# Mao Chi (Matthew) He

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## EDUCATION

- **University of California, Berkeley** Aug 2024 – May 2025
  *Exchange Student, Computer Science Department* *Berkeley, CA*
- **National Tsing Hua University (Taiwan)** Aug 2021 – May 2024
  *B.S., Interdisciplinary Program of Engineering (CS + MechE)* *Hsinchu, Taiwan*

## EXPERIENCE

- **CVLab, National Tsing Hua University** Jan 2025 – Present
  *Undergrad Research Assistant* *Hsinchu, Taiwan*
  – **Computer Vision**
  – Utilizing **3D Gaussian Splatting** for real-time image simulation and 3D scene reconstruction, enhancing rendering efficiency and geometric accuracy.
  – Constructed digital twin models from sparse views (e.g. 4 images) to simulate real-world scenarios.
- **CNELAB, National Tsing Hua University** Aug 2023 – Dec 2024
  *Undergrad Research Assistant* *Hsinchu, Taiwan*
  – Designed and programmed a frequency flashing device using Arduino UNO R3 connected to a 9-LED array.
  – Collected **EEG signals** using a 32-channel wireless EEG cap.
  – Employed advanced signal processing methods, including **CNN**, **CCA**, **SCCA**, and **ETRCA**.
  – Implemented machine learning algorithms (**SVM, Random Forest**) to validate and enhance prediction accuracy.

## PROJECTS

- **AI Agent Project** Jan 2025 – Present
  *Developer* *Berkeley, CA*
  – Designed a **LangGraph + LangChain + Qdrant** workflow to autonomously reply to medical-insurance e-mails.
  – Cutting **13 hours** per week that physicians currently spend on insurance paperwork in half, freeing up an extra **7–10 hours** for patient care.
- **AI Cup Hackathon** Oct 2024 – Nov 2024
  *Participant (**7th place** out of 487 teams)* *Taiwan*
  – Applied OCR to extract text from images and generate embeddings for analysis.
  – Integrated **ChatGPT**, **Gemini**, **Claude**, and **Llama** APIs to process embeddings and retrieve optimal answers.
  – **Fine-tuned** models to ensure accurate, AI-driven responses from image-based data.
- **GenAI Stars Hackathon** May 2024 – Jul 2024
  *Participant (**Semifinalist & Merit Award**)* *Taiwan*
  – Used **YOLOv8** for player detection, **KMeans** for team classification.
  – Applied **OpenAI Whisper** for audio-to-text conversion and **GPT-4** for text summarization.
  – Integrated video processing and AI-driven insights into a **Flutter**-based application.
- **Ground Satellite Observation Station Project** Feb 2024 – Jun 2024
  *Team Leader* *GitHub Project*
  – Utilized **Yolov5** for facial recognition; enhanced accuracy using RoboFlow due to initial low precision.
  – Implemented PID control to ensure smoother and more stable motor operation.
  – Transferred data from temperature, humidity, and PM2.5 sensors to a computer via WebSocket; usedPython to upload this data to a data.json file on GitHub for web access.
  – Designed the web front-end with HTML and CSS.

## SKILLS

– **Languages & Tools**: Python, C/C++, HTML, CSS, Arduino, Flutter

– **Frameworks**: LangChain, Langgraph, YOLOv5/v8, OpenAI, ML

– **Hardware**: EEG systems, Arduino UNO R3