**CHENYU (MONICA) WANG**

<https://chenyuwang-monica.github.io> | wangchy@mit.edu | (+1)617-902-8630

MIT Stata Center, 32 Vassar St. G418, Cambridge MA 02139

**EDUCATION BACKGROUND**

**Massachusetts Institute of Technology Cambridge, MA**

*Ph.D. Student in Electrical Engineering and Computer Science (EECS)* | GPA 5.0/5.0 Aug. 2022-present

Advised by Prof. Tommi Jaakkola

**Tsinghua University Beijing, China**

*Bachelor of Economics, Minor in Data Science and Technology* | GPA 3.99/4.0 (Ranking 1/192) Sep. 2018-Jun. 2022

Advised by Prof. Mingsheng Long, Prof. Mengdi Wang, and Prof. Cyrus Shahabi

**University of California, Berkeley Berkeley, CA**

*Exchange Student, Department of Statistics (Instructed by Prof. Noureddine El Karoui)* | GPA 4.0/4.0 Jan. 2021-Jun. 2021

**RESEARCH INTERESTS**

My research interests lie broadly in machine learning, representation learning, generative models, and AI for science. Recently my research focuses on multi-modal representation learning, diffusion generative models, and controlled generation, with applications to biology and drug discovery.

**PUBLICATIONS & PREPRINTS**

*(\*: Equal Contribution)* [Google Scholar](https://scholar.google.com/citations?user=Kq0dhLAAAAAJ&hl)

·**Chenyu Wang**\*, Masatoshi Uehara\*, Yichun He, Amy Wang, Tommaso Biancalani, Avantika Lal, Tommi Jaakkola, Sergey Levine, Hanchen Wang, Aviv Regev. Fine-Tuning Discrete Diffusion Models via Reward Optimization with Applications to DNA and Protein Design. In *NeurIPS 2024 Workshop on Machine Learning in Structural Biology*. [[link](https://arxiv.org/abs/2410.13643)]

·**Chenyu Wang**\*, Sharut Gupta\*, Xinyi Zhang, Sana Tonekaboni, Stefanie Jegelka, Tommi Jaakkola, Caroline Uhler. An Information Criterion for Controlled Disentanglement of Multimodal Data. In *NeurIPS 2024 Workshop on Unifying Representations in Neural Models*. **(Honorable Mention Award)** [[link](http://arxiv.org/abs/2410.23996)]

·Xiner Li, Yulai Zhao, **Chenyu Wang**, Gabriele Scalia, Gokcen Eraslan, Surag Nair, Tommaso Biancalani, Aviv Regev, Sergey Levine, Masatoshi Uehara. Derivative-Free Guidance in Continuous and Discrete Diffusion Models with Soft Value-Based Decoding. In *NeurIPS 2024 Workshop on AI for New Drug Modalities*. [[link](https://arxiv.org/abs/2408.08252)]

·Sharut Gupta\*, **Chenyu Wang**\*, Yifei Wang\*, Tommi Jaakkola, Stefanie Jegelka. In-Context Symmetries: Self-Supervised Learning through Contextual World Models. In *Advances in Neural Information Processing Systems,* ***NeurIPS 2024***. [[link](https://arxiv.org/abs/2405.18193)]

·Hannes Stark\*, Bowen Jing\*, **Chenyu Wang**, Gabriele Corso, Bonnie Berger, Regina Barzilay, Tommi Jaakkola. Dirichlet Flow Matching with Applications to DNA Sequence Design. In *International Conference on Machine Learning****, ICML 2024****.* [[link](https://arxiv.org/abs/2402.05841)]

·**Chenyu Wang**, Sharut Gupta, Caroline Uhler, Tommi S. Jaakkola. Removing Biases from Molecular Representations via Information Maximization. In *International Conference on Learning Representations,* ***ICLR 2024***. [[link](https://arxiv.org/abs/2312.00718)]

·**Chenyu Wang**\*, Joseph Kim\*, Le Cong, Mengdi Wang. Neural Bandits for Protein Sequence Optimization. In *56th Annual Conference on Information Sciences and Systems,* ***CISS 2022***. [[link](https://chenyuwang-monica.github.io/protein_design.pdf)]

