

# Colin Zhao

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## EDUCATION

### University of Pennsylvania

*Bachelor of Engineering, Major in Computer Science, Minor in Economics*

Philadelphia, PA

*Expected May 2028*

- Relevant Coursework: Linear Algebra, Data Structures and Algorithms, Introduction to Computer Systems, Programming Languages and Techniques, Intermediate Microeconomics
- 3.7/4.0 GPA

## EXPERIENCE

### Researcher

*Penn Medicine - Radiology AI Implementation Lab*

October 2025 - Present

*Philadelphia, PA*

- Engineering an agentic AI orchestration system integrating open-source LLMs (e.g., MedGemma) into radiology report pipelines, enabling automated reasoning, summarization, and clinician-in-the-loop decision support
- Conducting quantitative evaluation of model trustworthiness and fairness metrics across clinical subpopulations, informing ongoing RAIL initiatives in regulatory compliance and physician AI literacy.

### Data Science Analyst

*Barnes Foundation*

October 2025 - Present

*Philadelphia, PA*

- Volunteering for the Barnes Foundation to evaluate K-12 education and community engagement initiatives using large-scale institutional data.
- Designing an interactive geographic dashboard visualizing the museum's educational reach across Philadelphia, integrating datasets from Open Data Philly, School District of Philadelphia, and internal Barnes program records.

### Software/Data Center Build Intern

*Antalpa*

June 2025 - August 2025

*Atlanta, GA*

- Automated deployment and maintenance workflows for 630+ water-cooled GPU systems using AI agents built with **LangChain** and Python, improving configuration consistency and reducing manual setup time by 25%.
- Collaborated with engineers to configure and secure servers, firewalls, and switches, applying knowledge of TCP/IP, VLANs, and access control for reliable system integration.

## STARTUPS/PROJECTS

### Collegize.ai - AI Personal College Counselor | *SQL, React, Next.js*

June 2025 - August 2025

- Led the development of a **full-stack** college application platform using **Next.js** and Supabase, implementing AI-powered features including personalized college recommendations, essay review, and strategic guidance
- Developed AI integration using Google's Gemini API for natural language processing, implementing document analysis, essay optimization, and personalized content generation

### Macro Logger - Nutrition Tracking Mobile App | *SQL, ReactJS/React Native*

June 2025

- Developed a **full-stack mobile application** using **React Native** and **Node.js** that allows users to track daily nutrition intake using integration with the USDA Food Data Central API, with secure authentication via Clerk
- Built a RESTful API backend with **PostgreSQL** database integration, middleware rate limiting, and efficient data aggregation for nutritional summary analytics

### Real-Time Gaze and Blink Tracking System | *Python, OpenCV*

June 2025

- Developed a computer vision system in Python using **OpenCV** and MediaPipe to track eye gaze and detect blinks in real time, including calibration and smoothing algorithms for robust performance
- Automated the collection and logging of gaze and blink data for downstream analysis, supporting research and accessibility applications

### NYC Affordable Housing Research | *Python, OpenCV*

June 2023

- Analyzed NYC 311 housing complaint and affordable housing production datasets (2017-2023) using pandas, NumPy, and matplotlib to uncover borough-level trends in housing issues.
- Performed normalization (complaints per 100K residents) and correlation modeling between complaint frequency, income, and population density, identifying strong socioeconomic patterns.

## TECHNICAL SKILLS

**Languages:** OCaml, Java, Python, JavaScript, TypeScript, HTML/CSS, SQL

**Developer Tools:** Git, SQL, Linux

**Frameworks:** React, Node.js, LangChain

**Libraries:** pandas, NumPy, Matplotlib, scikit-learn, OpenCV