

# Rian Flynn

THEY/THEM/THEIRS

✉ rian@rianflynn.com | 🏠 www.rianflynn.com | 📧 rianbrooksflynn | 🌐 rian-flynn

*Towards a world where many worlds fit. / Hacia un mundo donde quepan muchos mundos. / 邁向一個容納多元世界的世界。*

## Education

### Massachusetts Institute of Technology

Cambridge, MA

BACHELOR OF SCIENCE IN PHYSICS AND THEATER ARTS

June 2021

GPA 4.9/5.0.

### SELECTED COURSEWORK

Introduction to Deep Learning, Introduction to Machine Learning, Introduction to Algorithms, Fundamentals of Programming, Experimental Physics I, Relativity, Quantum Physics III, Statistical Physics I, Introduction to Quantum Computing, Probability and Random Variables, Differential Equations.

## Research Experience

### Liu Group, Purdue University

West Lafayette, IN

RESEARCH ASSISTANT (HIGH-ENERGY PHYSICS) / A3D3 POSTBACCALAUREATE FELLOW

June 2024–Present

- Optimizing the Compact Muon Solenoid (CMS) Level-1 Trigger for preserving data from rare or novel physics processes in high-throughput, low-latency data filtering, using efficient transformers.
- Converting an efficient transformer model to run on FPGA architecture using high-level synthesis.
- Contributing to [hls4ml](#), an open-source package for machine learning inference in FPGAs.

### Schilbach Group, MIT

Cambridge, MA

RESEARCH ASSISTANT (PUBLIC ECONOMICS)

September–December 2020

- Quantified the optimal income eligibility threshold for the SNAP social welfare program.
- Engineered a customizable PDF scraper in Python to execute a thorough quantitative review of the literature on social welfare programs.
- Extracted critical variables related to welfare stigma from large public survey datasets and cleaned and visualized these data using R.

### Shor Group, MIT

Cambridge, MA

RESEARCH ASSISTANT (APPLIED MATHEMATICS)

February–May 2019

- Contrasted out-of-time-ordered correlation (OTOC) and entanglement as distinct measures of randomness to better understand the black hole information paradox.
- Simulated the process of a black hole scrambling information, harnessing Python's networkx to model a Markov process on an n-ary tree.

### Tegmark Group, MIT

Cambridge, MA

RESEARCH ASSISTANT (COMPUTATIONAL NEUROPHYSICS)

May–December 2018

- Analyzed neuronal communication in healthy and epileptic neuron cultures to better understand seizure-prone neurons.
- Engineered a pipeline of MATLAB programs to analyze large quantities of data obtained by multi-electrode arrays from *in vitro* stem-cell-grown human neurons.

### Formaggio Group, MIT

Cambridge, MA

RESEARCH ASSISTANT (NEUTRINO PHYSICS)

January–February 2018

- Predicted the antineutrino spectra emitted by nuclear reactors to aid in understanding the nature of neutrinos.
- Created a program for simulating low-energy neutrino spectra from nuclear reactors using the *ab initio* approach.

## Conference Presentations

**Accepted for presentation at Applied Machine Learning Days (AMLDD) EPFL 2025**, “Towards Nanosecond-Scale

Feb 2025 Transformer Inference on FPGAs for High-Energy Physics” (contributed poster and lightning talk), Lausanne, Switzerland (February 11–13, 2025).

# Work Experience

## Seeq Corporation

SOFTWARE DEVELOPMENT ENGINEER

Remote  
September 2021–November 2023

- Developed software to integrate third-party time-series data into Seeq’s analytics platform.
- Optimized data retrieval code to achieve 90% faster speed from a key third-party source.
- Architected and built two new data connectors that played a key role in cementing sales deals with new customers.
- Redesigned a complex admin page to improve usability and intuitiveness.
- Collaborated with a cross-functional team during a company-wide hackathon to build a winning solution that was incorporated into Seeq’s offering.

# Distinctions

- 2021 **Inductee**, Phi Beta Kappa
- 2021 **Joel Matthew Orloff Service Award** (for outstanding service to the physics community), MIT Physics Department
- 2021 **Laya and Jerome B. Wiesner Student Art Award** (for outstanding achievement in and contributions to the arts), MIT Music and Theater Arts Department
- 2021 **Joseph D. Everingham Award** (for notable creative accomplishments in theater arts), MIT Music and Theater Arts Department
- 2017 **National Merit Scholar**, National Merit Scholarship Corporation
- 2017 **Platinum Rank**, USA Computing Olympiad
- 2017 **Bronze Medal**, USA Physics Olympiad
- 2016 **Gold Medal**, Math Prize for Girls Olympiad
- 2016 **Math Olympiad Summer Program Attendee**, USA Mathematical Olympiad

# Skills

- Programming** Python, C++, Java, Kotlin, .NET, C#, SQL, JavaScript, React, R, MATLAB,  $\LaTeX$
- Deep Learning** PyTorch, TensorFlow, Keras
- Operating Systems** Linux (Ubuntu, Debian, Arch), Windows
- Languages** English (native), Mandarin Chinese (fluent)

# Leadership and Volunteering

## A3D3 Equity and Career Committee

COMMITTEE MEMBER

Remote  
November 2024–Present

- Coordinating publicizing efforts across channels including social media, listservs, and job boards, to attract applicants for the [2025–2026 A3D3 Postbaccalaureate Fellowship Program](#).
- Organizing implicit bias awareness training for committee members in preparation for the February 2025 application review process.

## A3D3 Communication Committee

COMMITTEE MEMBER

Remote  
October 2024–Present

- Coordinating and recruiting authors and editing posts for the [A3D3 Blog](#), to communicate recent scientific findings to a broad audience.

## Seeq Neurodiversity Employee Resource Group

CO-CHAIR

Remote  
August 2022–November 2023

- Ran monthly member meetings, facilitated biweekly support meetings, and conducted manager and team trainings to help raise awareness of neurodiversity within Seeq, advocate for neurodiverse needs, and promote mutual understanding between neurotypical and neurodivergent employees.

## Seeq Connectability Squad

RETRO LEAD

Remote  
March 2022–November 2023

- Led monthly retrospectives for my immediate team to reflect on team processes, spur creative problem-solving, and identify areas for improvement.
- Facilitated discussions resulting in creating new tools to speed up the PR review process and balance the load of escalated support tickets.

## MIT Undergraduate Womxn in Physics

EXECUTIVE BOARD MEMBER

Cambridge, MA  
February 2019–February 2021

- Organized social events, outreach events, student-faculty dinners, talks and panels, and a mentorship program for women, gender nonconforming, and nonbinary students of physics.

MIT Society of Physics Students

Cambridge, MA  
May 2019–May 2021

PROFESSIONAL DEVELOPMENT CO-CHAIR

- Coordinated career-focused events to help physics undergrads think about next steps after graduation, whether in academia or in industry.
- Orchestrated, hosted, and moderated two virtual panels consisting of MIT alumni in a broad range of industries.

MIT Leadership Training Institute

Cambridge, MA  
September 2017–May 2021

LEADERSHIP DEVELOPMENT MENTOR

- Mentored high school students in leadership and personal growth; won 2018–2019 best mentor award.
- Customized the curriculum to students’ individual and group needs, facilitated discussions, coordinated leadership exercises and activities, and guided students toward better communication and presentation skills.

Interests

- Music** Singer-songwriter and multi-instrumentalist: guitar, violin, piano, and ukulele.
- Theater Arts** Actor, director, and enthusiastic audience member.
- Language Learning** Mandarin Chinese, Taiwanese Hokkien, Spanish, and toki pona.