**Bomin (David) Wei**

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**EDUCATION**

**University of California, Los Angeles,** Los Angeles, CA Sep. 2023 – present

Bachelor of Science, Computer Science and Linguistics,

**EXPERIENCE**

**Research Intern, Deep Learning-based Model for Drug Repurposing** Mar. 2021 - Oct. 2022

University of Utah, School of Medicine

* Presented at professional international conferences.   
  **Intelligent Systems for Molecular Biology** (ISMB, July. 2022) and the **IDWeek** (Oct. 2022)
* Builtan **Natural Language Processing** method based on **Word2Vec** to treat drugs and proteins for complete information representation
* Designed **CNN** + **LSTM** Deep Neural Network to extract non-local features
* Developed novel testing methods with special **data splitting** to evaluate models’ performance in real-world applications
* Conducted **literature search** with 100+ articles on related topics
* **Automated data cleaning** and **pre-processing** of 2 million text string data
* Optimized the **classification criteria** for better model selection by **statistical analysis** on data distributions.

**Project manager, Volunteer Management & Information Platform** Sep. 2020 – Dec. 2022

Little Oaks Charity Center

* Surveyed all center staff's and volunteers’ demands; proposed and designed the management system
* **Developed the user interface (UI)** for user-friendly access and **pipeline-tested** the web application
* The application had **320 registrations & 1,614 users** in one year after launching.

**PROJECTS**

**Q2Q Dataset**

* <https://github.com/David-BominWei/Q2QDataset>
* Design an open-source Chinese query similarity dataset which serves as a training resource for Chinese question answering models.

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

* Blog design using Hexo architecture

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

* Built a recommandation application by movie rating predictions from user comments using machine learning.
* Developed the application from scratch with Pytorch and Convolution Neural Network (CNN).

**Computational Graphics** Mar. 2023 – Jun. 2023

* Builta 3D graphical user interface for matrix projection, which can show spatial perspectives and projection controlled by user mouse cursor’s dragging and clicking.
* Practices fully objected oriented programming (OOP) in the framework on Pygame.

**SKILLS**

**- Programming Languages:** Python (PyTorch, TensorFlow, Scikit-learn, Pandas), C++, Java, R

**- Frameworks:** LSTM, ResNet, CNN, MLP; GWAS; 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.**, Zhang, Y. & Gong, X. DeepLPI: a novel deep learning-based model for protein–ligand interaction prediction for drug repurposing. *Sci Rep* **12**, 18200 (2022). <https://doi.org/10.1038/s41598-022-23014-1>

2. **Wei, B.**, Sun, Y., Gong, X. Modeling the SARS-CoV-2 mutation based on geographical regions and time. *bioRxiv*; (2021). <https://www.biorxiv.org/content/10.1101/2021.08.11.455941>