Harshil Kotamreddy

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Ph.D. in Computer Science & Engineering, Fall 2023

Education

University of Alberta Expected May 2025
M.Sc. Computing Science

California State University, Los Angeles August 2018 - Present
B.S. Computer Science, Mathematics Expected to Graduate: May 2023
GPA: Overall 3.983/4.0, CS-only 4.0/4.0, Math-only 3.987/4.0

Presentations

Transfer Learning for Deep Reinforcement Learning to Trade Stocks. Cal State LA Symposium on Research, Scholarship and Creative Activities, Oral Presentation, 2022

Expanding the Usability of 3D Object Reconstruction Algorithms Using Salient Object Detection. CSU Student Research Competition, Oral Presentation, 2021

Expanding the Usability of 3D Object Reconstruction Algorithms Using Salient Object Detection. Cal State LA Symposium on Research, Scholarship, and Creative Activities, Oral Presentation, 2021 [3rd place overall oral presentation, outstanding presentation award, selected as delegate for CSU Student Research Competition]

Forest Fires in the State of California: A Support Vector Machine Approach. MAA Joint Mathematics Meeting, Poster Presentation, 2020

Forest Fires in the State of California: A Support Vector Machine Approach. Cal State LA Student Symposium on Research, Scholarship, and Creative Activities, Poster Presentation, 2020

Research Experience

Undergraduate Research Assistant – Dr. Navid Amini August 2022 - Present
Working on predicting eye disease in patients using Optical Coherence Tomography Angiography (OCTA) images
- Applied existing vessel segmentation model on new images
- Proposed and tested different feature extraction methods from OCTA images
- Tested different predictive models on extracted features

Undergraduate Research Assistant – Dr. Jiang Guo September 2021 – Present
Created a web application to show airport throughput in airports across the US
- Wrote and deployed web application using Django, visualized throughput using chart.js and D3.js
- Applied ARIMA model to predict throughput given historical data to assist TSA agents
- Used MySQL to store historical data and update new predictions

Undergraduate Research Assistant – Dr. Jie Zhong August 2019 – Present
Working on applying policy transfer to reinforcement learning models for stock trading.
Previously worked on 3D object reconstruction and predicting the size of wildfires in California.
- Built trading environment from scratch using Open AI gym and used existing models from Stable Baselines.
- Applied NLP methods (FinBERT, naïve Bayes) to generate additional features for RL model from news data.
- Used PyTorch to write, train, and test 3D object reconstruction and salient object detection models
- Gathered and cleaned forest fire and weather data from California fire departments and weather stations

City of Los Angeles Collaboration – Dr. Jie Zhong Jan 2022 – May 2022

Analyzed PPP Loan data as part of the PIC Math program

Continued working with the City of Los Angeles to analyze crime statistics after the program was complete

- Lead a group of four and reported findings to City of Los Angeles stakeholders
- Analyzed Paycheck Protection Program (PPP) loan data to analyze equity in the distribution of loans
- Used linear regression and statistical testing methods to determine crime trends in different neighborhoods
- Provided actionable insights on loan distribution, bank availability, and business impact

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Industry Experience

Disney Television Animation – *Data Science Intern* May 2022 – August 2022

Project: Wrote and deployed a web application to provide insights on production statistics

- Worked with company executives and teams who required production-specific metrics
- Used pandas to process raw data and MySQL to store processed data
- Used Flask for backend and React.js, D3.js for frontend
- Application was containerized and deployed using Docker

City of Hope – *Data Science Intern* June 2021 – August 2021

Project: Predicting adverse events from drug therapy in Multiple Myeloma patients

Research done under Dr. Srisairam Achuthan

- Cleaned raw data for use with machine learning models
- Applied balancing methods and performed k-best feature selection to assess model-free feature importance
- Used pandas to transform data from the Multiple Myeloma Research Foundation's CoMMpass study; used scikit-learn and PyCaret to automate model training and testing

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Other Experience

MATH 5530 Deep Learning, *Teaching Assistant* August 2021 – December 2021
Formula SAE Cal State LA**,** *Web developer and Electrical Team Member* August 2019 – June 2022
NASA DIRECT-STEM, *Teaching Assistant* February 2019 – September 2020
PHYS 3200 Computational Physics, *Teaching Assistant* February 2019 – May 2019

Honors & Awards

FGSR Graduate Recruitment Scholarship September 2023
Carl Gordon Memorial Scholarship ($1,547) August 2022 – Present
William James Dermody Scholarship ($1,036) August 2022 – Present
STEM Advantage Scholar ($2,500) November 2021 – Present
John B. Willis Scholarship ($1,865) August 2021 – Present
Phi Kappa Phi August 2021 – June 2022
3rd Place Overall Oral Presentation Award RSCA ($500) March 2021
Elliot R. Barton Scholarship ($3,259) August 2020 – Present
Edison Scholars Award ($5,769) August 2020 – Present
Al & Ann Jicha Scholarship ($4,000) August 2020 – June 2021
Edison STEM Scholarship ($4,000) August 2020 – June 2021
Cal State LA Dean's List August 2018 – Present