·**Chenyu Wang**\*, Zongyu Lin\*, Xiaochen Yang, Jiao Sun, Mingxuan Yue, Cyrus Shahabi. HAGEN: Homophily-Aware Graph Convolutional Recurrent Network for Crime Forecasting. In *AAAI Conference on Artificial Intelligence,* ***AAAI 2022***. **(Oral Presentation.)** [[link](https://ojs.aaai.org/index.php/AAAI/article/view/20338)]

·Yang Shu\*, Zhangjie Cao\*, **Chenyu Wang**, Jianmin Wang, Mingsheng Long. Open Domain Generalization with Domain-augmented Meta-learning. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition,* ***CVPR 2021***. [[link](https://openaccess.thecvf.com/content/CVPR2021/papers/Shu_Open_Domain_Generalization_with_Domain-Augmented_Meta-Learning_CVPR_2021_paper.pdf)]

**RESEARCH EXPERIENCE**

**Representation Learning and Generative Models with Applications to Biology Cambridge, MA**

*Advised by Prof. Tommi Jaakkola, MIT EECS*  Aug. 2022-present

**Tree-Based Neural Bandits for High-Value Protein Design Princeton, NJ**

*Advised by Prof. Mengdi Wang, Department of Electrical Engineering, Princeton University*  Jun. 2021-Dec. 2021

**Homophily-Aware Graph Convolutional Recurrent Network for Crime Forecasting Los Angeles, CA**

*Advised by Prof. Cyrus Shahabi, Department of Computer Science, USC*  Jan. 2021-Jun. 2021

**Open Domain Generalization with Domain-Augmented Meta-Learning Beijing, China**

*Advised by Prof. Mingsheng Long, School of Software, Tsinghua University* Sept. 2020-Nov. 2020

**Understanding Chinese Bond Yield Curve: Excess Return Prediction Beijing, China**

*Advised by Prof. Hao Wang, SEM, Tsinghua* Jun. 2020-Aug. 2020

**HONORS & AWARDS**

·**MIT EECS Great Educators Fellowship**, 2022

**·Outstanding Undergraduate in Tsinghua** (2% in Tsinghua), 2022

·Outstanding Undergraduate in Beijing, 2022

·**Chen Daisun Schorlarship** (3 in Tsinghua SEM), 2022

·Undergraduate Commencement Student Speaker of Tsinghua SEM, 2022

·Meritorious Winner in MCM/ICM Mathematical Contest in Modelling, 2021

·Chen Xiaoyue Scholarship, 2021

·Tang Lixin Scholarship (50 in Tsinghua), 2020

·**National Scholarship** (0.2% in China), 2019

·Athletics Excellence Scholarship of Tsinghua, 2019

·First Class Scholarship for Freshmen of Tsinghua, 2018

·**Gold medalist of 50th International Chemistry Olympiad** (4 in China, 6th place in the world), 2018

·Silver medalist of 15th China Girl’s Mathematical Olympiad (50 in China), 2016

**WORK EXPERIENCE**

**Genentech South San Francisco**

*Research Intern in Dr. Aviv Regev’s Lab*  May 2024-Aug. 2024

**Jane Street Asia Limited Hong Kong**

*Quantitative Trading Intern* (Return offer extended) Jun. 2021-Sept. 2021

**WizardQuant Capital Management Zhuhai, China**

*Quantitative Research Intern, Quantitative Research Department* Jun. 2020-Aug. 2020

**Techsharpe Quant Capital Management Beijing, China**

*Data Analyst Intern, Trading Department* Jan. 2020-Feb. 2020

**SERVICES**

·Reviewer: ICLR 2025, NeurIPS 2024, PLOS Computational Biology, ICML 2024/ICLR 2024/NeurIPS 2024 workshops

**LEADERSHIP & ACTIVITIES**

·Team Leader, Meritorious Winner in 2021 MCM/ICM Mathematical Contest in Modelling. Feb. 2021

·Co-president, Banking & Investment Mentor Program (A 10-year global non-profit organization). Feb. 2021-Feb. 2022

·Director of Department of Sports, Student Union of Tsinghua SEM. Mar. 2019-Sept. 2020

**SKILLS & INTERESTS**

**·Languages:** English (Proficient; TOEFL: 110/120); Mandarin (Native)

**·Technical Skills:** Python/C++/Matlab; Deep learning framework: PyTorch, Tensorflow; Basic knowledge of SQL and Linux.

**·Interests:** Sports (1st place in 4\*400m; member of SEM basketball and soccer team), Chinese Zither (Amateur Certificate 9)