Yufan Liu

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Education

Tsinghua University, Beijing 2019 – Now

Ph.D. Candidate Computational Biology

Huazhong Agricultural University, Wuhan, Hubei 2015 – 2019

B.S. Biotechnology

Research Interest

1) Deep generative model for functional biological molecules generation and distribution exploration, including antigen-specific antibody, enzyme, and small molecule design
2) Bioinformatics research, including transcriptome sequencing analysis and leveraging multi-omics data for cell fate prediction and drug design
3) Application of natural language processing models in biological data, to understand the "Cell language" through the combination of large-scale pre-training models and downstream tasks

Experience

Prof. Boxue Tian's lab 2021.5 – Now

Ph.D. Candidate Tsinghua University

Developed a heterogeneous graph neural network based method to predict protein-DNA binding properties

Developing deep generative models for antigen-specific antibody generation and biological sequence design

Capital Medical University 2021.6 – 2021.8

Research Intern

Developed a machine learning algorithm for newborn deafness diagnosis, reaching an accuracy of over 90% using the selected inspection index

Prof. Guangshuo Ou's lab 2018.12 – 2021.5

Ph.D. Student Tsinghua University

Developed bioinformatical approaches to study RNA editing phenomenon in *C. elegans*

- Revealed loss of RNA editing rescued ciliary abnormalities
- Built a bioinformatics pipeline for systematic RNA editing analysis

Prof. Jingbo Xia's lab (BioNLP lab) 2018.3 – 2018.12

Undergraduate Student Huazhong Agricultural University

Learned the basics of bioinformatics and natural language processing for biomedical corpus

Publications

Li D, **Liu Y**, Yi P, et al. RNA editing restricts hyperactive ciliary kinases. *Science*. 2021
Jia R, Li D, Li M, Chai Y, **Liu Y**, et al. Spectrin-based membrane skeleton supports ciliogenesis. *PLOS Biology*. 2019

Skill

- Deep learning: Python, Pytorch(lightning, geometric)
- Bioinformatics: NGS data analysis, R