Wenyuan "Sandy" Chen

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EDUCATION BACKGROUND

University of California—San Diego (UCSD) 09/2018–Expected in 03/2023

- Double Major in Data Science & Human Biology
- Overall GPA: 3.97
- Core Courses: Calculus, Linear Algebra, Statistical Methods, Data Management, Recommender System and Web Mining, Systems for Scalable Analytics, Data Visualization, Probabilistic Modeling and Machine Learning, Data Analysis and Inference, Programming/Data Structures/Algorithms for Data Science, Deep Learning, Intro to Machine Learning, Statistical NLP, Metabolic Biochemistry, Genetics, Cell Biology, Molecular Biology, Human Physiology and Lab, Biology of Cancer, Immunology, etc.

RESEARCH EXPERIENCE

Prof. Rose Yu's Lab *Research Assistant* 07/2022–

Department of Computer Science and Engineering & Halıcıoğlu Data Science Institute of UCSD

- The project builds a data-driven simulator (http://dx.doi.org/10.1016/j.bspc.2015.04.004) that combines simulation and real-world data that accurately predicts a patient's Mean Arterial Pressure (MAP) and provides reference for optimal flow control of percutaneous ventricular assisted devices (pVADs)
- Reset blood pressure distribution to simulate original data, perform Sim2Real transfer to train a DANN model (Domain-Adversarial Training of Neural Networks) in PyTorch, attempt to reproduce and verify previous simulation results on both myocardial infarctions (AMICGS) and high risk percutaneous coronary interventions (HRPCI) cohorts
- Continue to investigate the performance of different deep learning models, compare performance of the conditional LMU encoder with DANN model by switching motor speed
- Plan to explore other algorithms such as DA2NN to determine the best performer

Prof. Enfu Hui's Lab *Research Assistant* 02/2019–05/2020

Department of Cell and Developmental Biology of UCSD

- Studied how N and O glycosylation of CD80 contribute to the different binding levels between CD80 and CTLA-4, investigated the functional mechanism, and how it might affect the function of CTLA-4 as immune checkpoint and suppressive regulation of T cells
- Designed CD80 mutants with different glycosylation sites with MegAlign software for DNA sequencing alignment and A plasmid Editor (ApE) for designing mutations
- Cultured desired mutants in a variety of cells, employed the protein PD-L1 into the system to detect the glycosylation site affected by PD-L1/CD80 interaction
- Utilized techniques and tools including PCR, spectrophotometer, western blot, ImageJ, protein quantification and purification, cell sorting, etc., applied FRET Assays to identify the results

TEACHING EXPERIENCE

Undergraduate Tutor for BIBC102 Upper Division Metabolic Biochemistry 01–03/2021, 2022

Supervised by Prof. Randy Hampton and Yunde Zhao

- Held 50-minute discussion session and 60-minute office hour weekly (or with appointment)
- Took responsibility for homework and exam grading
- Gave a 3-hour review session before the exam
- Received 100% recommendation from both professors and twice from students

EXTRACURRICULAR EXPERIENCE

POCKET HEALTH *Public Welfare Project Volunteer* 06/2022–

- Aim to develop an app to supplement the local online medical care system that focuses on providing free healthcare services to homeless people
- Create an electronic system for easy documentation and access to medical files containing clients' information, symptom, vitals, and providers' treatment plan
- Undertake the task of backend integration with AWS amplify, create a prototype for building real-time chat application for message exchange, currently work on adding logins, perform testing to realize automatic connection of API and database to the APP
- Plan to implement push notifications and confine service functions to improve clients' medical compliance (revisit reminder, vaccine schedule, physical condition monitor, etc.)

The Data Science Student Society (DS3) *Group Project Leader* 01–06/2022

- Led a group of 4 undergraduate students on a global health project
- Researched on WHO data to reveal health disparities and inequalities in medical care by comparing marginalized and non-marginalized groups
- Compared whether and how gender plays a significant factor influencing life expectancy, cancer death rates, and health indicators across continents in different countries and regions, visualized the data with Python to showcase the findings
- Planned to adopt machine learning methods to alternator factors and build predictive models

COURSE PROJECTS

Course Project for CSE 151B Upper Division Deep Learning 03–06/2022

- Learned how to develop methods for trajectory forecasting in autonomous driving from two perspectives: data and models
- Selected 6 cities for data preprocessing, implemented feature engineering, translational variance, data normalization techniques, and combined all the data for model training
- Experimented with different models (constant velocity, acceleration, linear regression, LSTM, Encoder/Decoder, MLP/RMLP), and identified the recurrent multilayer perceptron (RMLP) as the preferable model

LANGUAGE AND SKILLS

- **Language:** Mandarin (native), Cantonese (native), English (proficient), French (intermediate)
- **Computer Skills:** Programming Language: Python, Java, SQL (3 yrs)
  Neural Networks and Deep Learning Algorithms Open Source: PyTorch and TensorFlow
  Machine Learning Model: Recommender Systems
  Large-Scale Data Processing: Apache Spark and Amazon Web Services (AWS)
  Data Visualization: JavaScript
- **Hobby:** Hiking (5yrs)