Jesse Wang

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Education

University of Massachusetts Amherst — Amherst, MA
B.S. in Computer Science and Mathematics — *Expected Date of Graduation: May 2028*
Relevant Coursework: **Data Structures**, **Multivariable Calculus**, Discrete Mathematics, Differential Equations

Glastonbury High School — Glastonbury, CT
High Honors — GPA: 3.92/4.00 — *August 2022 - June 2026*
Awards: **2x Hackathon Winner**, **Amazon Future Engineer Scholar**
Relevant Coursework: Computer Programming in C++, **Data Structures & Algorithms**, AP Statistics

Experiences

Amazon — Seattle, WA
Software Engineering Intern — *Incoming Summer 2027*

FIRST Robotics — August 2022 - May 2026
Team 2170 Programming & Electronics Captain — *May 2025 - May 2026*

- Led FRC Team 2170 as captain, expanding our team from **28 to 63 students**, welcoming and training new members
- Designed and taught **Java** lessons, preparing students for real development, managed through **GitHub Code Reviews**
- Traveled door-to-door to **500+ local businesses**, securing over **$6000 in sponsorships** and forming connections with team partners

Vision & Scouting Lead — *August 2023 - May 2025*

- Developed real-time computer vision system using **YOLOv8/YOLOv11 neural networks** for FIRST Robotics Competition, achieving **85% accuracy** with **<25ms inference latency** for autonomous robot operation
- Optimized deep learning models for edge deployment by implementing **INT8 quantization**, reducing model size by **73% (11MB→2.9MB)** and compiling for **Google Coral Edge TPU** hardware acceleration
- Engineered complete ML pipeline from dataset collection through deployment, including transfer learning from **COCO weights**, GPU training on **Google Colab**, and multi-format export for **TensorFlow, PyTorch, ONNX, and TFLite**

MIT Introduction to Technology, Engineering, and Science (MITES) Semester — June 2025 - December 2025
Scholar

- Received the **Best of MITES award** for my writing on the limitations of AI
- Received the **MITES Semester Achievement Award** for PulseLine, a 24/7 **agentic AI** medical assistant capable of autonomously handling patient phone calls and online requests, including scheduling, prescription refills, and doctor lookups
- Real-time voice transcription and call routing pipeline built with **Twilio** and **OpenAI Realtime API** with **WebSocket** communication
- Designed a **FastAPI** backend connected to a **PostgreSQL** patient database to enable personalized, context-aware responses

Research

MMIST-ccRCC Benchmark Optimization — December 2025 - October 2026
Columbia University — *New York, NY*

- Creating a cancer assessment model targeting **Clear Cell Renal Cell Carcinoma** (ccRCC) with Professor Adam Lin
- Investigating solutions to critical performance gaps identified in the **MMIST-ccRCC** benchmark by replacing traditional task-specific encoders (such as 3D-ResNet18) with Google's state-of-the-art **CT Foundation Model**

Automated Brain Tumor Segmentation & Progression Prediction — August 2024 - June 2026
University of Connecticut — *Storrs, CT*

- Developed an ML pipeline for automated brain tumor segmentation & progression prediction, achieving a **mean IoU score of 0.5**
- Created a Python pipeline to tokenize image masks from converted MRI files via a **VQGAN model**
- Fine-tuned **Meta AI's Segment Anything Model 2** on the Cancer Imaging Archive's **Brain Tumor Progression** dataset

Relevant Projects

Chess Engine — Java, JavaFX

- A full-featured chess engine implementing **alpha-beta** search with **Zobrist hashing**, **transposition tables**, **null-move pruning**, and **late-move reductions** to improve search efficiency
- Developed a interactive JavaFX GUI with **move validation**, move highlighting, **game state management**, and takeback functionality

Technical Skills

Languages: Java, Python, C/C++, SQL (PostgreSQL), JavaScript, HTML/CSS, Kotlin
Developer Tools: Git, Visual Studio Code, PyCharm, IntelliJ, Ngrok, Jupyter Notebook, Anaconda, Arduino, OpenAI API, Groq, Twilio
Libraries: pandas, NumPy, Matplotlib, OpenCV, scikit-learn, Hugging Face Transformers, Ultralytics
Frameworks: FastAPI, WPILib, PyTorch, TensorFlow, Keras, Django