

HAN LIN

CONTACT

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INTERESTS

Diffusion models, self-supervised learning, multimodal learning, LLMs
Theory-grounded algorithms for efficient machine learning

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. **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, 2024

PUBLICATIONS

1. **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

2. **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

3. **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

4. **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

5. **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 Likhoshesterov,
 Somnath Basu Roy Chowdhury, Avinava Dubey, Deepali Jain, Tamas Sarlos, Snigdha
 Chaturvedi, Adrian Weller
 In International Conference on Machine Learning (**ICML**), 2023
6. **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
7. **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
8. **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 Likhoshesterov, Jack Parker-Holder, Tamas Sarlos, Adrian Weller, Thomas Wein-
 garten
 In International Conference on Machine Learning (**ICML**), 2022
9. **Hybrid Random Features** [\[arxiv\]](#) [\[github\]](#)
 Krzysztof Choromanski*, **Han Lin***, Haoxian Chen*, Yuanzhe Ma*, Arijit Sehanobish*,
 Deepali Jain, Michael Ryoo, Jake Varley, Andy Zeng, Valerii Likhoshesterov, Dmitry
 Kalashnikov, Vikas Sindhwani, Adrian Weller
 In International Conference on Learning Representations (**ICLR**), 2022
10. **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 FAIR Lab | 2024.5 - 2024.12 |
| <i>Research Scientist Intern</i> | |
| <i>Advised by: Koustuv Sinha, Tushar Nagarajan, Nicolas Ballas, Mido Assran, Mojtaba Komeili</i> | |
| <ul style="list-style-type: none"> Self-supervised learning from instructional videos, procedural learning | |
| UNC MURGe-Lab | 2023 - now |
| <i>Research Assistant, Advised by Prof. Mohit Bansal</i> | |
| <ul style="list-style-type: none"> Text-to-video generation, multimodal learning, and LLMs | |
| DVMM Lab | 2022 - 2023 |
| <i>Research Assistant, Advised by Prof. Shih-Fu Chang and Guangxing Han</i> | |
| <ul style="list-style-type: none"> Supervised masked knowledge distillation for few-shot Transformers | |
| ROAM Lab | 2022 - 2023 |
| <i>Research Assistant, Advised by Prof. Matei Ciocarlie and Prof. Shuran Song</i> | |
| <ul style="list-style-type: none"> Active tactile exploration for 3D object recognition | |
| Columbia University | 2019 - 2023 |
| <i>Research Collaboration with Prof. Krzysztof Choromanski</i> | |
| <ul style="list-style-type: none"> Efficient Transformers, GNNs, random features for kernel estimation | |
| Cornell, Maryland, Max Planck Pre-doctoral Research School | 2022 |

INDUSTRY EXPERIENCE	China Merchant Securities <i>Option Market Making Quant Trader, Full Time</i> <ul style="list-style-type: none"> Commodity options and futures trading and daily P&L attribution 	2020 - 2021
TEACHING EXPERIENCE	COMS 4231 Analysis of Algorithms COMS 4732 Computer Vision II: Learning COMS 4721 Machine Learning for Data Science QMSS 5073 Machine Learning for Social Science IEOR 4007 Optimization Models & Methods for FE IEOR 4418 Transportation Analytics & Logistics	Fall 2022 Spring 2022 Spring 2022 Fall 2021 Fall 2019 Spring 2019
SKILLS	Python, C/C++, MATLAB, R, MySQL, \LaTeX PyTorch, TensorFlow, Keras, Scikit-learn	
SERVICES	Reviewer: ICLR 2024/2025, ICML 2022/2023/2024, NeurIPS 2022/2023/2024 Conference Volunteer: Robotics: Science and Systems (RSS) 2022	