Yibei Jiang – Curriculum Vitae

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Education

University of Southern California
PhD in Computational Biology and Bioinformatics. **09/2019 – Present**
Advisor: Dr. Remo Rohs
Committee members: Dr. Arieh Warshel (Nobel laureate, 2013), Dr. Rosa Di Felice, Dr. Aiichiro Nakano, Dr. Geoffrey Fudenberg
Excellence in Teaching Quantitative and Computational Biology Award (05/2024)

University of California, San Diego
Bachelor of Science, Biology with specialization in Bioinformatics **09/2014 – 06/2018**
Provost Honors Award (09/2014 – 01/2017)

Professional Experience

Research Assistant, University of Southern California **09/2019 – Present**
- Conducted Molecular Dynamics (MD) simulations and analysis of protein-DNA and protein-small molecule complexes using Gromacs and Python, optimizing conditions for structural insights.
- Co-produced and analyzed X-ray crystal structures to reveal molecular mechanisms and structure-function relationships.
- Utilized Deep Learning and Generative Models for structural analysis and de novo drug design, expediting novel therapeutic discovery.

Software Engineer in Test, Consultant for Illumina, Inc. **01/2019 – 08/2019**
- Independently led automated test scripting for Instrument, Web, Data Analysis, and Bioinformatics applications in cross-functional teams.
- Collaborated with Automation engineers to develop a scalable and transferable automation architecture.
- Partnered with other software developers, bioinformatics scientists, and domain experts to translate software requirements into automated test scripts

Research Assistant, J. Andrew McCammon Group **06/2017 - 10/2017**
- Performed MD simulations of the Argonaute protein using AMBER, VMD, xleap, and other computational tools, providing insights into protein behavior and interactions with DNA or RNA targets.
- Managed and optimized computational workflows on a Linux-based compute cluster, ensuring efficient resource utilization for large-scale simulations and data analysis.

Bioinformatics Intern, Juno Diagnostics, San Diego **01/2018 - 07/2018**
- Designed bioinformatics pipelines to automate search on human chromosomes.
- Computational primer design.
- Worked with cloud computing (AWS).

Research Assistant, MD. Michael Rosenfeld Group **03/2018 - 06/2018**
- Developed a web server for a bioinformatics sequence analysis application using Tomcat, Apache, and Java servlets.
- Created an algorithm to accelerate sequence matching in large databases.
- Designed the application's website using CSS, HTML, and MySQL.

Publications [Google Scholar]

1. **Jiang, Y.**, Chiu,T.P., Mitra, R. and Rohs, R. (2024) Probing the role of the protonation state of a minor groove-linker histidine in Exd-Hox–DNA binding. *Biophys. J.*, **123**, 248–259.
2. Mitra, R., Li ,J., Sagendorf, J.M., **Jiang, Y.**, Cohen, A.S., Chiu, T.P., Glasscock, C.J. and Rohs, R. (2024) Geometric deep learning of protein–DNA binding specificity. *Nat. Methods*.
3. Chiu, T.P., Li, J., **Jiang, Y.** and Rohs, R. (2022) It is in the flanks: Conformational flexibility of transcription factor binding sites. *Biophys. J.*, **121**, 3765–3767.
4. Pending submission: **Jiang, Y.** †, Wang, G. †, Nasertorabi, F., Cherezov, V., and Rohs, R. Crystal structure of yeast Fkh1-DBD/DNA reveals binding site flanking region readout mechanisms.

†Equally contributed author

Talks and Presentations

- Delivered a talk and poster presentation at the Visualizing Biological Data (VIZBI) Conference (2024).
- Presented a poster at the USC Computational Biology Symposium (2022).
- Delivered a talk and presented posters at the QCB Departmental Retreat (2022, 2023).
- Invited speaker for QBIO 481: *Structural Bioinformatics: From Atoms to Cells* (2021).

Teaching Experience

QBIO 570, Introduction to data structures and algorithms for science **2024**
Role: Teaching Assistant, University of Southern California
Duties: Delivered weekly 1-hour lectures, review assignments, office hours for Q&A, and grading.
Topics: data structures, sorting, graph, algorithm design such as recursion and dynamic programming

QBIO 401, Introduction to Computational Analysis of Biological Data **2023**
Role: Teaching Assistant, University of Southern California
Duties: Delivered weekly 1-hour lectures, review assignments, guided open-ended final projects, office hours for Q&A, and grading.
Topics: computational and structural biology methods, statistical analysis, and machine learning

QBIO 481, Structural Bioinformatics: From Atoms to Cells **2021 and 2022**
Role: Teaching Assistant, University of Southern California
Duties: Delivered weekly 1-hour lectures, create assignments, office hours Q&A, and grading.
Topics: Structural bioinformatics methods, molecular interactions principles, and machine learning

QBIO 105, Introduction to Quantitative Biology Seminar **2023**
Role: Teaching Assistant, University of Southern California
Duties: Review assignments, grading, coordinate with invited speakers

CSE 5A, Introduction to Programming **2017 and 2018**
Role: Tutor, University of California, San Diego
Duties: Create assignments, Q&A during office hours, grading
Topics: C, Programming basics and problem-solving

CSE 7, Intro/Programming with MATLAB **2018**

Role: Tutor, University of California, San Diego
Duties: Create assignments, Q&A during office hours, grading
Topics: MATLAB fundamentals, Programming basics

Leadership in Scientific Community

- Served as Social Chair for the Graduate Student Association (2021, 2022).
- Organized and chaired sessions at the USC Computational Biology Symposium (2022), engaging over 250 attendees.
- Organized and chaired sessions at the CBB Annual Departmental Retreat (2021, 2022, 2023), facilitating discussions for over 100 attendees each year.
- Organized campus events and info sessions with UCSD guest speakers on environmental protection, engaging students and securing hundreds of pledges during an internship at Calpirg, a Non-profit environment group (2015).
- Participated in core CBB Departmental decisions such as recruitment for students, faculty, and staff.
- Member of the American Chemical Society.

Additional Skills

Lab Assistant, Haifengxing Chemical Industry, China **07/2015 - 08/2015**

- Prepare laboratory equipment
- Assist the laboratory supervisors during the experiment, such as preparing buffers
- Participate in weekly experiment discussion
- Perform TiO_2 sample quality analysis
- Maintain cleanliness and orderliness of the laboratory

Technical Translator

- Translated chemical engineering documents from English to Chinese for the company.

Language

- Fluent in Mandarin Chinese and English. Some proficiency in French and Japanese.