

# ALVIN TSANG

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## EDUCATION

### University at Buffalo, The State University of New York

Master of Science, Computer Science and Engineering (Honors Research) - GPA: 3.81

Graduation: May 2026

Buffalo, NY

### University at Buffalo, The State University of New York

Bachelor of Science, Computer Science and Engineering; Minors in Japanese, Math, Sociology - GPA: 3.55

May 2023

Buffalo, NY

## WORK EXPERIENCE

### Dentite | Python, AWS, HTML, CSS, Docker, Git

AI/Software Engineer Intern

Dec. 2024 – Present

Buffalo, NY

- Created an interactive API-based MVP for medical claim automation, enabling extraction of dental procedure codes from clinical notes for heuristic medical procedure code conversion, with LLM auditing; showcased at University conference
- Developed AWS-alternative solutions to anonymize personally identifiable information in doctor clinical notes using Microsoft Presidio, reducing company costs by 30%
- Implemented customer and admin portal features for company web application, driving a 12% increase in new revenue for dental providers' medical billing

### The Research Foundation for SUNY | Python, Pytorch, Hugging Face

Research Assistant

Jun. 2024 – Present

Buffalo, NY

- Assessed performance of large language models (GPT-2, RoBERTa, Pythia) on next-word prediction tasks in comparison to 3000+ human sentences, revealing lexical and semantic misalignment
- Collected and processed multilingual data from media films to challenge state-of-the-art deep learning and machine learning model combinations for speech emotion recognition
- Analyzed 2,000+ hospital admissions data using Pandas and machine learning modeling to identify key factors influencing patient readmissions and predict future occurrences

### University at Buffalo Department of Computer Science

Teaching Assistant

Jan. 2023 – May 2023

Buffalo, NY

- Created inclusive learning environments for 200+ students, covering web development concepts such as TCP, IP, HTTP, and Websocket protocols in Python, HTML, CSS, and JavaScript
- Acted as a project manager, mentoring 5 groups of students weekly to plan, discuss, and critique projects/tasks
- Assisted students in debugging web application projects using Postman and Docker

## PROJECTS

### AlvinGPT - Information Retrieval Chatbot | Python, JavaScript, ReactJS, NodeJS, GCP, HTML, CSS, Git

Dec. 2024

- Built a flexible information retrieval chatbot enabling dynamic query resolution and integration with OpenAI's GPT-4o mini API
- Enhanced user experience by implementing a topic classifier, enabling accurate routing of user inquiries while supporting natural language responses and effectively handling off-script inquiries
- Leveraged NLP and state-of-the-art inverted index search engine methods, optimizing search performance by over 30%

### CLAMP - Python Package | Python, Jupyter, Git

Oct. 2023

- Developed a Python package for clustering Large Language Model next-word predictions, incorporating a Cluster Agreement Index for qualitative evaluation
- Engineered an end-to-end pipeline, utilizing YAML files for configuration, and designed I/O file handling for seamless data flow

### Steins Gate Auctions - Web Application | Python, Flask, Docker, MongoDB, DigitalOcean, JavaScript, HTML, CSS

Dec. 2022

- Collaborated with a 6-person team to deploy a full-stack e-commerce auction platform using Python, Flask, Docker, and OOP, supporting user logins, and bidding on live auctions through WebSockets
- Fortified security with bcrypt hashing, JWT, and MongoDB for user authentication, ensuring HTTP credential validation to prevent unauthorized access
- Crafted an interactive frontend with HTML, CSS, and JavaScript, enabling users to upload and bid on auction items

## TECHNICAL SKILLS

Programming/Query Languages: Python, Scala, JavaScript, C, C#, R, SQL

Technologies/Frameworks: AWS, Docker, Figma, Git, Pandas, HTML, CSS, Flask, ReactJS, NodeJS, TensorFlow, Pytorch, Pymongo

## AWARDS/EXTRACURRICULAR

### Dean's List

May 2023

Awarded to students who demonstrate academic excellence through earning a high GPA

### New York Circle K International Outstanding Fellowship Chair

Mar. 2020

Recognized for exceptional performance in planning and executing fellowship events

### Society and Computing Club - Member

Nov. 2024

### Alpha Phi Omega (National Community Service Fraternity) - President

Jan. 2021

### Asian American Student Union - Treasurer

May 2019