Maren J. Adnee

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EDUCATION

Ph.D. Physics, YALE UNIVERSITY — Aug 2025 - Present
Advisor: Dr. Eduardo da Silva Neto
Expected Graduation: May 2030

B.A. Physics/Mathematics, UNIVERSITY OF MAINE — Jan 2023 - May 2025
Advisor(s): Dr. Nicholas Bingham, Dr. Andre Khalil
GPA: 3.97, Summa Cum Laude

AWARDS AND HONORS

National Science Foundation Graduate Research Fellowship — May 2025
Three years of funding support to conduct research in applications of AI to condensed matter physics.

Outstanding Graduating Senior - Physics — April 2025
Awarded by the University of Maine physics department to one graduating senior for outstanding academic, outreach, and research achievements.

Frederick M. Viles Scholarship — April 2024/2025
Awarded by the University of Maine to one student majoring in both Physics and Mathematics.

Sigma Pi Sigma — Inducted May 2024
National Society of Physics Students honor society.

Aysen Tunca Scholarship — May 2024
Awarded by National Society of Physics Students to a female undergraduate majoring in STEM.

Dickison Robertson Scholarship — May 2024
Awarded by the University of Maine to one student that is motivated to succeed.

RESEARCH EXPERIENCE

Graduate research assistant — Aug 2025 – Present
Frontier Institute for Research in Sensor Technology (FIRST), University of Maine
Supervisor: Dr. Eduardo da Silva Neto

- Experimental imaging of quantum materials using scanning tunneling microscopy to study phenomena related to superconductivity and altermagnetism.
- Novel deployment of analysis methods, including machine learning, for classification of high dimensional spectral data to detect resonance phenomena in quantum and superconducting materials.

Undergraduate research assistant — Jan 2024 – May 2025
Frontier Institute for Research in Sensor Technology (FIRST), University of Maine
Supervisor: Dr. Nicholas Bingham

- Search for novel magnetic nano-island lattice structures via micromagnetic simulations.
- Experimental characterization of magnetic interactions at organic-inorganic interfaces in a variety of thin film materials for development of novel fluorescent imaging techniques.

Undergraduate research assistant — Jan 2024 – May 2025
Computational Modeling, Analysis of Imagery and Numerical Experiments (CompuMAINE), University of Maine
Advisor: Dr. Andre Khalil

- Development of a classification and image segmentation machine learning model for detection of regions of interest in multiresolution breast cancer histopathology whole slide images.

Summer Undergraduate Research Intern Jun 2024 – Dec 2024
Brookhaven National Laboratory
Advisor: Yi Huang, PhD

- Development of graph neural network based machine learning algorithm for real time information distillation of particle accelerator detector data to improve storage capability and reduce information loss.

TEACHING

Teaching Fellow・Electromagnetic Fields and Optics (Yale, 4300)	Spring 2026
Teaching Fellow・Intensive Introductory Physics (Yale, PHY 2600)	Fall 2025
Maine Learning Assistant ・Introduction to Quantum Physics (UMaine, PHY 226)	Fall 2024
Grader UMaine・Probability Theory (UMaine, STS 400)	Fall 2023
Maine Learning Assistant ・Physics for Scientists and Engineers I (UMaine, PHY 121)	Fall 2023

COMPETENCIES

Programming\Software
Python ・R・Git・MatLab・LaTex・Bash・MuMax3・Solidworks CAD
Convolutional Neural Networks・Variational Autoencoders・Graph Neural Networks・Autoencoders・Topological Data Analysis・Self Organizing Maps

Experimental\Hardware
Scanning Tunneling Microscopy・X-ray Diffraction・Scanning Electron Microscopy・Optical Microscopy・Magnetron Sputtering ・ Superconducting Quantum Interference Device

Soft Skills\Languages
Project management・Japanese (business-level proficiency)

EXTRACURRICULAR DEVELOPMENT AND OUTREACH

American Physical Society Advocacy Champion	Summer 2025-Present
Yale Girls In Science (Event Volunteer)	Fall 2025
Maine State Science Olympiad (Event Host)	Fall 2023, 2024
Advanced Manufacturing Center Robot Training Program (Lead Trainer)	Summer 2023
Introduction to Deep Learning (6.S191) ・MIT (Student)	Winter 2023/24
Final project: AI Optimization of Anomaly Detection for Axion Haloscopes	
Code in Place・Stanford (Student)	Summer 2023
Climate Change AI Global Summer School 2023 ・Climate Change AI (Attendee)	Summer 2023

POSTERS AND PRESENTATIONS

Maren J. Adnee, Jane Wang**.** "Topological Phenomena in Physical Systems." *Student Symposium*. University of Maine. April 2025.
Maren J. Adnee, Rachel Fister, Nicholas Bingham**.** "Modification of Magnetization Properties in Organic-Inorganic Heterostructures." *Student Symposium*. University of Maine. April 2025.
Maren J. Adnee, Ty D. Wick, Yi Huang. "Particle Track Detection using Graph Neural Networks in the Relativistic Heavy Ion Collider." *Summer Internship Closing Ceremony*. Brookhaven National Laboratory. Aug 2024.