Bomin (David) Wei

(609) 356 3006 davidwei23@ucla.edu GitHub Linkedin

EDUCATION

University of California, Los Angeles, Los Angeles, CA Sep. 2023 – present
Bachelor of Science, Linguistics and Computer Science

EXPERIENCE

Research Intern, Deep Learning-based Model for Drug Repurposing Mar. 2021 - Oct. 2022
University of Utah, School of Medicine

- Proposed a deep learning model employing NLP techniques for drug-target interaction, achieving a 76% improvement in classification tasks.
- Designed novel testing methods addressing inflated high results in existing models, proving the model's significance in real-world applications.
- Presented research findings at ISMB (July 2022) and IDWeek (Oct 2022).
- https://github.com/David-BominWei/DeepLPI

SARS-COV-2 Genetic Mutation Modeling Prediction Oct. 2020 - Mar. 2021

- Identified and assessed the impact of SARS-CoV-2 mutations on vaccine efficacy.
- Utilized the ARIMA model to conduct time-series analysis on SARS-CoV-2 RNA sequences.
- Successfully predicted several potential mutation sites that were later empirically validated.

INTERESTS PROJECTS

Volunteer Management & Information Platform Sep. 2020 – Dec. 2022

- Conducted needs assessment for Little Oaks Charity Center, leading to a customized volunteer management system.
- Achieved 1,614 users and 320 project registrations within a year, significantly improving operational efficiency.

Q2Q Dataset (https://github.com/David-BominWei/Q2QDataset) Jul. 2023 – Aug. 2023

- Created an open-source Chinese query similarity dataset to train question-answering models.
- Utilized the BM25 model to construct negative samples for training.

Personal Blog Designer and Developer Sep. 2020 – Sep. 2023

- Developed a blog platform using Hexo and deployed it on GitHub Pages.

Machine Learning for Movie Recommendation Mar. 2023 – Jun. 2023

- Built a movie recommendation engine using inception networks, compared with a bag-of-words model.

Computational Graphics Mar. 2023 – Jun. 2023

- Developed a 3D GUI for matrix projection using Pygame, applying object-oriented programming.

SKILLS

- **Programming Languages:** Python (PyTorch, Scikit-learn, Pandas), C++, Java, R
- **Frameworks:** LSTM, ResNet, Transformer, CNN, MLP; Hexo, WordPress
- **Software:** Fusion360, OnShape, AutoCAD, Premiere Pro

HONORS AND AWARDS

- **Gold Division**, United States of America Computing Olympiad (USACO) 2022
- **1st Place** Kaggle Science Olympiad National Invitational 2022 Machine Learning Event 2022
- **6th place in total & 3rd place in AI** round in the hackathon CMU Info & Math Competition (CMIMC) 2022
- **First Place** in the Computer Science category and Air Force Research Laboratory Award, Mercer Science and Engineering Fair (ISEF affiliated) 2023
- **Silver Medal**, S.-T. Yau High School Science Award, USA Regional; **ranked 2nd** in CS category 2022
- **1st Place & Best Poster** (in Biology and Medicine) at IEEE-ISEC 2021 Conference 2021

PUBLICATIONS

1. Wei, B., et al. *"DeepLPI: A Deep Learning Model for Drug Repurposing."* Sci Rep 12, 18200 (2022); https://www.nature.com/articles/s41598-022-23014-1
2. Wei, B., et al. *"Modeling SARS-CoV-2 Mutations Based on Geography and Time."* bioRxiv (2021); https://www.biorxiv.org/content/10.1101/2021.08.11.455941