EMMA (MIRI) LIU

emmatliu@ucla.edu ◇ Los Angeles, CA ◇ emmatliu.github.io

EDUCATION

University of California, Los Angeles (UCLA) September 2021 - Present
B.S. in Computer Science & B.S. in Mathematics

GPA: 3.885

PUBLICATIONS AND PRESENTATIONS

"Are Large Language Models Capable of Generating Human-Level Narratives?"
Y. Tian, T. Huang, **M. Liu**, D. Jiang, A. Spangher, M. Chen, J. May, N. Peng. *EMNLP 2024*

"Optimizing the Exa.TrkX Inference Pipeline for Manycore CPUs"
N. Acharya*, **E. Liu***, A. Lucas*, A. Lazar. *Connecting the Dots Workshop 2022*

"Integration of Microscopy and Deep Learning to Define Localized Grain Boundary Sink Efficiency"
E. Hopkins, **E. Liu**, M. Taheri. *TMS 2022*

"Accelerating the Inference of the Exa.TrkX Pipeline"
A. Lazar, X. Ju, D. Murnane, P. Calafiura, S. Farrell, Y. Xu, M. Spiropulu, J.-R. Vlimant, G. Cerati, L. Gray, T. Klijnsma, J. Kowalkowski, M. Atkinson, M. Neubauer, G. DeZoort, S. Thais, S.-C. Hsu, A. Aurisano, V. Hewes, A. Ballow, N. Acharya, C.-Y. Wang, **E. Liu**, A. Lucas. *ACAT 2021*

"Nanofabrication of Metasurface Deep Neural Networks"
E. Liu*, B. Nguyen*, A. Truong*, J. Hu, A. Ozcan. *HHMI Research Day 2021*

RESEARCH EXPERIENCE

NLP Lab @ UCLA Winter 2024 - present
NLP Research Intern

- Wrote custom pipelines to evaluate diffusion models, developed prompt sets based on unique model features, and devised new strategies to assess image generation model safety filters.
- Uploaded models and benchmarks and developed interactive, user-friendly web application on Hugging Face to make study results accessible and intuitive

PLUS Lab @ UCLA Fall 2023 - Spring 2024
NLP Research Intern

- Devised innovative methods to compare LLM and human narrative outputs, crafted prompts and pipeline for LLM generations, and curated dataset through Wikipedia scraping.
- Designed annotation guidelines and administered a human study, including task introduction, data cleaning, analysis, and monitoring of inter-annotator agreement levels.

SHODOR Foundation XSEDE @ YSU Fall 2021 - Spring 2022
HPC Research Intern

• Utilized parallel computing principles to improve particle track prediction pipeline performance, reaching average tracking efficiency of 0.9 and tracking purity of 0.6

Ozcan Lab @ UCLA Fall 2021 - Spring 2022
HHMI Research Intern

• Trained in nanofabrication techniques such as electron beam lithography and thin film deposition, enhancing proficiency in precision manufacturing for optical applications.
• Advanced application of nanohole-based metasurfaces in optical neural networks, enhancing image processing efficiency and clarity for MNIST digit classification

HEMI @ JHU Summer 2021
AEOP Research Intern

• Automated data pre-processing to train object detection model for tracking and analysis of point defects in microscope images; work improved F1 score on test frames from 0.1 to 0.6

JHU Applied Physics Laboratory Summer 2020 - Summer 2021
ASPIRE Research Intern

• Developed Python notebook for precision medicine as part of BLACKWELL Project
• Applied unsupervised clustering methods to COVID clinical data, supporting efforts to identify high-risk patients

INDUSTRY EXPERIENCE

Balyasny Asset Management Summer 2024
Data Platform Core Intern

• Designed and implemented metadata ingestion framework to integrate existing systems, saving an estimated $250,000 in developer hours
• Ingested 10k+ data assets and lineage edges

Balyasny Asset Management Summer 2023
Data Platform Intern

• Implemented robust proxy service to facilitate substantial traffic increase from 3 million to 25 million daily requests to service, ensuring better scalability and performance
• Optimized data storage and data function calls, enhancing user interactions and data accessibility

Microsoft Summer 2022
EXPLORE Intern

• Designed and implemented novel data pipeline enhancing granularity of server machine resource monitoring from scope of 300 units to 3 million units
• Wrote scripts in Cosmos SCOPE script, C#, and Kustos Query Language (KQL) to aggregate real-time machine data

National Institute of Standards and Technology (NIST) Summer 2019 - Spring 2022
Data Intern

• Built dashboard with Bash script, Python, and HTML tracking real-time status of 80+ NSRL download machines

LEADERSHIP AND ACTIVITIES

ECE M148 (Data Science) Grader Summer 2024

CS 181 (Formal Language and Automata Theory) Grader Summer 2024

CS 35L (Software Lab) Learning Assistant Spring 2022, Winter 2024, Spring 2024

LAHacks Sponsorship Committee 2023, 2024

HONORS AND AWARDS

USAC Travel Grant Fund Award ($350) Fall 2024

Upsilon Pi Epsilon Spring 2022

Dean's Honors List Multiple Quarters