ALVIN TSANG

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EDUCATION

University at Buffalo, The State University of New York   **Graduation: May 2026**
Master of Science, Computer Science and Engineering - GPA: 4.00   *Buffalo, NY*

University at Buffalo, The State University of New York   **May 2023**
Bachelor of Science, Computer Science and Engineering; Minors in Japanese, Math, Sociology - GPA: 3.55   *Buffalo, NY*

WORK EXPERIENCE

Dentite   **Dec. 2024 – Present**
AI/Software Engineer Intern   *Buffalo, NY*
- 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
- Created documentation and use-case diagrams for backend architecture, presenting recommendations to senior leadership

The Research Foundation for SUNY   **Jun. 2024 – Present**
Research Assistant   *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 and Engineering   **Jan. 2023 – May 2023**
Teaching Assistant   *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**