

AIDEN CHANG

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Interests: Multimodal LLMs, Intelligent Embodied Agents, Responsible AI, Robotics, Autonomous Agents

EDUCATION

University of Southern California

GPA: 3.94/4.0

Los Angeles, CA

Master of Science in Computer Science (AI Specialization)

Aug 2023 - Aug 2025

Carleton College

Northfield, MN

Bachelor of Arts in Computer Science

Sep 2019 - Jun 2023

PROFESSIONAL EXPERIENCE

AI Solutions Architect - NVIDIA

Aug 2025 - Present

- Rotating across five AI-focused sectors, collaborating with customers and internal engineering teams to design and deploy machine learning solutions at scale. Work involves cross-functional problem solving and **client-facing AI strategy development**.

AI/ML Research Fellowship - U.S. Army DEVCOM Army Research Laboratory

Aug 2024 - May 2025

- Built and researched a task-driven **7B multimodal LLM** for long video reasoning using temporal attention, uncertainty-aware segmentation, and multimodal grounding; fine-tuned on cloud with **DeepSpeed and distributed LoRA** on 3.7TB of data across 6xA100 GPUs, achieving **state-of-the-art** on highlight precision, long video QA, and dense video captioning benchmarks.
- Built semantic segmentation pipelines with RAM++, DINO-X, and SAM2 on CUI datasets, boosting object detection accuracy by 15%, targeting applications in Army **robotics, autonomous agents**, and human-robot interaction for search-and-rescue missions.
- Evaluated **Gaussian Splatting** and **SLAM**-based CUI simulation environments to enhance 3D perception and navigation.
- Awarded the **AEOP Fellowship** (<8% acceptance rate), conducting real-world research for next-gen autonomous systems.

AI/ML Visiting Student Researcher - Korea Advanced Institute of Science & Technology (KAIST)

May 2024 - Aug 2024

- Researched **Responsible AI**—specifically Multimodal Large Language Models (MLLMs) under the guidance of Prof. Steven Euijong Whang, focusing on **fairness** by analyzing biases and ensuring gender and skin tone equity in **T2I and I2T tasks**.
- Investigated **long-tailed biases** and their effects on protected attributes; initiated a framework for **grouping heterogeneous modalities** to enable the use of traditional group fairness techniques in abstract and high-dimensional domains.

AI/ML Engineer - Timonier Systems, LLC

May 2023 - May 2024

- Utilized **open-source LLMs** (Llama2, Mistral) with **advanced RAG** pipelines to detect and mitigate 92% of security threats, increasing system resilience and visibility.
- Worked with a cross-functional team to achieve 40% improvement in in-domain responses by **fine-tuning open-source LLMs**.
- Developed an analytics platform leveraging Angular, Python, PostgreSQL, and a **vector database**, working with team members.

TECHNICAL PROJECTS

ASSS - Advanced Satellite Surveillance System (Team Lead | Sponsored by US Space Force | Top 10 Finalist, \$100K MEPC)

- Led 70+ interviews** with military, academic, and industry experts; fielded open-source software for US Space Operations, enhancing space launch characterization. **Pitched product to 70+ investors** with strong interest.
- Fine-tuned YOLOv9 on open-source and **CUI** satellite imagery for small object detection, achieving 0.48 IOU (20% improvement), enhancing resolution and accuracy by 40% using advanced analytics and **embedding space comparisons**.
- Coordinated development of a real-time alerting system for notifying the U.S. Space Force of critical events; selected as **Top 10 Finalist** in the \$100K **Maseeh Entrepreneurship Prize Competition (MEPC)** for deep-tech innovation and **market readiness**.

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

- First author of 2D3MF, a PyTorch-based multimodal deepfake detection model leveraging transformer attention over emotion-rich audio and video embeddings to **capture subtle cross-modal inconsistencies in affective expression**.
- Delivered state-of-the-art results in deepfake detection, achieving 94%+ AUC on DFDC, FakeAVCeleb, and RAVDESS.

LEADERSHIP, ATHLETICS & INVOLVEMENT

Carleton College Varsity Football Team

- Starting Running Back, led team in all-purpose yards, and a **two-time Academic All-Conference Athlete**.
- Honored by the National Football Foundation & College Hall of Fame for **academic excellence** among football players.

President of the Korean Student Association

- Increased membership by 60%, enrolling 2% of the school and **engaging 80% of Korean students** through targeted outreach and inclusive cultural events. Raised \$2,000 through large-scale events and boosted attendance by 40% via cross-club collaborations.

Northstar Freestyle Ski Team

- Nationally ranked #47** in Freestyle Skiing (Slopestyle), sponsored by the North Face. **Paired with future Olympic gold medalist** Eileen Gu by our shared coach to serve as a training partner capable of sustaining elite-level challenge and progression.

TECHNICAL SKILLS

Languages / Tools: Python, C, SQL, TypeScript, JavaScript, HTML, CSS, R, Git, HPC, Linux, AWS, Agile, GraphQL, REST, React

AI & Libraries: LLMs, PyTorch, Huggingface, TensorFlow, Langchain, LlamaIndex, ChatGPT, NumPy, Pandas, Matplotlib, Jupyter