HAN LIN

CONTACT

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INTERESTS

Multimodal understanding and generation, diffusion models, LLMs
Theory-grounded algorithms for efficient Transformers

EDUCATION

University of North Carolina at Chapel Hill   2023 - Exp. 2028
Ph.D. in Computer Science

- MURGe-Lab. Advised by Prof. Mohit Bansal

Columbia University   2021 - 2023
M.S. in Computer Science (Machine Learning Track)

- DVMM Lab. Advised by Prof. Shih-Fu Chang
- ROAM Lab. Advised by Prof. Matei Ciocarlie and Prof. Shuran Song

Relevant Courses: Learning Theory, Algorithms, Machine Learning, Unsupervised Learning, Bandits & Reinforcement Learning, Causal Inference, Computer Vision, Robotics Learning

Columbia University   2018 - 2020
M.S. in Financial Engineering
Relevant Courses: Optimization, Combinatorial Optimization, Stochastic Models, Stochastic Calculus, Monte Carlo Methods, Statistical Inference, Bayesian Statistics, Graphical Models

Central University of Finance and Economics   2014 - 2018
B.S. in Financial Engineering
Relevant Courses: Linear Algebra, Mathematical Analysis, Probability, Statistics, Real Analysis, Numerical Methods, Stochastic Process, Differential Equations

PREPRINTS

1. **Exploring MLLM-Diffusion Information Transfer with MetaCanvas** [arxiv |project page]
Han Lin, Xichen Pan, Ziqi Huang, Ji Hou, Jialiang Wang, Weifeng Chen, Zecheng He, Felix Junfei-Xu, Junzhe Sun, Zhipeng Fan, Ali Thabet, Jaemin Cho, Mohit Bansal, Chu Wang

2. **EPiC: Efficient Video Camera Control Learning with Precise Anchor-Video Guidance** [arxiv|project page]
Zun Wang, Jaemin Cho, Jialu Li, **Han Lin**, Jaehong Yoon, Yue Zhang, Mohit Bansal

3. **Error-Driven Scene Editing for 3D Grounding in Large Language Models** [arxiv|github]
Yue Zhang, Zun Wang, **Han Lin**, Jialu Li, Jianing Yang, Yonatan Bitton, Idan Szpektor, Mohit Bansal

PUBLICATIONS

1. **DreamRunner: Fine-Grained Storytelling Video Generation with Retrieval-Augmented Motion Adaptation** [arxiv|project page]
Zun Wang, Jialu Li, **Han Lin**, Jaehong Yoon, Mohit Bansal
In AAAI Conference on Artificial Intelligence (**AAAI**) 2024

2. **Bifrost-1: Bridging Multimodal LLMs and Diffusion Models with Patch-level CLIP Latents** [arxiv|project page]
Han Lin, Jaemin Cho, Amir Zadeh, Chuan Li, Mohit Bansal
In Advances in Neural Information Processing Systems (**NeurIPS**), 2025

3. **Ctrl-Adapter: An Efficient and Versatile Framework for Adapting Diverse Controls to Any Diffusion Model** [arxiv|project page]
Han Lin*, Jaemin Cho*, Abhay Zala, Mohit Bansal
In International Conference on Learning Representations (**ICLR Oral**), 2025

4. **VEDiT: Latent Prediction Architecture For Procedural Video Representation Learning** [arxiv]
Han Lin, Tushar Nagarajan, Nicolas Ballas, Mido Assran, Mojtaba Komeili, Mohit Bansal, Koustuv Sinha
In International Conference on Learning Representations (**ICLR**), 2025

5. **Fast Tree-Field Integrators: From Low Displacement Rank to Topological Transformers** [arxiv]
Krzysztof Choromanski, Arijit Sehanobish, Somnath Basu Roy Chowdhury, **Han Lin**, Avinava Dubey, Tamas Sarlos, Snigdha Chaturvedi
In Advances in Neural Information Processing Systems (**NeurIPS**), 2024

6. **VideoDirectorGPT: Consistent Multi-scene Video Generation via LLM-Guided Planning** [arxiv|project page]
Han Lin, Abhay Zala, Jaemin Cho, Mohit Bansal
In Conference on Language Modeling (**COLM**), 2024

7. **EnvGen: Generating and Adapting Environments via LLMs for Training Embodied Agents** [arxiv|project page]
Abhay Zala*, Jaemin Cho*, **Han Lin**, Jaehong Yoon, Mohit Bansal
In Conference on Language Modeling (**COLM**), 2024

8. **DiagrammerGPT: Generating Open-Domain, Open-Platform Diagrams via LLM Planning** [arxiv|project page]
Abhay Zala, **Han Lin**, Jaemin Cho, Mohit Bansal
In Conference on Language Modeling (**COLM**), 2024

