MICAH GOLDBLUM

micah.g@columbia.edu, goldblum.github.io

EMPLOYMENT

Columbia University, Department of Electrical Engineering Assistant Professor	July 2024 - Present
New York University Postdoctoral Researcher (Advised by Professors Yann LeCun and Andrew Gord	September 2021 - June 2024 lon Wilson)
EDUCATION	
University of Maryland Ph.D. in Mathematics	September 2014 - May 2020
University of Maryland B.Sc. in Mathematics	September 2010 - May 2014
SELECTED HONORS AND AWARDS	
Blavatnik Awards for Young Scientists Finalist NYU Postdoctoral Research and Professional Development Support of ICML Outstanding Paper Award Seymour Goldberg Gold Medal - Spotlight on Graduate Student Rese University of Maryland Dean's Fellowship Phi Beta Kappa	2022
SELECTED PREPRINTS	
A Cookbook of Self-Supervised Learning Randall Balestriero, Mark Ibrahim,, Hamed Pirsiavash, Yann LeCun, Mical	h Goldblum
Commercial LLM Agents Are Already Vulnerable to Simple Yet Dan, Ang Li, Yin Zhou, Vethavikashini Chithrra Raghuram, Tom Goldstein, Micah	_
Zebra-CoT: A Dataset for Interleaved Vision-Language Reasoning Ang Li, Charles L. Wang, Kaiyu Yue, Zikui Cai, Ollie Liu, Deqing Fu,, Mica	ah Goldblum
Transformers boost the performance of decision trees on tabular data Mayuka Jayawardhana, Samuel Dooley, Valeriia Cherepanova, Andrew Gordon Frank Hutter, Colin White, Tom Goldstein, Micah Goldblum	-
PUBLICATIONS	
Small Batch Size Training for Language Models: When Vanilla SGD and Why Gradient Accumulation Is Wasteful Martin Marek, Sanae Lotfi, Aditya Somasundaram, Andrew Gordon Wilson, M Advances in Neural Information Processing Systems (NeurIPS) 2025	2025
Gemstones: A Model Suite for Scaling Laws Sean Michael McLeish, John Kirchenbauer, David Yu Miller, Siddharth Singh, A Micah Goldblum, Ashwinee Panda, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2025	2025 Abhinav Bhatele,
Brain-Predictive Reasoning Embedding through Residual Disentangle Linyang He, Tianjun Zhong, Richard Antonello, Gavin Mischler, Micah Goldb Advances in Neural Information Processing Systems (NeurIPS) 2025	
FineGRAIN: Evaluating Failure Modes of Text-to-Image Models with Vision Language Model Judges Kevin David Hayes, Micah Goldblum, Vikash Sehwag, Gowthami Somepalli, Ashwinee Panda, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2025	2025
LiveBench: A Challenging, Contamination-Free LLM Benchmark Colin White, Samuel Dooley, Manley Roberts, Arka Pal, Benjamin Feuer,, Yann LeCun, Tom Goldstein, Willie Neiswanger, Micah Goldblum International Conference on Learning Representations (ICLR), 2025	2025

