

# Aiden Chang

aidenchang@gmail.com • 650-283-1336 • Palo Alto, CA • [linkedin.com/in/aiden-chang](https://www.linkedin.com/in/aiden-chang) • [github.com/aiden200](https://github.com/aiden200)

## EDUCATION

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**University of Southern California** **GPA: 3.92/4.0** **Los Angeles, CA**  
*M.S. in Computer Science (AI Specialization)* Aug 2023 - May 2025 (Expected)

**Carleton College** **Northfield, MN**  
*B.A. in Computer Science* Aug 2019 - Jun 2023

- Carleton College **Varsity Football Team**: Most all-purpose yards & Academic All-Conference Athlete.
- **President** of Korean Student Association, increased membership by 60% and raised \$2,000 with cultural events.
- Previously was ranked 47th in the nation for **Freestyle Skiing** (Sponsored by The North Face).

## PROFESSIONAL EXPERIENCE

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**Graduate Researcher, Korea Advanced Institute of Science & Technology (KAIST)** **May 2024 – Aug 2024**

- Conducting research on **Trustworthy Large Language Models (LLMs)** under the guidance of Professor Steven Euijong Whang, emphasizing **Ethics in AI**.
- Exploring the storage of internal knowledge within LLMs to enhance model security, integrity, and data privacy.
- Measuring Equalized Odds (EO) in Multimodal LLMs to assess and promote fairness.

**Artificial Intelligence Engineer, Timonier Systems, LLC** **May 2023 – May 2024**

- Utilized generative AI with **open-source LLMs** (Llama2, Mistral) and **advanced RAG** to identify and mitigate 92% of potential security threats, enhancing data security and providing comprehensive security insights.
- Achieved a 40% improvement in domain-specific response through the **fine-tuning of open-source LLMs**.
- Developed & integrated an analytics platform leveraging Angular, Python, PostgreSQL, and a **vector database**.

**Software Engineer Intern, Charles Schwab** **Jun 2022 – Aug 2022**

- Produced a full-stack monitoring tool leveraging **Kafka**, reducing main server query loads by 13% and enabling direct, credential-free access to program and server statuses on the GCP for improved operational efficiency.
- Refactored Thinkorswim software from Bash to Python, enhancing developer experience by 45%.

**Student Researcher, Carleton College** **Mar 2022 – Jun 2022**

- Developed a custom programming language for a town simulation engine, enhancing Prof. Ryan's PhD thesis.
- This work included simulating interactive personas using **NLP**, achieving a 23% boost in simulation speed.

## TECHNICAL PROJECTS

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**2D3MF** - *Deepfake Detection Using Multi-Modal Middle Fusion* (In Progress for Submission to ICASSP)

- 2D3MF is a PyTorch model employing transformer attention mechanisms to detect from audio-visual data whether a video is AI generated, showcasing **multi-modality in AI for deepfake detection**.
- Delivered **state-of-the-art results** in deepfake detection, achieving over 94% AUC on three major datasets.

**SSI** - *Object Detection with Synthetic Satellite Imagery* (Sponsored by US Space Force)

- Fielded open source software capability for US Space Operations improving space launch characterization.
- **Fine-tuned YOLOv9** on open-source satellite imagery to **detect small objects** with a 0.48 Intersection Over Union (IOU), a 20% improvement over previous models, enhancing resolution and accuracy of surveillance data.
- Enhanced satellite imagery analysis by 40%, integrating advanced analytics and **embedding space comparisons** for improved detection accuracy; developed a real-time alert system to notify U.S. Space Force of critical events.

**ARS** - *Amazon Recommender System using GNNs (Graph Neural Networks)*

- Used **Graph Neural Networks** for Amazon product rating link regression, achieving a 1.01 Root MSE (RMSE).
- Excelled in handling sparse heterogeneous data, surpassing comparable recommendation systems by 0.2 RMSE.

## TECHNICAL SKILLS

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**Programming Languages:** Python, C, SQL, Typescript, JS, HTML, CSS, R

**Frameworks / Tools:** Generative AI, LLMs, Git, HPC, Linux, AWS, Agile Software Development, React

**Libraries:** PyTorch, Huggingface, Langchain, LlamaIndex, NumPy, Pandas, Matplotlib, ChatGPT