 2024–Present**
Paired with ambitious undergraduate, reading topics in high-dimensional probability.

CAM Mentoring Program Coordinator *Cornell University* **Aug 2024–Present**
Pairing new PhD students with experienced students; programming to help the transition to grad school.

Graduate Resident Fellow *Cornell University* **Aug 2024–Present**
Residential assistant and fellow of the William Keeton House with a focus on community-building.

AWM ZigZag Mentor *Cornell University* **Nov 2023–Present**
Volunteer mentor for women or gender identities historically marginalized in mathematics.

Intern Advisor *Johns Hopkins Applied Physics Lab* **Jun 2022–Jun 2023**
Direct manager of selected interns; focus on task scoping and talent cultivation.

Information Technology Services Student Associate *Swarthmore College* **Jun 2017–Dec 2017**
Provided assistance and guidance for any technological difficulties suffered by students and faculty.

PRESENTATIONS AND TALKS

Langevin Dynamics and Heat Semigroups	<i>Cornell, CAM student seminar</i> Oct 2024
Percolation on \mathbb{Z}^2	<i>Cornell, CAM student seminar</i> May 2024
Kalman Filters and Hilbert Spaces	<i>Cornell, Applied Dynamics Seminar</i> Feb 2024
Kalman Filters and Hilbert Spaces	<i>Cornell, Sarah Dean Group</i> Feb 2024
Clustering with Graphs: Applying methods in spectral graph theory to the connectivity of the CRISM MSV data	<i>SES/SRN</i> Oct 2022
CV Techniques for Unsupervised Clustering of Hyperspectral Imagery	<i>SES/SRN</i> Aug 2022
SAR Sensor Planning: Optimizing Pointing Decisions for Unusual Sensors	<i>AOS/QAT</i> Sep 2021
Neuro-symbolic Methods in Image-to-Text Generation	<i>AOS/QAT</i> Sep 2020
Jammed solids held together with pins: structure and dynamics	<i>Swarthmore College</i> Dec 2019
Predicting Cluster Memory Usage for Adaptive Network RAM	<i>Swarthmore College</i> Aug 2018

AWARDS

Cornell University Graduate Resident Fellowship	Jun 2024–Present
Swarthmore College Summer Research Fellowship	Summer 2019
Swarthmore College Summer Research Fellowship	Summer 2018

SUMMER SCHOOLS ATTENDED

Cornell Probability Summer School	Summer 2024
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TECHNICAL PROFICIENCIES

Computer Languages	C++, Python, Julia, C, Scheme, Racket, Java, OCaml, CUDA, Bash
Mathematical Computing	Maxima, Mathematica, \LaTeX , IDL, Matlab, R
Software & Frameworks	Linux, Pytorch, Scikit-Learn, ReactJS, Pandas, Emacs
Tooling & Build Systems	Git, Docker, Tmux, Maven, Make, CMake, Dune
Languages	Japanese & Spanish (limited working proficiency)

EXTRACURRICULAR

- Judge for the Cornell Mathematical Contest in Modelling (CMCM) (2023, 2024).
- Co-president of *Kizuna*, the resident Japanese Culture group at Swarthmore College (2017–2019).
- President of Swarthmore's Smash club, hosting weekly tournaments with up to 30 entrants (2018–2020).
- Classically trained flutist since 2004. Performed in a number of venues including Carnegie Hall. Participated in Swarthmore College's Fetter Chamber Music program (2016–2017).