Ruitao Wu

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ACADEMIC BACKGROUND

M.S. Computer Science 2024
San Diego State University, San Diego, California

B.S. Computer Science 2022
California State University, Northridge, Northridge, CA

N/A Mathematics 2019
East Los Angeles College Monterey Park, CA

EMPLOYMENT HISTORY

Instructional Student Assistant 01/2022 - 05/2022
Academic Enrichment Center – CSUN, Northridge, CA

- Provide a weekly, group facilitated, study session to Computer Science related courses
- Provides individual and group tutoring to students enrolled in computer science related sections
- Provides both virtual and in-person tutor session to convince student

Research Assistant 2021 - 2022
The Autonomy Research Center for STEAHM (ARCS), Northridge, CA

- Participant in various reserach project in field of Computer Science and Engineering
- Research on *Using openCAESAR and INTREPID to design and additively manufacture the Multiphysics optical tracker* Project Intro
- Design WEB user interface for Smart Connected Worker (SCW)
- Design vocabulary and ontology for project
- Communicate with team member regarding project
- Prepared presentation and report to supervisor

Instructional Student Assistant 09/21 - 12/21
CSU Northridge Computer Science Department, Northridge, CA

- Lead weekly group discussions for students who enrolled in advanced data structures
- Dedicate 2 hours per week to prepare problems and examples for the discussion session
- Implements faculty member's course content and
- Guide student understand the examples of weekly discussion meeting

Instructional Student Assistant 08/21 - 09/21
Academic Enrichment Center – CSUN, Northridge, CA

- Provide a weekly, group facilitated, study session to Computer Science related courses
- Provides individual and group tutoring to students enrolled in computer science related sections
- Provides both virtual and in-person tutor session to convince student

PROJECT

Senior Design CalTrans Project 2021/08 – 2022/05

Leader/data process/database design

The goal of this project is for 3D object detection and vehicle classification based on LiDAR point cloud. We design our own Machine Learning model for this project.The database part of this project save historical data, and our model could handle the real-time data stream.

- Labeling vehicle in the LiDAR point cloud, and convert result to txt type for Machine Learning model
- Design database for this project to save training data, and detected vehicle from Machine Learning
- Communicate with stakeholder and my team member, update users requirements to the team, track each member's updates and status of the project, assign task to different member aspect their skill, and report the project progress and challenges encounter to supervisor in weekly meeting

Multiphysics optical tracker 2021/6 - 2022/06

CSUN ARCS Developer/Programmer

This project Using openCAESAR (Computer Aided Engineering for Systems Architecture) and INTREPID to design and additively manufacture Multiphysics optical tracker. It uses state-of-the-art approach to the mechanical aspect space, and it eliminates shortage in the usual silos between work packages.

- Use ontology modeling language to build an ontology for the project in openCAESAR
- Define discipline and application vocabularies for the project. Integrate existing vocabularies, such as foundation and core vocabulary.
- Define description for each project component, such as thermal analysis, general design optimization, and topology optimization.
- Use SPARQL for data retrieve on the Apache Jena Fuseki server
- Design and implement a web application to demonstrating and format the SPARQL query result

Smart Connected Worker 06/21 - 07/21

WEB Developer

This system provide infrastructure which empowers workers and operation supervisors to optimize manufacturing workflow, and improve energy efficiency and productivity in advanced manufacturing environments.

- Use Python Flask framework returning HTML page, and escaped the output to protect from injection attacks
- Design single page website to visualize real-time and historical accumulate energy consumption data
- Deploy the system to internet from local private net use Network Address Transfer(NAT)

DBMS WEB-based Project 07/21 – 08/21

Group project, Leader and Developer

This project is design a relational entity database for managing a social network website, and some simple GUI interfaces are required for each functionality. The database system include the following features: each user is registered with the website with a username, password, first name, last name, and an email. Moreover, a user can post a blog, modify

the blog, and delete it afterward. To ensure the quality of the website, each user can post at most 2 blogs a day

- Arrange weekly meeting discuss project status and progress with the team, assign task to each member, and create project plan aspect to due date
- Connect the website and MySQL database, and check the connection is working correctly.
- Design ERD(Entity Relational Diagram) for the this project and query scripts that enable user insert, delete, and search data from database
- Add the following features in the project for users: register new account, login/out, post blog, post comment, and search.

Weather web Application 01/21 – 05/21

WEB Developer – Web Engineering course project

This is web application that provides user friendly interface that enables users to search weather information. Deploy our web application on Heroku cloud platform.

- In the back-end integrate the weather Application Programming Interface(API)
- Retrieve weather data (JSON file) that from the API and visualize it on the front-end
- Use Vue.js framework to building user interfaces and single-page applications
- Allows user enter the zip code/city name/country name to search weather information, and input information must be valid

Tic-tac-toe game 08/20 – 12/20

Java Programmer – Introduction to Software Engineering course project

This is a group project, and we implemented a tic-tac-toe game using Java Swing to design the user interface. We designed our own cheese icons, grid, background, menu, and sound effect.

- Design an algorithm to determent the winner of the game
- Design an algorithm for the computer-player that decide next move
- After player finished the game pop-out message box that has winner's name

Skills

- Java, JavaScript, C/C++, Swift, Python, Prolog, HTML/CSS,Python, Git, Heroku, Machine Learning, XAMPP, OpenCAESAR, Leadership, Teamwork, Communication

MEMBERSHIP

NASA – The Autonomy Research Center for STEAHM, Student Fellow
Association for Computing Machinery, Student Member
Institute of Electrical and Electronics Engineers, Student Member
Laboratory for Sustainable and Additive Manufacturing, Alumni

HONORS AWARDS

Dean's List *Fall 19 | Fall 20 | Spring 20*
Senior Design Showcase First place in Computer Science Department *Spring 22*
Oral Presentation 3D Object Detection and Vehicle Classification based on LiDAR Point Clouds to Monitor Real-time Traffic Flow

Volunteer

The Orange County Food Bank 2019
Package food in warehouse