

## EDUCATION

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### University of California, Berkeley

*BA in Computer Science & Applied Mathematics (Double Major)*

**GPA:** 4.0/4.0

**Berkeley, CA**

*Aug 2021 - May 2025*

**Honors:** Phi Beta Kappa (Selected as Junior), Upsilon Phi Epsilon, Dean's List (Five Times)

**Core Courses:** *Multivariable Calculus, Foundations of Data Science, Linear Algebra, Differential Equations, Data Structures, Machine Structures, Algorithms, Machine Learning, Probability Theory, Random Process, Convex Optimization, Real Analysis, Numerical Analysis, Abstract Algebra, Discrete Mathematics (Straight A/A+'s)*

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## TECHNICAL SKILLS

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**Programming Languages:** Python, C, Java, JavaScript, SQL, MATLAB, R, L<sup>A</sup>T<sub>E</sub>X

**Tool/App:** PyTorch, Transformer, Git, SciPy, Spacy, Docker, Flask, Azure Cloud, RISC-V

**Technique:** Data Analysis, Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing

**OS:** Linux, MacOS, Windows, ROS

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## RESEARCH & COMPETITION EXPERIENCES

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### Hexapod Locomotion and Route Planning

*Undergraduate Researcher*

**Supervisor: Prof. Zakhor Avideh, Berkeley BAIR Lab**

*Berkeley, CA | August 2024 - Present*

- Trained hexapods on complex tasks such as obstacle avoidance, stair climbing, and narrow-space squeezing using Issac gym and Proximal Policy Optimization. Tested on real world and fine-tuned the rewards to cross sim-to-real gap.
- Integrated LLMs for route planning and skill selection, enabling the robot to navigate from point A to B while automatically choosing the right skill to overcome obstacles.

### SKILLED: Multisensory Human-to-Robot Imitation with Skill Library

*Undergraduate Researcher*

**CMU Robotics Institute**

*Pittsburgh, PA | May 2024 - Sep 2024*

- Improved Aloha hardware system by adding audio and touch sensors for bimanual manipulation.
- Fused multisensory data into the Action Chunking Transformer (ACT) for more precise goal-conditioned imitation.
- Trained the Aloha robot with high-quality, goal-conditioned human demonstrations to enhance its efficacy across various manipulation tasks, subsequently archiving these trained skills in the skill library.
- Segmented the first-person one-shot demonstration into varied goal-conditioned skills from the trained library, then directed Aloha robot to execute them sequentially.

### Development of an Augmented Chatbot Pipeline

*Undergraduate Researcher*

**Supervisor: Prof. Anastassia Fedyk**

*Berkeley, CA | Feb 2024 - Present*

- Employed Mistral's open-source 7B model to build a RAG-based chatbot pipeline that could generate precise and professional answers based on augmented articles. Used frameworks like AutoGen and Dspy to improve stability.
- Built a web app using Docker and deployed it on Azure Cloud.
- Fine-tuned network architecture to strike a balance between model complexity and generalization.

### Anomaly Detection on Medicine Orders

*Undergraduate Researcher*

**Supervisor: Prof. Feng Chen (UBC)**

*Remote | Dec 2023 - Present*

- Performed anomaly detection on a large-scale real world dataset of between-corporation medicine purchases.
- Applied regression to predict medicine prices by category and used statistical analysis to detect abnormal orders.
- Utilized multiple algorithms including multivariable regression, random forest, and autoencoder for cross validation.
- Encapsulated the model and provided user-convenient methods for the client company to use.

### Predicting Student Performance from Game Play

*Kaggle Competition*

**Silver Medal**

*Jun 2023 - Jul 2023*

- Predicted the player's performance as he played in an education game with only data from the current session.
  - Created metrics to quantify player engagement and success, including event counts per session, temporal event patterns, and special achievements like "bingo" counts, the number of times to get special items/reach hidden room.
  - Applied XGBoost model to predict future performance with hyperparameter tuning for highest predict performance.
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## SELECTED COURSE PROJECTS

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### Design and Implementation of a 2D Tile-based World Generator in Java

*Mar 2024 - Apr 2024*

- Developed a room placement algorithm to ensure non-overlapping random room generation.
- Employed MST algorithm to create hallways connecting the rooms, enabling traversal within the generated world.

### Optimizing Matrix Convolution in C

*Oct 2023 - Nov 2023*

- Implemented a basic matrix convolution algorithm and improved its speed using various techniques.
- Tested and benchmarked the optimized matrix convolution algorithm, achieving a notable 10x speed boost