

# David Zhan

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## EDUCATION

### University of Pennsylvania

May 2026

*Masters of Science in Computer Science, Bachelors of Science in Computer Science*

GPA: 4.0/4.0

- **Minors:** Mathematics, Data Science
- **Coursework:** Data Structures and Algorithms, Data Systems, Operating Systems, Machine Learning/AI, Natural Language Processing, Computer Vision
- **Involvements** Penn Aerial Robotics (Software Lead), Machine Learning Research @ Penn, Penn Club Soccer, Penn Club Badminton, Math 1410 Teaching Assistant

## PROFESSIONAL EXPERIENCE

### Software Team Lead

August 2024 – present

*Penn Aerial Robotics — Python, ROS2, PX4, OpenCV, C++*

*Philadelphia, PA*

- Spearheaded the development of a computer vision payload detection algorithm for UAVs utilizing binary thresholding
- Developed internal position representation from drone camera using RANSAC and ROS2 integration
- This high-accuracy system will compete in SAE Aero Design 2025.

### Software Engineering Intern

June – August 2024

*Ventoscity — Flutter, Express, Typescript, SQLite*

*College Park, MD*

- Redesigned cross-platform mobile app using Flutter, achieving 20% faster load times and 30% smaller app size.
- Integrated AI-powered food scanning with 90% accuracy for portion sizes and fiber content analysis.
- Conducted extensive user testing with 100+ external participants implementing over 25 usability improvements, resulting in a 15% reduction in app crash rates.

### Frontend Software Engineer

March – May 2024

*keep.id — React, node.js, Express*

*Remote*

- Complete redesign of main landing page, leading to a 60% reduction in user-reported issues
- Decreased average backend document retrieval response time by 23% through SQL query optimizations

### Research Intern

June – August 2023

*National Science Foundation — Swift, SwiftUI, C++, Arduino*

*College Park, MD*

- Developed a full-stack mobile app for emerging gut-health start up at UMD; pivotal in securing over \$1M in VC funding.
- Submitted Publication to **Nature Medicine** (Third Author)

### Mobile Developer

Jan – Dec 2023

*The Daily Pennsylvanian — React Native, Google Admob*

*Philadelphia, PA*

- Monetized DP+ mobile app for the first time in history, increasing total revenue of the Daily Pennsylvanian by 23%

## PROJECTS

**Data Labeler** — *React, Tailwind, FastAPI, Supabase, MEGA, AWS, Render*

December 2024

- Dense captioning service to be used for training custom image models
- Implemented custom quality control, aggregation metrics; Amazon MechTurk for crowdsourcing data and crowd payment
- Captioned **400+** images, with a **210%** increase in words and **50%** in relevance compared to LLM generated captions

**Blip** — *Next.js, Tailwind, TypeScript, ConvexDB, Clerk, OpenAI, Cerebras*

November 2024

- Short-form audio social media platform encouraging micro-learning during transition periods of the day
- Out of **500+** participants competing, winner of **PennApps XXV: Best Entertainment Hack**

**Part-Of-Speech Tagger** — *Python, numpy*

September 2024

- Hidden Markov Model POS tagging implementation using **Viterbi, Beam Search and Greedy** inference methods
- Using English Penn Treebank dataset for training; achieved a **96.3%** accuracy on randomized test set

**DavidDocs** — *Next.js, TypeScript, Tailwind, liveblocks*

June 2024

- **Real-time** collaboration environment designed to streamline **team productivity** and **document management**
- Implemented live commenting, integrated push notifications, environment sharing; increased user interaction by over **50%**.

## AWARDS

**Publication in Nature Medicine (Under Review)**

2025

*Smart Underwear: A Novel Wearable for Long-Term Monitoring Of Gut Microbial Gas Production Via Flatus*

**PennApps XXV: Best Entertainment Hack**

2024

**AIME Qualifier**

2022

**National Merit Scholar**

2021

## SKILLS

**Languages:** Python, Java, C++, Swift, Dart, JavaScript, SQL, NoSQL

**Frameworks:** React, NodeJS, NextJS, Tailwind, TypeScript, ThreeJS, Bootstrap Flutter, FastAPI, Flask, Django

**Tools:** Supabase, DynamoDB, AWS, Convex, Neo4j

**Machine Learning:** pandas, numpy, scikit-learn, TensorFlow, HuggingFace, PyTorch, OpenCV