

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

GPA: 3.93

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

Graduate Student Researcher

Oct 2023 - Present

UC Davis Visualization and Interface Design Innovation Lab

Davis, CA

- Researched methods for anomaly detection in HPC system data for monitoring and root cause analysis of hardware failure.
- Experimented with different streaming visualization designs for displaying variation in sensor readings using different functional data analysis techniques.

Research Assistant

Aug 2022 - May 2023

CSULB Data Semantics and Human-Data Interaction Lab

Long Beach, CA

Worked on *Visualizing Mappings Between Pairwise Ontologies* as the lead researcher and second author with Dr. Bo Fu.

- Conducted user study of the matrix and the linked indented list visualizations in their visual support for users during human evaluation of class mappings established between pairwise ontologies.
- Designed and executed task-based experiments with 81 participants while obtaining data from Gazepoint eye tracker.
- Evaluated the extent to which a given visualization supports recognition of visual cues, validation of existing mappings, and creation of new results using eye tracking data, task success, and task completion time.

INDUSTRY EXPERIENCE

Data Engineer Intern

May 2021 - Aug 2023

Nihon Kohden Digital Health Solutions

Irvine, CA

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

Data Engineer Intern
Amazon

May 2022 - Aug 2022
Seattle, WA

- Migrated large-scale ETL pipeline to Native AWS for real-time workforce management and analytics software.
- Automated workflow using CI/CD pipelines for deploying AWS resources (Kinesis Stream, Glue Streaming jobs, Glue tables, S3 buckets).

ACADEMIC PROJECTS

LSTMs for Multi-Step Time Series Forecasting

Fall 2023

- Researched methods for improving accuracy of long short-term memory (LSTM) recurrent neural networks in multi-step time series forecasting (batch-overlap, encoder-decoder).
- Compared accuracy and forecast fit results from multi-step prediction to baseline.

Holistic Data Integration

Fall 2022

- Researched solutions to query processing on heterogeneous data stores (data federation/ontology-based data access/tensors).
- Worked with undergraduate student peers and Professor Malik Luti to develop a query execution engine, SmallDAWG.

Heart Failure Survival Analysis

Spring 2022

- Implemented Cox Regression to predict survival probabilities of death events from heart failure dataset.
- Plotted Kaplan-Meier Fitter of different features to test significance of variables.
- Analyzed the cost/benefit of using baseline hazard function in Cox model.

AWARDS/GRANTS

UC Davis Computer Science Department Fellowship

2023

California State University's Program for Education and Research in Biotechnology (CSUPERB)

2022

COMMUNITY INVOLVEMENT

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*

Feb 2022-May 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

SKILLS

Data Visualization

D3.js, Canvasjs

Machine Learning

Scikit-learn, TensorFlow, Keras

Data Engineering

AWS, Apache Spark, MySQL, PostgreSQL, MariaDB

Programming

Python, Java, C, C++, MATLAB

Other

Gazepoint, CMake

REFERENCES

Dr. Kwan-Liu Ma

Distinguished Professor of Computer Science at UC Davis

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Dr. Bo Fu

Boeing Endowed Professor of Computer Science at CSULB

bo.fu@csulb.edu

Prof. Malik Luti

Adjunct Professor of Computer Science at CSULB

malik.luti@csulb.edu