

DANCHENG LIU

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EDUCATION BACKGROUND

- University of California: San Diego**, La Jolla, CA 09/2021 –
- Master of Science, Computer Science; accumulative GPA: 3.91/4
- University of California: San Diego**, La Jolla, CA 09/2018 – 06/2021
- Bachelor of Science, Computer Science; accumulative GPA: 3.62/4
 - Computer Science Major GPA: 3.93

PUBLICATION

- D. Liu**, K. Ergun, T. Rosing. “Towards a Robust and Efficient Classifier for Real World Radio Signal Modulation Classification”; in submission to ICASSP 2023.
- K. Ergun, R. Ayoub, P. Mercati, **D. Liu**, T. Rosing. “Energy and QoS-Aware Dynamic Reliability Management of IoT Edge Computing Systems”; ASPDAC '21; 18 January 2021.

RESEARCH EXPERIENCE

- Research Assistant in UCSD System Energy Efficiency Lab** 02/2022 –
- Collaborated with graduate researcher Kazim Ergun, under the supervision of Professor Tajana Rosing, to conduct research on classification of radio signal modulation types.
 - Identified the need for robustness towards noise and need for real-time classification.
 - Proposed a novel deep learning architecture combined expert knowledge of radio signals.
 - Next step is to incorporate hyperdimensional computing methodologies into the deep learning model.
- Survey for Hyperdimensional Computing** 02/2022 – 06/2022
- Collaborated with graduate researcher Justin Morris to expand my class paper on hyperdimensional computing in CSE291 into a formal survey paper.
 - Finished around 1/3 of the writing, but this project was called off by the supervisor.
 - It is expected that Justin Morris will finish the rest with his students in the future.
- Research Assistant in UCSD System Energy Efficiency Lab** 01/2020 – 09/2020
- Collaborated with graduate researcher Kazim Ergun, under the supervision of Professor Tajana Rosing, to conduct research on methodologies of minimizing energy consumption and maximizing reliability on edge devices in IoT systems.
 - Proposed to use a novel dynamic reliability management (DRM) technique to solve the problem.
 - Help design “no ERC-ETC” approach and analyzed prior works with a focus on DREAM architecture.
 - Used DREAM as a comparison to the final solution, which significantly reduces energy consumption and increase reliability for edge devices in IoT systems with multiple devices while maintaining QoS constraints.

SCHOOL PROJECT

- COVID-19 Identification Based on Protein Abundance for CSE291** 04/2022 - 06/2022
- Used machine learning algorithms to classify whether a patient has COVID-19.
 - Used features extracted from machine learning algorithms to identify proteins that are affected by COVID-19.
 - Contact me if you want a copy of the report and code.
- Status-aware Automated Plant Watering System for CSE237A** 01/2022 - 03/2022
- Built an automated plant watering system on Raspberry Pi.
 - Compared to existing commercial products, the design uses the color of leaf and external temperature as a dynamic controller for amount of water.

Recommender System for Steam Users for CSE258A

10/2021 - 01/2022

- Researched on a recommender system that maximizes @Hit10 rate for potential steam purchases of existing users.
- Analyzed existing literature on the dataset and used multiple algorithms to compare tradeoffs between accuracy and efficiency.
- Report and code: <https://github.com/DanchengLiu/RS-FOR-STEAM>

Data Analysis Project on COVID-19's Impact on Mental Health for COGS108

03/2021 - 06/2021

- Researched on the relationship between COVID-19 and people's mental health status, focusing on the change of depression and anxiety level before and during COVID-19 pandemic.
- As the team leader and a main contributor, I organized the research, found datasets based on group proposal, and performed analysis between two datasets.
- Formed a report, concluding that depression and anxiety level rises significantly during COVID-19 pandemic.
- Contact me if you want a copy of the report.

Self-Hosted Website for CSE 135

08/2020

- Built a server to host homework submission using support from Digital Ocean; the server uses Apache2 and REST API with multiple languages.
- Built a website for analyzing traffic to my website using support from Zinggrid.
- The website for homework is (no longer active): <http://danchengliu.site/>
- New website now at <https://danchengliu.github.io/>

Business Analyst in ASAP for CSE 110

03/2020 - 06/2020

- ASAP, Auto Scheduler Assist Program, is a website that aims to reduce workload for UCSD students during the course selection process. ASAP allows the students to input a list of classes and classify them as must-takes or want-to-takes and then generates the optimized schedule according to user preferences.
- Worked in a team of ten as business analyst and main provider for the algorithm in generating the schedule.
- The GitHub link for source code is: <https://github.com/bal031/ASAP>

PRACTICAL EXPERIENCE

Co-Founder of Wuxi Paoba Intelligent Technology Co., Ltd.

2015 - 2019

- Added data collection and analysis features to upgrade traditional physical measuring equipment.
- Enabled users to obtain their data via mini programs in WeChat (a Chinese multi-purpose messaging, social media and mobile payment app).
- Provided suggestions on data transmission from equipment to the cloud.
- Minimized packet losses with TCP/IP protocols to optimize consistency and reliability during data transmission process.
- Company website: <http://www.paobapaoba.com/>

A Salary Analysis Program for Wuxi De'er, an Audi dealer

08/2018

- Developed a Java program that summarizes and illustrates the salary expenses tendency for thousands of people in a one-year period.
- Users can select the specific data from more than a hundred different indices.
- The inputs are pre-organized Excel files, and the outputs are merged Excel files with separate graphs to illustrate the trend.