Andrew Park

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EDUCATION

University of California, San Diego   **San Diego, CA**
Bachelor of Science in Computer Engineering   Expected Graduation: June 2026
Minor in Mathematics

- **GPA:** 3.864 / 4.000
- Relevant Coursework: AI: Search and Reasoning, Linear Control System Theory, Linear System Fundamentals, Deep Learning, Engineering Probability, Computer Vision I, Graph Theory

RESEARCH EXPERIENCE

Scalable Optimization and Control Lab, UC San Diego   **San Diego, CA**
Undergraduate Researcher   June 2025 – Present

- Implemented multiple **RL controllers (PPO, DQN, Q-learning)** tailored for longitudinal acceleration control of CAVs in mixed traffic, with policies optimized to suppress stop-and-go waves.
- Designed the full **control loop** for the CAV follower (state extraction, normalization, action mapping, safety clipping, and SUMO actuation) to ensure stable and realistic vehicle behavior.
- Engineered reward functions targeting leader tracking, acceleration smoothness, and TTC safety, grounded in traffic-flow control theory.

Talmo Lab at Salk Institute   **San Diego, CA**
Scientific Software Engineer   February 2024 – Present

- Formulated an AWS infrastructure for a **generic cloud-based platform** for software training that provides cloud computational resources called LabLink with **AWS EC2 Instance** for deployment of the **Flask** web app and **PostgreSQL** Database.
- Constructed a **Terraform** code for IoC to ease the deployment of the required tutorial infrastructure reducing the deployment time to **4 minutes.**
- Added **CI/CD pipeline** using **GitHub Actions** to test the packages and deploy infrastructures via Terraform codes for production, staging, and development environments.
- Deployed LabLink for SLEAP, a deep learning software used for multi-animal pose tracking, showcased at the COSYNE conference with over **150 participants.**
- Constructed **Google Spanner database** modification Python scripts with tests in Pytest that handles **more than 150 entries** in the database in real-time.

Rose-STL Lab, UC San Diego   **San Diego, CA**
Undergraduate Research Assistant   January 2024 – June 2024

- Collected and pre-processed clothing data of **200 products** from H&M shopping website using **Python Selenium**.
- Designed and implemented **PyTorch** datasets to optimize training pipelines for Virtual Try-On deep learning models, including **TryOnDiffusion and VITON-HD**.
- Reproduced the state-of-the-art steering methods, including **SEAL**, **RFM**, and **GCAV**, to benchmark the performance of the steering methods.
- Utilized **vLLM** and **HuggingFace** to import, tune, and evaluate them for steering benchmarking.
- Workshop paper about steering a Large Language Model (LLM) accepted to **NeuroIPS 2025** Workshop

Lee Lab at Department of Psychiatry   **San Diego, CA**
Undergraduate Research Assistant   May 2024 – July 2025

- Developed an **Flutter** Android application enabling patients with schizophrenia and schizoaffective disorder to record sleep data via Fitbit watches, Withings mattresses, and self-reported surveys.
- Refactored the application using a **clean architecture pattern** (domain, presentation, and data layers) to improve modularity, testability, and long-term maintainability.

- Engaged directly with 10 patients to onboard them onto the system and provide guidance on device usage and app functionality

PROFESSIONAL EXPERIENCE

Citimit **San Diego, CA**

Frontend Developer June 2023 – June 2024
- Contributed to the implementation of a **JavaScript** web service that eases the process of obtaining building permits in San Diego with the integration of AI technology.
- Designed dynamic web pages and features from scratch using **React**, achieving **60% satisfaction rate** with the UI/UX.

TEACHING EXPERIENCE

Shanghai Livingston American School **Shanghai, China**

Software Developer October 2021 – December 2021
- Automated the process of collection of health surveys from each student into a single Excel file with Python's OPenpyxl library.
- Optimized the cost of time to organize health surveys for high school teachers by **93%.**

Calculus Tutor **Shanghai, China**

Volunteer Tutor February 2021 - June 2021
- Demonstrated and communicated my knowledge of calculus to those who needed assistance in pre-calculus and AP Calculus AB and BC.
- Increased my peers' average calculus test scores from 80% to 95%.

