

# ALVIN ZHENG

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## EDUCATION

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**Massachusetts Institute of Technology**

**Aug. 2023 - Present**

Candidate for B.E. in Computer Science and Artificial Intelligence & Decision Making

GPA: 5.0/5.0

Notable Coursework: *Introduction to Machine Learning, Design and Analysis of Algorithms, Discrete Mathematics, Probability and Random Variables, Fundamentals of Programming*

## EXPERIENCE

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**Research Assistant**, MIT CS & AI Laboratory

**Jan. 2024 - Present**

- Engineered MantisAI, a groundbreaking data science platform, converting raw unstructured data into interactive 2D maps utilizing LLM text embeddings and dimensionality reduction.
- Developed a scalable **WebSocket**-based solution for real-time, collaborative dataset navigation, facilitating seamless research cooperation.
- Architected and implemented a secure **OAuth** and **JWE-based** cross-domain authentication solution, ensuring robust data protection and integrity.

**Mobile Application Developer**, University of California - San Diego

**Nov. 2019 - Aug. 2023**

- Designed and launched a real-time Campus Shuttle Tracking widget with **Flutter & Firebase**, significantly enhancing campus commuting for 100+ daily app users.
- Addressed and resolved over 30 user-reported issues/bugs, contributing more than 280 lines of novel code to the UCSD Campus Mobile App.

**Cellphone Repair Technician**, Swift Repairs LLC.

**Jun. 2020 - Jun 2023**

- Managed over 30 daily customer interactions, maintaining a stellar 4.8-star rating on Google Reviews and Yelp through exceptional customer service.
- Expertly performed disassembly, micro-soldering, and repair on a variety of electronic devices, ensuring high-quality outcomes and customer satisfaction.

## PROJECTS

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**MantisAI** (<https://home.withmantis.com/>)

- Developed a data science platform transforming raw unstructured data into interactive 2D maps through advanced dimensionality reduction and projection techniques, utilizing a robust **Django** backend and **Next.js** frontend, deployed on **AWS**.

**Flux** (<https://github.com/alvinzhengq/flux>)

- Developed an automated video/audio editing platform for real-time editing and rendering within the browser, built in 2 weeks using **Next.js**, **FFMpeg**, and **Firebase**.

## SKILLS

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**Programming Languages and Frameworks**

- Languages: *C/C++, Python, R, CUDA, Rust, GLSL, Bash, HTML/Javascript, Node.js, SQL, Java.*
- Frameworks: *TensorFlow, PyTorch, OpenCV, React.js, Next.js, OpenGL, Three.js., Nginx, MongoDB*

## AWARDS

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**USA Computing Olympiad - Platinum Division**

**Jan. 2022**

Ranked in the *Top 30* out of *6000+* pre-collegiate competitive programmers nationwide, placing in the highest division out of four possible divisions.