International Conference on Learning Representations (ICLR) 2025

Style Outweighs Substance: Failure Modes of LLM Judges in Alignment Benchmarking Benjamin Feuer, Micah Goldblum, Teresa Datta, Sanjana Nambiar, Raz Besaleli, Samuel Dooley, Max Cembalest, John P Dickerson International Conference on Learning Representations (ICLR) 2025	2025
Adaptive Rentention & Correction for Continual Learning Haoran Chen, Micah Goldblum, Zuxuan Wu, Yu-Gang Jiang International Conference on Learning Representations (ICLR) 2025	2025
Hidden No More: Attacking and Defending Private Third-Party LLM Inference Arka Pal, Rahul Krishna Thomas, Louai Zahran, Erica Choi, Akilesh Potti, Micah Goldblum International Conference on Machine Learning (ICML) 2025	2025
Kolmogorov Complexity, the No Free Lunch Theorem, and the Role of Inductive Biases in Machine Learning Micah Goldblum, Marc Anton Finzi, Keefer Rowan, Andrew Gordon Wilson International Conference on Machine Learning (ICML) 2024	2024
Spotting LLMs With Binoculars: Zero-Shot Detection of Machine-Generated Text Abhimanyu Hans, Avi Schwarzschild, Valeriia Cherepanova, Hamid Kazemi, Aniruddha Saha, Micah Goldblum, Jonas Geiping, Tom Goldstein International Conference on Machine Learning (ICML) 2024	2024
Non-vacuous generalization bounds for large language models Sanae Lotfi, Marc Finzi, Yilun Kuang, Tim GJ Rudner, Micah Goldblum, Andrew Gordon Wilson International Conference on Machine Learning (ICML) 2024	2024
Large Language Models Must Be Taught to Know What They Dont Know Sanyam Kapoor, Nate Gruver, Manley Roberts, Arka Pal, Samuel Dooley, Katherine Collins, Umang Bhatt, Adrian Weller, Micah Goldblum, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2024	2024
TuneTables: Context Optimization for Scalable Prior-Data Fitted Networks Benjamin Feuer, Robin Tibor Schirrmeister, Valeriia Cherepanova, Chinmay Hegde, Frank Hutter, Micah Goldblum, Niv Cohen, Colin White Advances in Neural Information Processing Systems (NeurIPS) 2024	2024
Unlocking Tokens as Data Points for Generalization Bounds on Larger Language Models Sanae Lotfi, Yilun Kuang, Marc Anton Finzi, Brandon Amos, Micah Goldblum, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2024	2024
Searching for Efficient Linear Layers over a Continuous Space of Structured Matrices Andres Potapczynski, Shikai Qiu, Marc Anton Finzi, Christopher Ferri, Zixi Chen, Micah Goldblum, C. Bayan Bruss, Christopher De Sa, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2024	2024
Compute Better Spent: Replacing Dense Layers with Structured Matrices Shikai Qiu, Andres Potapczynski, Marc Anton Finzi, Micah Goldblum, Andrew Gordon Wilson International Conference on Machine Learning (ICML) 2024	2024
Measuring Style Similarity in Diffusion Models Gowthami Somepalli, Anubhav Gupta, Kamal Gupta, Shramay Palta, Micah Goldblum, Jonas Geiping, Abhinav Shrivastava, Tom Goldstein European Conference on Computer Vision (ECCV) 2024	2024
On the Reliability of Watermarks for Large Language Models John Kirchenbauer, Jonas Geiping, Yuxin Wen, Manli Shu, Khalid Saifullah, Kezhi Kong, Kasun Fernando, Aniruddha Saha, Micah Goldblum, Tom Goldstein	2024
International Conference on Learning Representations (ICLR) 2024 Universal guidance for diffusion models Arpit Bansal, Hong-Min Chu, Avi Schwarzschild,	2024

Soumyadip Sengupta, Micah Goldblum , Jonas Geiping, Tom Goldstein International Conference on Learning Representations (ICLR) 2024	
NEFTune: Noisy Embeddings Improve Instruction Finetuning Neel Jain, Ping-yeh Chiang, Yuxin Wen, John Kirchenbauer, Hong-Min Chu, Gowthami Somepalli, Brian R Bartoldson, Bhavya Kailkhura, Avi Schwarzschild, Aniruddha Saha, Micah Goldblum, Jonas Geiping, Tom Goldstein International Conference on Learning Representations (ICLR) 2024	2024
Battle of the Backbones: A Large-Scale Comparison of Pretrained Models across Computer Vision Tasks Micah Goldblum, Hossein Souri, Renkun Ni, Manli Shu, Viraj Uday Prabhu, Gowthami Somepalli, Prithvijit Chattopadhyay, Adrien Bardes, Mark Ibrahim, Judy Hoffman, Rama Chellappa, Andrew Gordon Wilson, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
Rethinking Bias Mitigation: Fairer Architectures Make for Fairer Face Recognition Samuel Dooley, Rhea Sukthanker, John P Dickerson, Colin White, Frank Hutter, Micah Goldblum Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
Transfer Learning with Deep Tabular Models Roman Levin, Valeriia Cherepanova, Avi Schwarzschild, Arpit Bansal, C. Bayan Bruss, Tom Goldstein, Andrew Gordon Wilson, Micah Goldblum International Conference on Learning Representations (ICLR) 2023	2023
Simplifying Neural Network Training Under Class Imbalance Ravid Shwartz-Ziv*, Micah Goldblum*, Yucen Lily Li, C. Bayan Bruss, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
A Performance-Driven Benchmark for Feature Selection in Tabular Deep Learning Valeriia Cherepanova, Gowthami Somepalli, Jonas Geiping, C. Bayan Bruss, Andrew Gordon Wilson, Tom Goldstein, Micah Goldblum Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
Gradient-based optimization is not necessary for generalization in neural networks Ping-yeh Chiang, Renkun Ni, David Yu Miller, Arpit Bansal, Jonas Geiping, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2023	2023
Cold Diffusion: Inverting Arbitrary Image Transforms Without Noise Arpit Bansal, Eitan Borgnia, Hong-Min Chu, Jie S. Li, Hamid Kazemi, Furong Huang, Micah Goldblum, Jonas Geiping, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
Why Diffusion Models Memorize and How to Mitigate Copying Gowthami Somepalli, Vasu Singla, Micah Goldblum, Jonas Geiping, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
Hard Prompts Made Easy: Gradient-Based Discrete Optimization for Prompt Tuning and Discovery Yuxin Wen, Neel Jain, John Kirchenbauer, Micah Goldblum, Jonas Geiping, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
When Do Neural Nets Outperform Boosted Trees on Tabular Data? Duncan C. McElfresh, Sujay Khandagale, Jonathan Valverde, Vishak Prasad C, Ganesh Ramakrishnan, Micah Goldblum, Colin White Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
What Can We Learn from Unlearnable Datasets? Pedro Sandoval-Segura, Vasu Singla, Jonas Geiping, Micah Goldblum, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2023	2023
Diffusion Art or Digital Forgery? Investigating Data Replication in Diffusion Models	2023

