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 6110) *Cornell University* **Fall 2025**
Graduate core course in analysis. Teaching weekly in recitation, office hours, and grading.

Instructor (UNLIWYL 1407) *Cornell University* **Spring 2025**
Course on academic communication, co-taught with house professor and peer resident fellow.

Teaching Assistant (Math 4710) *Cornell University* **Fall 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 and percolation.

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

TECHNICAL PROFICIENCIES

Computer Languages	C++, Python, Julia, C, Scheme, Racket, Java, OCaml
Mathematical Computing	Maxima, Mathematica, LaTeX, IDL, Matlab
Software & Frameworks	Emacs, Linux, Pytorch, Scikit-Learn, ReactJS, Pandas
v 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).