

# HENRY LI

hnry.li

## EDUCATION

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### Yale University

MS 2021, PhD (est.) 2025

Advisors: Ronald Coifman and Yuval Kluger

Department of Applied Mathematics, Specialization: generative models (w/ focus on denoising diffusion models).

### Yale University

Departments of Computer Science and Mathematics

## EXPERIENCE

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### Google Deepmind

2025

*Student Researcher*

- Building large-scale multimodal audio / language models for blind source separation on the sound understanding team, leveraging ideas from deep learning-based approaches to inverse problems. Mentor: John Hershey.

### TikTok / ByteDance

2024

*Research Intern*

- Designed a diffusion-based multimodal image / language model on the AI Seed-Vision Team. Acquired large-scale datasets (100M+ images / text) and trained diffusion models for simultaneous text-to-image, image-to-text, and visual understanding. Results submitted to CVPR 2025. Mentors: Heng Wang, Peng Wang, and Linjie Yang.

### Elucid

2024

*Research Intern*

- Fine-tuned multimodal foundation models to aid in the diagnosis of arterial atherosclerosis. Trained large diffusion models to fine-tune LLMs to improve visual language modeling with CT arterial models.

### Bosch Center for Artificial Intelligence

2023

*Research Intern*

- Developed a control-theoretic approach to solving inverse problems with score-based diffusion models. Presented results at NeurIPS 2024. Mentor: Marcus Pereira.

### Center for Computational Mathematics at the Flatiron Institute

2020

*Research Intern*

- Investigated deep image prior-based techniques for enhancing phase retrieval in low-photon settings at the Center for Computational Mathematics (CCM) at Flatiron Institute. Published results at MSML 2021.

### Amazon Lab126

2016

*Software Engineering Intern*

- Developed an experimental app prediction algorithm for pre-emptively loading apps to reduce user-perceived latency on Amazon FireOS (their tablet and smartphone operating system) that halved memory usage and run-time compared to the pre-existing implementation.

## PUBLICATIONS

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**Measurement Consistent Tweedies: Solving Inverse Problems with the Conditional Posterior Mean** Henry Li\*, Jonathan Patsenker\*, Myeongseob Ko, Ruoxi Jia, Yuval Kluger, *In Submission* 2025.

**Dual Diffusion for Unified Image Generation and Understanding** Zijie Li\*, Henry Li\*, Amir Barati Farimani, Yuval Kluger, Linjie Yang, Peng Wang, *CVPR* 2025.

**Solving Inverse Problems via Diffusion Optimal Control** Henry Li, Marcus Pereira, *Neural Information Processing Systems (NeurIPS)* 2024.

**Boosting Alignment for Post-Unlearning Text-to-Image Generative Models** Myeongseob Ko\*, Henry Li\*, Zhun Wang, Jonathan Patsenker, Jiachen T. Wang, Qinbin Li, Ming Jin, Dawn Song, Ruoxi Jia, *Neural Information Processing Systems (NeurIPS)* 2024.

**Likelihood Training of Cascaded Diffusion Models via Hierarchical Volume-preserving Maps** Henry Li, Ronen Basri, Yuval Kluger, *International Conference on Learning Representations (ICLR)* 2024 (**Spotlight – 5%**).

**Exponential weight averaging as damped harmonic motion** Jon Patsenker\*, Henry Li\*, Yuval Kluger, *ICML Workshop on New Frontiers in Learning, Control, and Dynamical Systems* 2023.

**Non-normal Diffusion Models** Henry Li, *ICML Workshop on Structured Probabilistic Inference & Generative Modeling* 2023.

**Support recovery with stochastic gates: Theory and application for linear models** Soham Jana, Henry Li, Yutaro Yamada, Ofir Lindenbaum, *IEEE Letters in Signal Processing* 2023.

**Noise-conditional Maximum Likelihood Estimation with Score-based Sampling** Henry Li, Yuval Kluger, *NeurIPS Workshop on Score-Based Methods* 2022.

**Neural Inverse Transform Sampler** Henry Li, Yuval Kluger, *International Conference on Machine Learning (ICML)* 2022.

**Phase retrieval with holography and untrained priors: Tackling the challenges of low-photon nanoscale imaging** Hannah Lawrence, David Barmherzig, Henry Li, Michael Eickenberg, Marylou Gabrie, *Mathematical and Scientific Machine Learning (MSML)* 2021.

**Detection of differentially abundant cell subpopulations in scRNA-seq data** Jun Zhao, Ariel Jaffe, Henry Li, Ofir Lindenbaum, Xiuyuan Cheng, Richard Flavell, Yuval Kluger, *Proceedings of the National Academy of Sciences (PNAS)* 2020.

### **Variational Diffusion Autoencoders with Random Walk Sampling**

Henry Li\*, Ofir Lindenbaum\*, Xiuyuan Cheng, Alexander Cloninger, *European Conference on Computer Vision (ECCV)* 2020.

### **SpectralNet: Spectral Clustering Using Deep Neural Networks**

Uri Shaham\*, Kelly Stanton\*, Henry Li\*, Boaz Nadler, Ronen Basri, and Yuval Kluger, *International Conference on Learning Representations (ICLR)* 2018.

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## SERVICE

### **Reviewing**

ICML [2024, 2023, **2022 Outstanding Reviewer (top ~10%)**], NeurIPS [2024, 2023, 2022, 2021], ICLR [2025, 2024, 2023, 2022], Nature (Biotechnology, Methods), TMLR [2024, 2023]