ALEXANDER CHIEN

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EDUCATION

University of California, Los Angeles (UCLA), Los Angeles, CA Expected June 2026

B.S. Computer Science | Upper-division GPA: 3.82 / 4.00

- Coursework: Data Structures and Algorithms, Programming Languages, Operating Systems, Software Construction, Computer Architecture, Probabilistic Models in Genomics, Deep Learning, Computer Vision, Generative AI (Grad), Computational Imaging and Generative Vision (Grad), Human Factors in AI (Grad)

EXPERIENCE

Chang's Group at UCLA NLP | *Undergraduate Researcher* June 2024 - Present

- Investigating long-context memories for embodied multi-agent systems with Temporary-LoRA, improving knowledge retention in complex simulations within the VirtualHome environment (Python, PyTorch, Hugging Face, NumPy, Git)
- Generated synthetic LLaVA training dataset of 10,000+ multi-action agent tasks along with first-person agent views corresponding to the completion of each action utilizing GPT-3.5 Turbo (Linux, OpenAI API, Unity, LLMs)
- Automated extraction of point clouds from depth images in VirtualHome to enhance agent learning and spatial understanding

UCLA StarAI Lab | *Undergraduate Researcher* September 2023 - Present

- Created custom sentential decision diagram (SDD) to enforce "exactly one" hard constraint for GPT-2 filtering, reducing constraint complexity from O(n^2) to O(nlogn) with a 50,257-word vocabulary (Python, Hugging Face, Linux, LLMs)
- Researching low-variance gradient estimators for Mixtures of Experts (MoE) as an alternative to 5 other sampling algorithms including soft-merging experts with adaptive routing (SMEAR) and REINFORCE (PyTorch, Git, CNNs)
- Built an exact gradient estimator for MoE with Resnet backbone as a benchmark upper-bound (Google Cloud Platform)

CreatorHub (UCLA startup) | *Software Engineer Intern* June 2023 - August 2023

- Developed front and back-end of brand competition creation page and password reset pages for CreatorHub's MVP with mongosh and ItsDangerous API tokens (JavaScript, Flask, HTML, CSS, Git)
- Designed JSON schemas for users and brand competitions using MongoDB's schema validation (MongoDB)
- Implemented password security protocols (e.g. SHA-256) and re-designed signup and login pages to improve user onboarding

PROJECTS

Medical Information Retrieval and Augmentation (MIRA) | *Machine Learning Researcher* January 2025 - Present

- Exploring Retrieval Augmented Generation (RAG) and LoRA-based fine-tuning to mitigate LLM factual hallucination and misinformation on EHR data from the MIMIC-IV-NOTE dataset (Python, Hugging Face, unsloth, Google Cloud Platform)
- Devising token-based confidence score metric to increase model transparency and reduce overreliance in critical settings (PyTorch)

Novel View Synthesis | *Co-author* February 2024 - March 2024

- Analyzed 3 approaches to novel view synthesis: light-field rendering, Neural Radiance Fields, and Gaussian Splatting
- Authored article analyzing 3D-GS methodology, comparing its efficacy to other SoTA methods (e.g. Mip-NeRF 360) (Git)

Action Prediction for EEG Signals | *Machine Learning Engineer* February 2024 - March 2024

- Built CNN hybrids (RNN, LSTM, GRU) and multi-head attention models for classifying 4 classes of patient activities
- Achieved over 70% accuracy through model ensembling and data augmentation methods (time reversal, injecting Gaussian noise, etc.) with 2115 data samples from the BCI Competition (Python, PyTorch, Git)

LEADERSHIP & INVOLVEMENT

exploretech.la | *Content Member* September 2022 - Present

- Develop and hold interactive workshops in computer vision and generative AI for 60+ students in annual expo, hosting hundreds of students from Title 1 high schools in Los Angeles (Python, PyTorch, CNNs, transformers, diffusion, etc.)
- Devise workshop materials and teach weekly workshops, mentoring in foundational methodologies in Python and ML (linear algebra, perceptrons, edge detection filters, convolutions, etc.)

Bruin Spacecraft Group | *Webmaster* October 2023 - September 2024

- Lead team of 6 in revamping and maintaining the Bruin Spacecraft Group website, boosting user-friendliness for sponsors and prospective members; mentored team in best practices for web development (JavaScript, HTML, CSS, Git)
- Collaborated closely with 7 other admin teams to ensure accurate display of each team's progress on website

SKILLS

- Programming Languages: Python, C++, C, JavaScript, Haskell
- Frameworks: PyTorch, TensorFlow, Flask, React
- Other: Git/GitHub, MongoDB, Linux, HTML, CSS, Node, Unity, Hugging Face, NumPy, scikit-learn, Google Cloud