9. **Efficient Graph Field Integrators Meet Point Clouds** [arxiv|github]
Krzysztof Choromanski*, Arijit Sehanobish*, **Han Lin***, Yunfan Zhao*, Eli Berger, Alvin Pan, Tetiana Parshakova, Tianyi Zhang, David Watkins, Valerii Likhosherstov, Somnath Basu Roy Chowdhury, Avinava Dubey, Deepali Jain, Tamas Sarlos, Snigdha Chaturvedi, Adrian Weller
In International Conference on Machine Learning (**ICML**), 2023

10. **Supervised Masked Knowledge Distillation for Few-Shot Transformers** [arxiv|github]
Han Lin*, Guangxing Han*, Jiawei Ma, Shiyuan Huang, Xudong Lin, Shih-Fu Chang
In Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023

11. **Active Tactile Exploration for 3D Object Recognition** [arxiv|project page]
Jingxi Xu*, **Han Lin***, Shuran Song, Matei Ciocarlie
In IEEE International Conference on Robotics and Automation (**ICRA**), 2023

12. **From block-Toeplitz matrices to differential equations on graphs: towards a general theory for scalable masked Transformers** [arxiv|github]
Krzysztof Choromanski*, **Han Lin***, Haoxian Chen*, Tianyi Zhang, Arijit Sehanobish, Valerii Likhosherstov, Jack Parker-Holder, Tamas Sarlos, Adrian Weller, Thomas Weingarten
In International Conference on Machine Learning (**ICML**), 2022

13. **Hybrid Random Features** [arxiv|github]
Krzysztof Choromanski*, **Han Lin***, Haoxian Chen*, Yuanzhe Ma*, Arijit Sehanobish*, Deepali Jain, Michael Ryoo, Jake Varley, Andy Zeng, Valerii Likhosherstov, Dmitry

Kalashnikov, Vikas Sindhwani, Adrian Weller

In International Conference on Learning Representations **(ICLR)**, 2022

14. **Demystifying Orthogonal Monte Carlo and Beyond**   [arxiv|github]

Han Lin*, Haoxian Chen*, Tianyi Zhang, Clement Laroche, Krzysztof Choromanski

In Advances in Neural Information Processing Systems **(NeurIPS)**, 2020

* Co-First Authors, Equal Contribution

RESEARCH EXPERIENCE	**Meta MSL (Media Generation Team)**	2025.5 - now

Research Scientist Intern
Advised by: Chu Wang, Ji Hou, Jialiang Wang, Weifeng Chen, Zecheng He, Felix Xu, Junzhe Sun, Zhipeng Fan, Ali Thabet
- Exploring VLM-Diffusion Information Transfer with MetaCanvas (under review)

Meta FAIR Lab (JEPA Team)   2024.5 - 2024.12
Research Scientist Intern
Advised by: Koustuv Sinha, Tushar Nagarajan, Nicolas Ballas, Mido Assran, Mojtaba Komeili
- VEDiT: Latent prediction architecture For procedural video representation learning (ICLR 2025)

UNC MURGe-Lab   2023 - now
Research Assistant, Advised by Prof. Mohit Bansal
- Text-to-video generation, multimodal learning, and LLMs

DVMM Lab   2022 - 2023
Research Assistant, Advised by Prof. Shih-Fu Chang and Guangxing Han
- Supervised masked knowledge distillation for few-shot Transformers

ROAM Lab   2022 - 2023
Research Assistant, Advised by Prof. Matei Ciocarlie and Prof. Shuran Song
- Active tactile exploration for 3D object recognition

Columbia University   2019 - 2023
Research Collaboration with Prof. Krzysztof Choromanski
- Efficient Transformers, GNNs, random features for kernel estimation

Cornell, Maryland, Max Planck Pre-doctoral Research School   2022

INDUSTRY EXPERIENCE	**China Merchant Securities**	2020 - 2021

Option Market Making Quant Trader, Full Time
- Commodity options and futures trading and daily P&L attribution

TEACHING EXPERIENCE	COMS 4231 Analysis of Algorithms	Fall 2022
	COMS 4732 Computer Vision II: Learning	Spring 2022
	COMS 4721 Machine Learning for Data Science	Spring 2022
	QMSS 5073 Machine Learning for Social Science	Fall 2021
	IEOR 4007 Optimization Models & Methods for FE	Fall 2019
	IEOR 4418 Transportation Analytics & Logistics	Spring 2019

SKILLS	Python, C/C++, MATLAB, R, MySQL, LaTeX
	PyTorch, TensorFlow, Large-Scale TPU/GPU Training

SERVICES	**Reviewer:** ICLR 2024-2025, ICML 2022-2025, NeurIPS 2022-2025, CVPR 2025-2026, ICCV 2025
	Conference Volunteer: Robotics: Science and Systems (RSS) 2022