Gowthami Somepalli, Vasu Singla, Micah Goldblum , Jonas Geiping, Tom Goldstein Computer Vision and Pattern Recognition Conference (CVPR) 2023	
The Lie Derivative for Measuring Learned Equivariance Nate Gruver, Marc Anton Finzi, Micah Goldblum, Andrew Gordon Wilson International Conference on Learning Representations (ICLR) 2023	2023
Exploring and Exploiting Decision Boundary Dynamics for Adversarial Robustness Yuancheng Xu, Yanchao Sun, Micah Goldblum, Tom Goldstein, Furong Huang International Conference on Learning Representations (ICLR) 2023	2023
Canary in a Coalmine: Better Membership Inference with Ensembled Adversarial Queries Yuxin Wen, Arpit Bansal, Hamid Kazemi, Eitan Borgnia, Micah Goldblum, Jonas Geiping, Tom Goldstein International Conference on Learning Representations (ICLR) 2023	2023
Panning for Gold in Federated Learning: Targeted Text Extraction under Arbitrarily Large-Scale Aggregation Hong-Min Chu, Jonas Geiping, Liam Fowl, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2023	2023
How Much Data Are Augmentations Worth? An Investigation into Scaling Laws, Invariance, and Implicit Regularization Jonas Geiping, Micah Goldblum, Gowthami Somepalli, Ravid Shwartz-Ziv, Tom Goldstein, Andrew Gordon Wilson International Conference on Learning Representations (ICLR) 2023	2023
Deceptions: Corrupted Transformers Breach Privacy in Federated Learning for Language Models Liam Fowl, Jonas Geiping, Steven Reich, Yuxin Wen, Wojciech Czaja, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2023	2023
A Deep Dive into Dataset Imbalance and Bias in Face Identification Valeriia Cherepanova, Steven Reich, Samuel Dooley, Hossein Souri, Micah Goldblum, Tom Goldstein Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society (AIES)	2023
Bayesian Model Selection, the Marginal Likelihood, and Generalization Sanae Lotfi, Pavel Izmailov, Gregory Benton, Micah Goldblum, Andrew Gordon Wilson International Conference on Machine Learning (ICML) 2022 (Outstanding Paper Award)	2022
Pre-Train Your Loss: Easy Bayesian Transfer Learning with Informative Priors Ravid Shwartz-Ziv*, Micah Goldblum*, Hossein Souri, Sanyam Kapoor, Chen Zhu, Yann LeCun, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2022	2022
Scalable Algorithm Synthesis with Recurrent Networks: Extrapolation without Overthinking Arpit Bansal, Avi Schwarzschild, Eitan Borgnia, Zeyad Emam, Furong Huang, Micah Goldblum, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2022	2022
PAC-Bayes Compression Bounds So Tight That They Can Explain Generalization Sanae Lotfi, Sanyam Kapoor, Marc Anton Finzi, Andres Potapczynski, Micah Goldblum, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2022	2022
Where do Models go Wrong? Parameter-Space Saliency Maps for Explainability Roman Levin, Manli Shu, Eitan Borgnia, Furong Huang, Micah Goldblum, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2022	2022
Sleeper Agent: Scalable Hidden Trigger Backdoors for Neural Networks Trained from Scratch Hossein Souri, Liam H Fowl, Rama Chellappa, Micah Goldblum, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2022	2022