TECHNICAL PROJECTS

Connect4 Agent | *Python, MCTS, Minimax Algorithm, Gymnasium, RL* July 2025 – August 2025
- Implemented **MCTS** and **Minimax Algorithm** with pruning to evaluate optimal game strategies and improve decision-making speed with CLI to view the grid.
- Achieved **100% win rate** against random players of 100 games and **95% win rate** against human players.
- Decreased the time cost of MCTS by **70%** compared to that of Minimax Algorithm.

Roomiverse | *React, .NET 8, Javascript, C#* January 2025 – June 2025
- Designed and implemented a web application for UCSD students to facilitate the process of finding roommates with six peers.
- Developed **RESTful APIs** with **C# .NET 8**, connected to MongoDB, and implemented **JWT-based authentication** for secure access.

LikeLion UCSD Website | *Next.js, MongoDB, Node.js, Docker* August 2024 – April 2025
- Developed a website for the LikeLion UCSD web development club using **Next.js**, providing a platform to archive previous projects and share valuable web development resources.
- Optimized the rendering process by utilizing server-side rendering increasing the rendering performance by **20%**.

Personalized Game Recommender | *Python, Surprise, Pandas, ML* November 2024 – December 2024
- Optimized a Bayesian Personalized Ranking model that recommends Steam games for a specific user using **Surprise** and achieving about **0.97 AUC**
- Preprocessed a Steam game dataset with more than **10,000 entries** from a CSV file using **Pandas**.
- Compared the model with another model based on popularity based on the precision and recall at K and area under curve.

Webreg Schedule App | *React Native, Firebase, Node.js* January 2024 – June 2024
- Developed a mobile application using **JavaScript React Native** to simplify schedule sharing for UCSD students, integrating both academic and personal calendar functionalities.

- Guided a team of six college students to design, debug, and refine new features, enhancing the app's usability and performance.
- Extracted and stored the user's schedule and profile data from **Firebase** using **RESTful API** calls
- Designed and built the frontend for key components, including the Profile, Home, and Friends pages, ensuring a seamless user experience.

Playlist Songs Converter | *Django, BeautifulSoup, Webscraping*   September 2022 – December 2022
- Scraped playlist data from Spotify and displayed the songs in the playlist utilizing **BeautifulSoup** module.
- Harmonized with five college students to build a website that collects data from a platform for a transfer of a playlist from one platform to another.

PUBLICATION

Li, I., Chen, P., Huang, M., **Park, A**., D'Antoni, L., & Yu, R. (2025). Steering LLMs\textquoteright Reasoning With Activation State Machines. First Workshop on Foundations of Reasoning in Language Models. Retrieved from https://openreview.net/forum?id=HCG7UGGRqz

PRESENTATION

Elizabeth Berrigan, **Andrew Park**, and Talmo Pereira (2025, October 6). *Introduction to Multi-Animal Pose Tracking with SLEAP*. USRSE25 Conference. Philadelphia, PA, United States

TECHNICAL SKILLS

Programming Languages: Python, C/C++/C#, JavaScript, SQL, TypeScript
Frameworks: Next.js, Node.js, Pytest, GitHub Actions
Libraries: React, NumPy, PyTorch
Developer Tools: Terraform, Docker, AWS, Google Cloud Platform, PostgreSQL

Extracurricular Activities

Likelion US at UCSD   **San Diego, CA**
President   June 2024 – September 2025
- Taught the basics of web development, HTML and CSS, React, NextJS, and GraphQL to 20 college students who are new to web development.
- Launched a website using NextJS to display all the teaching materials and programming assignments for the students.
- Formulated weekly programming assignments that emphasize web development for the college students who are new to web development.

UCSD Korean Athletic Network   **San Diego, CA**
Executive Member   March 2024 – December 2025
- Led fundraising events featuring Korean cuisine, raising over $300 to support club activities and community engagement.

UCSD Korean Club Tennis   **San Diego, CA**
Vice Captain   Fall 2023 – Fall 2024
- Coordinated weekly practices and beginner training sessions, fostering skill development and inclusive participation among club members.
- Planned and managed internal tournaments, ensuring smooth event logistics and competitive play.