Jasmine Khalil

jkk5987@psu.edu • jasminekhalil.github.io • jasminekhalil

Education

The Pennsylvania State University - Schreyer Honors College — **State College, PA**
B.S. Electrical Engineering, Minor: Mathematics, GPA – 3.97/4.0 — *Aug. 2022 - May 2026*

Professional Experience

AI Studio Fellow — **Break Through Tech, Cornell Tech**
Advisor: Ellen Sun — *May 2024 - Present*

- Completed a 12-month curriculum in Machine Learning and Artificial Intelligence, gaining expertise in industry-standard tools. Applied ML and AI solutions to real-world business challenges through industry partner projects and developed leadership skills for using technology responsibly for social impact.

AI and Machine Learning Fellow at JPMC — **J.P. Morgan Chase & Co**
Advisors: SeoYoung Kyung, Jatindeep Singh — *Sept. 2024 - Dec. 2024*

- Developed five predictive models to forecast future price movements of financial instruments during the final ten minutes of the NASDAQ trading session. Collaborated with four other college students as a team, where I demonstrated leadership, teamwork, and coordination skills.

NSF REU Undergraduate Researcher — **DIMACS at Rutgers University**
Advisor: Dr. Pierre Bellec — *May 2024 - July 2024*

- Conducted NSF-funded research (CNS-2150186) on modeling statistical mechanics using Coupling from the Past (perfect sampling) to simulate phase transitions at the Center for Discrete Mathematics and Theoretical Computer Science.

Leadership & Involvement

CUR Transforming Through Research (STR) Program Participant — **Council of Undergraduate Research**
Scholars Transforming Through Research Program — *Oct. 2024 - Present*

- Selected as part of team Penn State for the Council of Undergraduate Research's prestigious Students Transforming Through Research (STR) Program, recognizing excellence in undergraduate research.
- Advocated for the impact of undergraduate research through policy integration and stakeholder engagement, including meetings with congressional staff and funding agencies.

Teaching Assistant and Coordinator — **Pennsylvania State University**
Advisor: Dr. Tim Kane — *Aug. 2024 - Present*

- Led and instructed the Arduino microcontroller EE First-Year Seminar, designing engaging workshops to introduce first-year students to hands-on electronics and programming.

Study Group Leader — **Pennsylvania State University**
Women in Engineering Program (WEP) — *Jan. 2024 - May 2024*

- Organized and facilitated a differential equations study group for women in engineering, promoting collaboration and academic success.

Selected Projects

Camera Projection, Triangulation, Epipolar Geometry Project (Link) — **State College, PA**
Computer Vision

- *3D Reconstruction, Camera Projection, Epipolar Geometry*
- Developed and implemented techniques for 3D reconstruction from 2D images in a motion capture setup. Utilized camera calibration parameters, triangulation, and the eight-point algorithm to recover spatial information about the scene and relationships between two views.

Offline 3D Augmentation with COLMAP (Link) — **State College, PA**
Computer Vision

- *Augmented Reality, Camera Projection, COLMAP, RANSAC*
- Developed an offline Augmented Reality (AR) viewer that overlays virtual objects onto 3D scenes, using COLMAP for reconstruction, a custom RANSAC algorithm for plane detection, and 3D-to-2D projection.

Market Maven: Navigating Data and Models in Finance (Link) — **Remote**
Machine Learning

- *Deep Learning, Feature Engineering, Financial Markets, Regression*
- Developed five regression models and an ensemble model capable of predicting the closing price movements for hundreds of Nasdaq-listed stocks using data from the order book and the closing auction of the stock.

Coupling from the Past for Statistical Mechanics Models REU Project (Link) **Piscataway, NJ**
DIMACS REU

- *Markov Chain Monte Carlo (MCMC), Coupling from the Past, The Ising Model*
- Conducted research under the mentorship of Dr. Pierre Bellec on modeling statistical mechanics models using an innovative extension of MCMC techniques, Coupling from the Past (perfect sampling), to simulate phase transitions.

Awards and Accomplishments

Department of Electrical Engineering General Scholarship **Penn State University**
- Awarded in recognition of my high academic and extracurricular efforts. *2024 - 2026*

Penn State IEEE-HKN Epsilon Chapter Honor Society Member **Penn State University**
- Member and volunteer. *2024 - Present*

Machine Learning Foundations Course **Cornell University**
- Completed the ML foundations course as part of my Break Through Tech AI fellowship. *2024*

Evan Pugh Scholar Junior Award **Penn State University**
- Recognition of being in the top 0.5% of juniors at Penn State. *2024*

The President Walker Award **Penn State University**
- Recognition of my high academic efforts and success. *2023*

Skills

Programming	Python, MATLAB, C, Scikit-learn, Keras
Software	Solidworks, Multisim, LabView, Arduino IDE, Cura
Tools	LaTeX, Figma, Git
Hardware and Prototyping	3D Printing, Digital Circuit Design, Micro controllers

Relevant Coursework

MATH 312H	*Honors* Concepts of Real Analysis — SP 25
EE 465	Probability for Electrical and Computer Engineers — SP 25
EE 455	Introduction to Digital Image Processing — SP 25
EE 454H	*Honors* Fundamentals of Computer Vision — FA 24