Xing Yi (Peter) Liu

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EDUCATION

Columbia University, New York, NY, United States — Feb 2023
M.S. in Computer Science, Machine Learning Track

University of California, Los Angeles, Los Angeles, CA, United States — Jun 2021
B.A.Sc. in Applied Mathematics (with Specialization in Computing) and Business Economics

POSITIONS HELD

Tsinghua University, Beijing, China
Research Intern, Institute for AI Industry Research — Mar 2023 – Aug 2023

Columbia University, New York, NY, United States
Head Teaching Assistant, COMS W3203, Discrete Mathematics, Prof. Tony Dear — Fall 2022
Teaching Assistant, COMS W4701, Artificial Intelligence, Prof. Tony Dear — Spring, Summer 2022

Bedrock Industries, Shanghai, China
Data Analyst Intern — Dec 2019

CITIC Securities, Beijing, China
Investment Banking Intern, Health Services Group — Aug 2018 – Sep 2018

PUBLICATIONS

[1] Yizhen Luo*, **Xing Yi Liu***, Kai Yang, Kui Huang, Massimo Hong, Jiahuan Zhang, Yushuai Wu, and Zaiqing Nie. "Towards Unified AI Drug Discovery with Multiple Knowledge Modalities." arXiv, October 2023.

[2] Yizhen Luo, Kai Yang, Massimo Hong, **Xing Yi Liu**, and Zaiqing Nie. "MolFM: A Multimodal Molecular Foundation Model." arXiv, June 2023.

[3] **Xing Yi Liu** and Homayoon Beigi. "Efficient Ensemble Architecture for Multimodal Acoustic and Textual Embeddings in Punctuation Restoration Using Time-Delay Neural Networks." Recognition Technologies, February 2023.

[4] Anqi Cui, Guangyu Feng, Borui Ye, Kun Xiong, **Xing Yi Liu**, and Ming Li. "UWNLP at the NTCIR-12 Short Text Conversation Task." Proceedings of the 12th NTCIR Conference on Evaluation of Information Access Technologies (NTCIR-12), June 2016.

OTHER RESEARCH

OpenBioMed — Aug 2023
Yizhen Luo, Kai Yang, Massimo Hong, **Xing Yi Liu**, Suyuan Zhao, Jiahuan Zhang, Yushuai Wu, and Zaiqing Nie.
- Deep learning framework for biomedical research: https://github.com/PharMolix/OpenBioMed
- Supports 3 modalities for molecules, 10 downstream tasks, 20+ models, and 20+ datasets

Peptide Quantification — Jul 2022 – Mar 2023
Supervisor: Prof. Ming Li, University of Waterloo
- Determining relative abundance of specific peptides in biological samples using machine learning
- Aggregating varying peptide amounts detected in different replicates of the same dilution sample
- Adopting PointIso for peptide feature detection from liquid chromatography mass spectrometry maps

Improving the Efficiency of Multimodal Punctuation Restoration — Mar 2023 – Current
Supervisor: Prof. Homayoon Beigi, Columbia University
- Extending our work in publication [3] by performing ablation studies and further shrinking model size
- Experimenting with linear discriminant analysis for dimensionality reduction of multimodal features
- Studying the effect of jointly training multimodal fusion layers with acoustic and/or text encoders

AWARDS **Andrew P. Kosoresow Memorial Award for Excellence in Teaching and Service** Apr 2023
Awarded at Columbia University for teaching assistantship, nominated by Prof. Tony Dear

SERVICE President, UCLA Undergraduate Mathematics Students Association Mar 2020 – Mar 2021