Owen Chen

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RESEARCH INTERESTS

I am interested in artificial intelligence both as a theoretical discipline and for its applications in human-computer interaction. Specifically, I am fascinated by the development of novel machine learning methods for areas such as computer vision and natural language processing (e.g., LLMs, sentence encoding, etc), as well as the use of AI in extended reality (XR) experiences to create new ways of engaging with traditional art and digital media.

EDUCATION

Dartmouth College   Hanover, NH
B.A., Computer Science   Expected June 2028

RESEARCH EXPERIENCE

DREAM Studio, Dartmouth College   Hanover, NH
Research Assistant   September 2024 – Present

- Contributed to "44,000,000,000 Moments of Joy" under PI John Bell, funded by the 2024 Arts Integration Grant (Hopkins Center for the Arts):
    - Developed a cross-platform AR application in Unity using object detection and an LLM to generate Fluxus event scores (a type of artistic performance instruction) based on the objects present in user camera feeds.
    - Implemented techniques for image pre-processing (padding, normalization, etc) and for post-processing of the YOLOv4 model output (anchor‑based decoding of bounding boxes, sigmoid and exponential transformations, etc).
    - Read various papers on object detection in order to select the most appropriate model for the project.
- Contributed to "Deep Screens" under Co-PIs John Bell and Mark Williams, funded by the 2023 Public Knowledge Grant (Mellon Foundation):
    - Designed and implemented a node-based UI framework for VR applications in Unity capable of dynamically generating interface elements from data; developed the project's UI using this framework alongside server communication logic such as making HTTP requests and parsing responses.
    - Expanded the functionality of 3D animation scripts to support the simultaneous animation of multiple models using data generated by the project's ML pipeline and implemented methods for reducing the appearance of noise in the animation shown to the user.
    - Scraped 10,000+ data points relating to various movies and actors, parsed them into a structured format, and wrote scripts to quickly and efficiently load them into the project's server using multithreading in Python.
    - Assisted in designing and conducting an experiment for a study investigating the differences between people's interpretation of movie clips in their entirety versus 3D animations depicting only the poses and movements of the actors.

TEACHING EXPERIENCE

Department of Computer Science, Dartmouth College   Hanover, NH
Section Leader, COSC 31: Algorithms   June 2025 – Present
- Help students understand course material, complete homework, and prepare for exams during office hours; assist the professor in grading assignments and exams.
- Provide feedback and suggestions to the professor regarding the difficulty and workload of the course based on student performance and personal experience.

HONORS & AWARDS

Major League Hacking, HackDartmouth X Winner – Best Use of Gemini API   2025
National Merit Scholarship Corporation, National Merit Finalist   2024

PROFESSIONAL EXPERIENCE

HelloHost   Belmont, CA
Software Engineering Intern   February 2024 – August 2024
- Analyzed user feedback and Jira tickets in order to implement various backend changes in Python, successfully resolving 22 tickets.
- Redesigned the service's agentic workflow to avoid inefficient text generation patterns (e.g., the repetition of template phrases in multi-step reasoning, suboptimal ordering of API calls, etc), reducing token count in requests by ~25%, and proportionally lowering OpenAI API costs and response times.
- Implemented a subroutine within the service's agentic workflow to estimate the distance between rental properties and nearby points of interest (e.g., restaurants, attractions, etc) using only existing tools (e.g., search and calculator APIs), eliminating the need for a dedicated map API and any potential integration costs.
- Identified and resolved major inaccuracies in the SQL querying process of the LLM, subsequently reducing the number of failed attempts ~95%.

REFERENCES

References available upon request.