Allison Austin

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Education

University of California, Davis 2023-Present
PhD, Computer Science
Advisor: Dr. Kwan-Liu Ma

California State University, Long Beach 2019 - 2023
Bachelor of Science, Computer Science
Advisor: Dr. Bo Fu

Publications

B. Fu, **A. Austin**, and M. Garcia. *Visualizing Mappings Between Pairwise Ontologies - An Empirical Study of Matrix and Linked Indented List in Their User Support During Class Mapping Evaluation.* In Proceedings of the 22nd International Semantic Web Conference (ISWC 2023), LCNS, Springer, 2023

Research Experience

Research Aide
Argonne National Laboratory June 2025 - Sep 2025

- Computing, Environment, and Life Sciences (CELS) division of the Argonne Leadership Computing Facility, Advisor: Dr. Shilpika
- Researched analysis and visualization of LLM-generated protein-protein interactions (PPIs).
- Added Retrieval-Augmented Generation (RAG) step to prediction pipeline running on HPCs (Sophia and Polaris) for generating interacting partners with given proteins, evaluated feasibility of output predictions.
- Researched LLM evaluation and visualization methods (ragas, SHAP) and techniques for enhancing real-time graph network visualizations (layouts, interactions).

Graduate Student Researcher
UC Davis Visualization and Interface Design Lab Oct 2023 - Present

- Researched methods for anomaly detection and hardware behavior clustering in HPC performance data for monitoring and root cause analysis of system failure.
- Experimented with different streaming visualization designs for displaying variation and similarity in sensor readings using different functional data analysis techniques.
- Developed a visual analytics framework for online, interactive analysis of Ganglia logs collected from HEP experiments.

Research Assistant
CSULB Data Semantics and Human-Data Interaction Lab Aug 2022 - May 2023

- Conducted user study of two ontology visualization techniques in their visual support during human evaluation of class mappings.
- Designed and executed task-based experiments with 81 participants while obtaining data from Gazepoint eye tracker.
- Collected and analyzed eye tracking data, task success, task completion time, and usability scores for each participant.
- Evaluated the extent to which a given visualization supported the recognition of visual cues, validation of existing mappings, and creation of new mappings.

Grad Course Projects

ECS 289L Advanced Deep Learning with Dr. Hamed Pirsiavash Fall 2023

- Collaborated with another graduate student to research LLMs for anomalous log sequence prediction in HPC data. We experimented with additive attention mechanism and hierarchical attention network on GPT and BERT models. For

our prediction task, the BERT model outperformed the GPT model for both datasets.

- We found that using different attention mechanisms resulted in improved accuracy and f-1 scores for BERT trained on sparse time series data and no improvement for BERT trained on high-frequency time series data.

Industry Experience

Data Engineer Intern
Nihon Kohden Digital Health Solutions May 2021 - Aug 2023

- Researched methods for fitting time-series data and classification of alarm thresholds for reducing alarm fatigue.
- Assisted in filing a patent application for alarm data storage engine and simulation algorithm.
- Improved usability and performance of real-time and historical medical data visualization applications based on feedback from health care professionals.

Data Engineer Intern
Amazon May 2022 - Aug 2022

- Migrated large-scale ETL pipeline to Native AWS for real-time workforce management and analytics software.
- Reduced latency of agent statistics pipeline by optimizing pipeline architecture to improve performance, scalability, and resource usage.
- Expanded Selling Partner Support (SPS) Engineering cloud development kit (CDK) base code package to create AWS resources to carry out migration.

Awards

UC Davis Computer Science Department Fellowship 2023
CSU's Program for Education and Research in Biotechnology (CSUPERB) 2022

Teaching Experience

ECS 162 Web Programming, *Teaching Assistant* Spring 2025
ECS 170 Introduction to Artificial Intelligence, *Teaching Assistant* Spring 2024

Community Involvement

Girls Who Code UC Davis, *Speaker* May 2024
2023 BEACH Women in Engineering Conference, *Volunteer* April 2023
COE/CNSM Transfer Student Panel, *Speaker* March 2023
CSULB Women in Computing (WiC) Sisterhood, *Mentor* Aug 2022-May 2023
2022 BEACH Women in Engineering Conference, *Volunteer* April 2022
Mathematics, Engineering, Science Achievement (MESA), *Volunteer* March 2022
Louis Stokes Alliance for Minority Participation (LSAMP), *Member* 2022-2023
CSULB CS Undergraduate Student Advisory Board, *Volunteer* Feb 2022
CSULB Women in Computing (WiC), *Treasurer* Aug 2021-May 2022
MarinaHacks, *Design Committee Volunteer, Sponsorship Committee Lead* Jan 2021

References

Dr. Kwan-Liu Ma
Distinguished Professor of Computer Science at UC Davis
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Dr. Shilpika
Postdoctoral Researcher at Argonne National Laboratory
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Dr. Bo Fu
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