Junsheng (Johnson) Wang

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EDUCATION

Harvard University *Sept. 2024-May. 2026*
M.S. Computational Biology and Quantitative Genetics

Wake Forest University *Sept. 2020-Jun. 2024*
B.S. in Biochemistry and B. A. in Mathematics, Minor in Computer science GPA: 3.966/4.0
Related Courses: Data Structure, Data Science, Machine Learning, Probability, Time Series, Numerical Methods

INTERNSHIP EXPERIENCE

Meditrust Health Insurance Internship *Jun.2024-Aug. 2024*
Intelligent Research and Development Intern

- Fine-tuned a pre-trained LLM using Low-Rank Adaptation (LoRA) due to its efficiency in reducing the number of trainable parameters, leading to faster fine-tuning while maintaining a relatively lower computational cost
- Conducted evaluations of the fine-tuned model using task specific metrics, F1 Score and BLUE, evaluating its accuracy, efficiency, in answering medical insurance, biological related questions and finetuned again based on its performance.

IQIVIA Health Management Consulting Internship *Sep. 2023-Present*
Consulting Intern

- Conducted rigorous data analysis using statistical software to interpret datasets of over 1,000 data points, aiding Pfizer and Seagen in market trend identification and the formulation of client reports.
- Utilized Python for advanced statistical modeling and data visualization to help clients identify target customer segments and develop personalized marketing strategies for the Chinese market.

RESEARCH

Wake Forest University Computational Biology Research *Dec. 2022-Present*
Research Assistant under the instruction of *Dr. Minghan Chen*

- Conducted literature research on Alzheimer's disease, including signaling pathways; introduced biological concepts, suggested potential research directions, and assisted with the research paper introduction.
- Analyzed and compared Genetic Algorithm (GA) with Simulated Annealing (SA) and Particle Swarm Optimization (PSO) for biological parameter optimization. Selected GA for parameter its robustness and ability to avoid local optima.
- Preprocessed Western Blot data using Python and ImageJ, developed a custom loss function based on biological principles, and trained the model. The model verified the essential role of eEF2K in maintaining neuroplasticity and predicted ten potential protein-protein interaction targets for drug development.

Harvard Medical School Biochemistry Research *June 2022-Aug. 2022*
Martinos Center for Biomedical Imaging, Research Assistant under the instruction of *Prof. Chongzhao Ran*

- Developed a React, Flask application to streamline data processing for experiments, saving team members from spending twenty minutes manually processing over 5000+ data points. The application processes user-uploaded Excel data based on biological principles and allows users to download the processed results.
- Developed a full-stack application using React and integrated Ant Design UI library for the frontend, while employing Flask and MySQL for the backend. Implemented modules for file upload, data processing, and notifications, including scheduled tasks for periodic status checks.

PUBLICATIONS

1. Junsheng Wang et al., *1-st author*, "Modeling of AMPK Regulatory Network in Alzheimer's Disease", accepted by IEEE bioinformatics and Biomedicine (BIBM)
2. Junsheng Wang et al., *2-nd author*, "A Multicale Systems Biology Model to Investigate the Discordance Between PET Imaging and CSF Biomarkers in Alzheimer's Disease", under review in a top gerontology journal

AWARDS

- National Science Foundation Travel Award (2023): Awarded for exceptional contribution to the 2023 ACM-BCB Conference, underlying my research excellence and the significance of the work. (The only undergrad gets rewarded)
- Principle Award: Awarded for keeping the highest standard in academic, research and diversity contribution
- American Chemistry Society Organic Chemistry: Achieving the top 1% worldwide in the final assessment.
- USA Biology Olympiad Silver Award (2020): Top 10% of the contestant worldwide.

SKILLS

- IT: Java, R, Python and Data Analysis related packages (Numpy, Pandas, matplotlib, Pytorch), SQL
- Languages: Chinese (Native) and English (TOEFL 110, GRE330)