Chroma-VAE: Mitigating Shortcut Learning with Generative Classifiers Wanqian Yang, Polina Kirichenko, Micah Goldblum, Andrew Gordon Wilson Advances in Neural Information Processing Systems (NeurIPS) 2022	2022
Autoregressive Perturbations for Data Poisoning Pedro Sandoval-Segura, Vasu Singla, Jonas Geiping, Micah Goldblum, Tom Goldstein, David W. Jacobs Advances in Neural Information Processing Systems (NeurIPS) 2022	2022
Fishing for User Data in Large-Batch Federated Learning via Gradient Magnification Yuxin Wen, Jonas Geiping, Liam Fowl, Micah Goldblum, Tom Goldstein International Conference on Machine Learning (ICML) 2022	2022
Plug-In Inversion: Model-Agnostic Inversion for Vision with Data Augmentations Amin Ghiasi, Hamid Kazemi, Steven Reich, Chen Zhu, Micah Goldblum, Tom Goldstein International Conference on Machine Learning (ICML) 2022	2022
Dataset Security for Machine Learning: Data Poisoning, Backdoor Attacks, and Defenses Micah Goldblum, Dimitris Tsipras, Chulin Xie, Xinyun Chen, Avi Schwarzschild, Dawn Song, Aleksander Madry, Bo Li, Tom Goldstein IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2022	2022
Can You Learn the Same Model Twice? Investigating Reproducibility and Double Descent from the Decision Boundary Perspective Gowthami Somepalli, Liam Fowl, Arpit Bansal, Ping Yeh-Chiang, Yehuda Dar, Richard Baraniuk, Micah Goldblum, Tom Goldstein Conference on Computer Vision and Pattern Recognition (CVPR) 2022	2022
Contrastive Learning is Just Meta-Learning Renkun Ni, Manli Shu, Hossein Souri, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2022	2022
Stochastic Training is Not Necessary for Generalization Jonas Geiping, Micah Goldblum, Phil Pope, Michael Moeller, Tom Goldstein International Conference on Learning Representations (ICLR) 2022	2022
Robbing the Fed: Directly Obtaining Private Data in Federated Learning with Modified Models Liam H Fowl, Jonas Geiping, Wojciech Czaja, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2022	2022
The Uncanny Similarity of Recurrence and Depth Avi Schwarzschild, Arjun Gupta, Amin Ghiasi, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2022	2022
Towards Transferable Adversarial Attacks on Vision Transformers Zhipeng Wei, Jingjing Chen, Micah Goldblum, Zuxuan Wu, Tom Goldstein, Yu-Gang Jiang AAAI Conference on Artificial Intelligence (AAAI) 2022	2022
Adversarial Examples Make Strong Poisons Liam Fowl*, Micah Goldblum*, Ping-yeh Chiang, Jonas Geiping, Wojtek Czaja, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2021	2021
Can You Learn an Algorithm? Generalizing from Easy to Hard Problems with Recurrent Networks Avi Schwarzschild, Eitan Borgnia, Arjun Gupta, Furong Huang, Uzi Vishkin, Micah Goldblum, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2021	2021
Prepare for the Worst: Generalizing across Domain Shifts with Adversarial Batch Normalization Manli Shu, Zuxuan Wu, Micah Goldblum, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2021	2021
Adversarial Attacks on Machine Learning Systems for High-Frequency Trading Micah Goldblum, Avi Schwarzschild, Naftali Cohen, Tucker Balch, Ankit B. Patel,	2021

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 $ACM\ International\ Conference\ on\ AI\ in\ Finance\ (ICAIF)\ 2021$

