XINCHUN RAN

1234 Stevenson Center Lane, Nashville, TN 37240
(+1)6292593656 ⋄ xinchun.ran@vanderbilt.edu

EDUCATION

Vanderbilt University, Nashville, TN, USA *Jan 2021 - Present*
Ph.D. candidates in Chemistry, Department of Chemistry

Huazhong University of Science and Technology, Wuhan, China
Beishizhang Talent Class *Spet. 2016 - June 2020*
Bachelor of Bioscience

EMPLOYMENT HISTORY

Research Assistant, Vanderbilt University, Nashville, TN, USA *Jan. 2021 - Present*

HONORS AND AWARDS

1. NSF Ideator microgrant, Vanderbilt University *2023*
2. College of Art and Science fellowship, Vanderbilt University *2021*
3. Innovation scholar. Huazhong University of Science and Technology *2017*

PUBLICATIONS

1. **Ran, X.**, Jiang, Y., Shao, Q., & Yang, Z. (2023). EnzyKR: A Chirality-Aware Deep Learning Model for Predicting the Outcomes of the Hydrolase-Catalyzed Kinetic Resolution. Chemical Science, 14, 12073-12082.
2. Jiang, Y.*, **Ran, X.***, & Yang, Z. J. (2023). Data-driven enzyme engineering to identify function-enhancing enzymes. Protein Engineering, Design and Selection, 36, gzac009. (*Co-first authors)
3. Shin, W., **Ran, X.**, & Yang, Z. J. (2023). Accelerated Entropic Path Sampling with a Bidirectional Generative Adversarial Network. The Journal of Physical Chemistry B, 127(19), 4254-4260.
4. Yan, B., **Ran, X.**, Gollu, A., Cheng, Z., Zhou, X., Chen, Y., & Yang, Z. J. (2022). IntEnzyDB: an Integrated StructureKinetics Enzymology Database. Journal of Chemical Information and Modeling, 62(22), 5841-5848.
5. Yan, B., **Ran, X.**, Jiang, Y., Torrence, S. K., Yuan, L., Shao, Q., & Yang, Z. J. (2021). Rate-perturbing single amino acid mutation for hydrolases: a statistical profiling. The Journal of Physical Chemistry B, 125(38), 10682-10691.
6. Thokkadam, A., Do, T., **Ran, X.**, Brynildsen, M. P., Yang, Z. J., & Link, A. J. (2023). High-Throughput Screen Reveals the StructureActivity Relationship of the Antimicrobial Lasso Peptide Ubonodin. ACS Central Science, 9(3), 540-550.
7. Yang, Z. J., Shao, Q., Jiang, Y., Jurich, C., **Ran, X.**, Juarez, R. J., ... & Ding, N. (2023). Mutexa: A Computational Ecosystem for Intelligent Protein Engineering. Journal of Chemical Theory and Computation.

PRESENTATION

1. EnzyKR: A Chirality-Aware Deep Learning Model for Predicting the Outcomes of the Hydrolase-Catalyzed Kinetic Resolution *ACS 2023 Fall, San Francisco, CA* Aug. 2023
2. DeepLasso: A lasso peptide discovery pipeline *ACS 2023 Fall, San Francisco, CA* Aug. 2023

TEACHING AND MENTORSHIP

Teaching Assistant

- CHEM5410 Molecular Modeling — Spring 2021
- CHEM1601 General Chemistry — Fall 2021
- CHEM4965 Chemistry Capstone — Spring 2022
- CHEM1601, General Chemistry — Fall 2022
- CHEM4965, Chemistry Capstone — Spring 2023

Undergraduate research projects supervised

- Supervised Galen Wei and Anvita Gollu on EnzyExtract (A large language model data extraction pipeline)
- Supervised Anvita Gollu on web-app development for IntEnzyDB (intenzydb.accre.vanderbilt.edu)

Graduate research project mentored

- Mentored Amogh Vig on EnzyML project (An automatic machine learning ensembles for enzyme function prediction) and won the NSF microgrant

TECHNICAL STRENGTHS

Code Language	Python, R
Software & Tools	Blast, HMM, Latex, Pytorch, Tensorflow