

Jasmine Khalil

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Education

The Pennsylvania State University - Schreyer Honors College
B.S. Electrical Engineering, GPA – 3.98/4.0

State College, PA
Aug. 2022 - May 2026

Research & Leadership

Moncrief Summer Intern Undergraduate Researcher

PI: Dr. Chandrajit Bajaj

Computational Visualization Center at UT Austin

June 2025 - Present

- Developed multimodal AI framework for early Parkinson's disease detection, integrating gait features, clinical scores, imaging, and blood-based biomarkers; achieved high predictive performance on PPMI dataset.
- Applied visualization and co-clustering methods to identify patient subgroups, supporting non-invasive alternatives to CSF-based diagnostics and advancing precision medicine approaches for neurodegenerative disorders.

Undergraduate Researcher at Precision Medical Instrument Design Lab

PI: Dr. Jason Moore

Pennsylvania State University

Jan. 2025 - Present

- Engineered vision-based calibration and tracking systems for medical simulators, using computer vision and machine learning to monitor instrument motion and procedural accuracy.
- Advanced development of accessible, next-generation training platforms, aiming to improve clinician preparedness and patient outcomes.

Undergraduate Research Presenter

National Conference on Undergraduate Research

NCUR 2025, Pittsburgh PA

April 2025

- Presented my undergraduate research work in Perfect Sampling for Statistical Mechanics Models at the National Conference on Undergraduate Research 2025.

CUR Transforming Through Research (STR) Program Participant

Scholars Transforming Through Research Program

Council of Undergraduate Research

Oct. 2024 - March 2025

- 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

Advisors: Dr. Tim Kane and Dr. Rômulo Meira-Góes

Pennsylvania State University

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.

NSF REU Undergraduate Researcher

PI: Dr. Pierre Bellec

DIMACS at Rutgers University

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.

Study Group Leader

Women in Engineering Program (WEP)

Pennsylvania State University

Jan. 2024 - May 2024

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

Professional Experience

AI and Machine Learning Fellow at JPMC

Advisors: SeoYoung Kyung, Jatindeep Singh

J.P. Morgan Chase & Co

Sept. 2024 - Dec. 2024

- Developed 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.

Selected Projects

Offline 3D Augmentation with COLMAP (Link)

Advisor: Dr. Robert T Collins

State College, PA

- 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.

Camera Projection, Triangulation, Epipolar Geometry Project (Link) <i>Advisor: Dr. Robert T Collins</i> <ul style="list-style-type: none"> 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. 	State College, PA
Market Maven: Navigating Data and Models in Finance (Link) <i>Machine Learning</i> <ul style="list-style-type: none"> 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. 	Remote
Coupling from the Past for Statistical Mechanics Models REU Project (Link) <i>DIMACS REU</i> <ul style="list-style-type: none"> 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. 	Piscataway, NJ

Awards and Accomplishments

Mr. David H. DeVore Scholarship <ul style="list-style-type: none"> Awarded for outstanding academic performance and campus involvement. 	Penn State University 2025 - 2026
Department of Electrical Engineering Scholarship <ul style="list-style-type: none"> Merit-based scholarship recognizing academic achievement and leadership. 	Penn State University 2024 - 2026
Penn State IEEE-HKN Epsilon Chapter Honor Society Member <ul style="list-style-type: none"> Participated in service, career development, and outreach activities with the IEEE honor society. 	Penn State University 2024 - Present
Machine Learning Foundations (Break Through Tech AI Fellowship) <ul style="list-style-type: none"> Training in Machine Learning Foundations as part of the Break Through Tech AI Fellowship. 	Cornell Tech 2024
Evan Pugh Scholar Junior Award <ul style="list-style-type: none"> Recognizes the top 0.5% of juniors based on exceptional academic achievement. 	Penn State University 2024
The President Walker Award <ul style="list-style-type: none"> Competitive distinction honoring top first-year students 	Penn State University 2023

Skills

Programming	Python, MATLAB, ROS, C
Libraries	Pandas, NumPy, XGBoost, SHAP, Scikit-Learn, Matplotlib, Seaborn
Software	Solidworks, Multisim, COLMAP, LabView, Arduino IDE
Tools	TACC Supercomputing, L ^A T _E X, Git, Docker, Linux
Hardware and Prototyping	Digital Circuit Design, Microcontrollers, 3D Printing
Technical Areas	Computer Vision, Image Processing, Machine Learning, Robotics