

Alvin Banh

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EDUCATION

Massachusetts Institute of Technology

Bachelor of Science in Computer Science

Cambridge, MA

August 2022 – December 2026

Relevant Coursework Machine Learning, Software Construction, Design and Analysis of Algorithms, Fundamentals of Programming, C and Assembly, Robotics

EXPERIENCE

Undergraduate Researcher

MIT CSAIL

June 2024 - February 2025

Cambridge, MA

- Collaborated with PhD students and faculty to evaluate **1200+ research papers** on foundation models
- Documented emerging trends in generative AI, large language models, and transformer architectures
- Presented findings weekly to guide future research initiatives and experimental priorities

Engineering Intern

Bizlink Holding Inc

July 2022 - August 2022

Fremont, CA

- Researched hardware architecture of **20+ cable and autonomous vehicle (AV) companies**
- Benchmarked **30+ key performance metrics** including processing power, latency, and inference time for deploying AI models in autonomous vehicles
- Synthesized data into **10 comprehensive reports** of hardware and AI specifications for cross-functional teams

PROJECTS

Deep Learning Model for RNA folding

December 2024 – Present

- Developing a high-performance AI model to determine secondary and tertiary structures of RNA
- Experimenting with transformer-based architectures inspired by AlphaFold-3 and BPFold for improved accuracy
- Implementing recently published AI models such as hierarchical reasoning models to progress computational biology research

Finetuned Multimodal LLM Chatbot with Text-To-Speech Functionality

February 2024 – Present

- Implemented the 7B-parameter DeepSeek model to run seamlessly on CPU-only infrastructure
- Achieved a **200% reduction in average latency** through efficient model optimization, improving user retention
- Applied low rank adaptation functionality (LoRA) to fine-tune the model, **decreasing training time by 15%**

COVID-19's Origins Logistic Regression Model

February 2021 – March 2021

- Analyzed **30,000+ genomic sequences** comparing COVID-19 and bat coronavirus strains to identify high-risk transmission regions
- Implemented feature reduction methods, achieving a **91% accuracy rate**
- Applied L1 regularization to curb overfitting, ensuring statistically significant predictions across 5-fold validation

AWARDS

Ruth and Norman Rales Scholar

KIPP Public Charter Schools

March 2022

San Jose, CA

- Awarded a competitive four-year national scholarship recognizing exceptional public service
- Demonstrated consistent dedication to academics by maintaining a 3.0 GPA or higher
- Strengthened leadership skills through active participation in annual conferences

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, Java, C, C++, TypeScript

ML/DL Frameworks: PyTorch, TensorFlow, Keras, scikit-learn

Data & Visualization Libraries: pandas, NumPy, Matplotlib, seaborn, OpenCV, Manim

Web & Backend Frameworks: React, Node.js, HTML/CSS, Express.js, Flask, Django, Tailwind CSS

Developer Tools: Git, GitHub, GitLab, VS Code, IntelliJ, Visual Studio, Linux, Docker, ROS, RViz

Databases: MongoDB, SQL, MySQL, PostgreSQL

Design & Collaboration: Figma, Lucidchart, JIRA, Notion, Adobe Creative Suite