Just How Toxic is Data Poisoning? A Unified Benchmark for Backdoor and Data Poisoning Attacks Avi Schwarzschild*, Micah Goldblum*, Arjun Gupta, John P Dickerson, Tom Goldstein International Conference on Machine Learning (ICML) 2021	2021
Data Augmentation for Meta-Learning Renkun Ni, Micah Goldblum, Amr Sharaf, Kezhi Kong, Tom Goldstein International Conference on Machine Learning (ICML) 2021	2021
The Intrinsic Dimension of Images and Its Impact on Learning Phil Pope, Chen Zhu, Ahmed Abdelkader, Micah Goldblum, Tom Goldstein International Conference on Learning Representations (ICLR) 2021	2021
LowKey: Leveraging Adversarial Attacks to Protect Social Media Users from Facial Recognition Valeriia Cherepanova, Micah Goldblum, Harrison Foley, Shiyuan Duan, John P Dickerson, Gavin Taylor, Tom Goldstein International Conference on Learning Representations (ICLR) 2021	2021
Strong Data Augmentation Sanitizes Poisoning and Backdoor Attacks Without an Accuracy Tradeoff Eitan Borgnia, Valeriia Cherepanova, Liam Fowl, Amin Ghiasi, Jonas Geiping, Micah Goldblum, Tom Goldstein, Arjun Gupta International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2021	2021
Robust Few-Shot Learning: A Meta-Learning Approach Micah Goldblum, Liam Fowl, Tom Goldstein Advances in Neural Information Processing Systems (NeurIPS) 2020	2020
Unraveling Meta-Learning: Understanding Feature Representations for Few-Shot Tasks Micah Goldblum, Steven Reich, Liam Fowl, Renkun Ni, Valeriia Cherepanova, Tom Goldstein International Conference on Machine Learning (ICML) 2020.	2020
Truth or backpropaganda? An empirical investigation of deep learning theory Micah Goldblum, Jonas Geiping, Avi Schwarzschild, Michael Moeller, Tom Goldstein International Conference on Learning Representations (ICLR) 2020.	2020
WITCHcraft: Efficient PGD attacks with random step size Ping-Yeh Chiang, Jonas Geiping, Micah Goldblum, Tom Goldstein, Renkun Ni, Steven Reich, Ali Shafahi International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2020.	2020
Adversarially Robust Distillation Micah Goldblum, Liam Fowl, Soheil Feizi, Tom Goldstein Proceedings of the AAAI Conference on Artificial Intelligence. Vol. 34.	2020
SELECT INVITED TALKS	
Columbia University, Statistics Seminar Two Sigma	2025 2025
Columbia University, Conference on AI Agents for Work	2025
Cornell University, Department of Computer Science University of Pennsylvania, Department of Computer Science	2024 2024
Georgia Institute of Technology, Department of Interactive Computing	2024 2024
Northeastern University, Department of Computer Science	2024
University of Edinburgh, School of Informatics	2024
University of North Carolina Chapel Hill, Department of Computer Science	2024
University of British Columbia, Department of Computer Science	2024
Arthur Panel on AI and Science	2024
Chalmers AI Research Center Workshop for Structured Learning	2023
UCLA + MPI MIS Math Machine Learning Seminar Vanderbilt Machine Learning Seminar	2023 2023
CISPA Helmholtz Center for Information Security	2023 2023
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	University of California Los Angeles, Department of Mathematics ML Collective	2023 2023
	École Polytechnique Fédérale de Lausanne (EPFL)	2022
	C3.ai Digital Transformation Institute: Open Problems in Robustness	2020
M	EDIA COVERAGE	
	How close is AI to human-level intelligence? $Nature$	2024
	LiveBench is an open LLM benchmark that uses contamination-free test data and objective scoring Venture Beat	2024
	A New AI Detection Tool May Have Solved False Positives for Student Writing Business Insider	2024
	AI Spam Threatens the Internet – AI Can Also Protect It IEEE Spectrum	2024
	Researchers develop new Live Bench benchmark for measuring AI models response accuracy $Silicon\ Angle$	2024
	Artists Are Slipping Anti-Al Poison into Their Art. Here's How It Works Scientific American	2024
	Binoculars is the most powerful AI text detector with over 90% accuracy $The\ Decoder$	2024
	New AI detection tool measures how "surprising" word choices are $Freethink$	2024
	AI and the future of work Daily Maverick	2023
	Image-generating AI can copy and paste from training data, raising IP concerns $\mathit{TechCrunch}$	2022
	How I Lost Control Over My Own Face Der Spiegel Magazine	2021
	Cómo evitar que los sistemas de reconocimiento facial descifren las fotos de tus redes $\it El~Pa\'is$	2021
	LowKey cool: This web app will tweak your photos to flummox facial-recognition systems, apparently The Register	2021

COMMUNITY SERVICE

- Chair of the organizing committee for the NeurIPS 2020 Workshop on Dataset Curation and Security.
- Organizer of the NeurIPS 2023 Workshop on Backdoors in Deep Learning,
- Organizer of the NeurIPS 2024 Workshop on Red Teaming GenAI: What Can We Learn from Adversaries?
- Organizer of the NeurIPS 2024 Workshop on Scientific Methods for Understanding Neural Networks: Discovering, Validating, and Falsifying Theories of Deep Learning with Experiments.
- Chair of the organizing committee for the ICLR 2025 workshop on Building Trust in LLMs and LLM Applications: From Guardrails to Explainability to Regulation
- Served as an Area Chair or Reviewer for conferences and journals including NeurIPS, ICML, ICLR, CVPR, and TPAMI.
- Member of the steering committee for Columbia University Foundations of Data Science Center