

RESEARCH FOCUS	<i>Machine intelligence for reasoning and decision-making under uncertainty.</i>	
EDUCATION	2026	<b>Cornell Tech   New York, NY</b> Doctor of Philosophy in Computer Science (anticipated)
	2024	MS in Computer Science, conferred on PhD candidacy   GPA 4.0 Areas: AI / ML, Scientific Computing, Applied Probability & Statistics <i>NSF Graduate Research Fellow   Presidential Life Science Fellow</i>
	2021	<b>University of Pennsylvania   Philadelphia, PA</b> Master of Computer & Information Technology   GPA 3.97 <i>Interdisciplinary Innovation Fellow   Reproducible Research Fellow</i>
	2016	<b>Smith College   Northampton, MA</b> BA Anthropology (Biological, Medical), Environmental Science   GPA 3.97 <i>Summa Cum Laude – Top 1% of class   Phi Beta Kappa   Sigma Xi</i>
EXPERIENCE	03.2026 – 05.2026	<b>Resident, Causal Inference</b> <i>Isaac Newton Institute for Mathematical Sciences   Cambridge, UK</i> Invited scholars' residency at the University of Cambridge on the theory and methods of causal inference.
	05.2025 – 08.2025	<b>Research Intern</b> <i>YRIKKA   New York, NY</i> <i>PI: Dr. Kia Khezeli.</i> Test-time adaptation and world modeling for abstract, causal, and logical reasoning in large language models. <i>Outcomes:</i> <a href="#">NeurIPS LAW 2025 (spotlight)</a> , <a href="#">Amazon Trusted AI (poster)</a> .
	05.2024 – 08.2024	<b>Research Intern</b> <i>Microsoft Research (MSR), Machine Intelligence Core   Cambridge, UK</i> <i>PI: Dr. Aditya Nori, Dr. Javier González.</i> Methods for the evaluation and elicitation of causal and compositional reasoning in language models. <i>Outcomes:</i> <a href="#">ICML 2025</a> , <a href="#">ICLR 2025</a> , pending patent, <a href="#">2.3k+ HF downloads</a> .
	05.2022 – 08.2022	<b>Clinical Data Science Intern</b> <i>Boehringer Ingelheim, Biostatistics &amp; Data Sciences   Ridgefield, CT</i> <i>PI: Dr. Yi Liu.</i> Internal research on multimodal deep learning for survival analysis in pharmaceutical development.
	08.2021 – Present	<b>PhD Student Researcher</b> <i>Weill Cornell Medicine, Institute of AI for Digital Health   New York, NY</i> <i>PI: Dr. Fei Wang.</i> Causal machine learning for computational biomedicine.  <i>Cornell Tech Computer Science   New York, NY</i> <i>PI: Dr. Volodymyr Kuleshov.</i> Deep generative and probabilistic modeling.  <i>Cornell Tech Operations Research   New York, NY</i> <i>PI: Dr. Kyra Gan.</i> Robust and efficient statistical inference, scalable causal discovery, and causal fairness in healthcare.
	05.2020 – 07.2021	<b>Master's Student Researcher</b> <i>University of Pennsylvania Bioengineering   Philadelphia, PA</i> <i>PI: Dr. César de la Fuente.</i> New paradigms for ML-based drug discovery. <i>Outcomes:</i> Thesis coined the new field of <i>molecular de-extinction</i> , published in <a href="#">Cell Host &amp; Microbe</a> and covered by <a href="#">NPR</a> , <a href="#">Nature News</a> , and <a href="#">CNN</a> .

LANGUAGES	<i>Proficient:</i> Python; R; L <sup>A</sup> T <sub>E</sub> X; shell. <i>Prior experience:</i> Stan; Java; C; MATLAB.	
FRAMEWORKS	PyTorch; NumPy; sklearn; tidyverse; Git; AWS; Slurm-based HPC; <a href="#">ARC-AGI</a> .	
SKILLS & INTERESTS	<p><i>2019 – Present:</i> <a href="#">Probabilistic graphical models</a>; generative models; <a href="#">AI reasoning</a>; <a href="#">world models</a>; neuro-symbolic AI; <a href="#">AI evaluation</a>; causal inference; <a href="#">causal discovery</a>; <a href="#">causal fairness</a>; reinforcement learning; graph theory; applied probability; statistics; logic; <a href="#">computational biomedicine</a>; <a href="#">drug discovery</a>.</p> <p><i>Pre-2019:</i> <a href="#">Molecular genetics</a>, <a href="#">molecular diagnostics</a>, <a href="#">epidemiology</a>.</p>	
SELECT FELLOWSHIPS & AWARDS	<p>2025     Doctoral Fellowship   Cornell Tech <a href="#">Digital Life Initiative</a></p> <p>2023     Outstanding Service and Community Award   Cornell Tech</p> <p>2021     NSF Graduate Research Fellowship   US National Science Foundation</p> <p>2021     Presidential Life Science Fellowship   Cornell University</p> <p>2021     Reproducible Research Fellowship   OKFN, Alfred P. Sloan Foundation</p> <p>2020     Interdisciplinary Innovation Fellowship   University of Pennsylvania</p> <p>2020     Grace Hopper Celebration Scholarship   University of Pennsylvania</p>	
SELECT PEER-REVIEWED PUBLICATIONS ( <a href="#">GOOGLE SCHOLAR</a> )	<p>2025     <a href="#">ICML</a> <b>Maasch, J</b>; Hüyük, A; Xu, X; Nori A; González J. <i>Compositional Causal Reasoning Evaluation in Language Models</i>. 42<sup>nd</sup> International Conference on Machine Learning. [<a href="#">ARXIV</a>] [<a href="#">SLIDES</a>] [<a href="#">WEBSITE</a>] [<a href="#">POSTER</a>]</p> <p>2025     <a href="#">ICLR - ORAL - TOP 1.8%</a> Hüyük, A; Xu, X; <b>Maasch, J</b>; et al. <i>Reasoning Elicitation in Language Models via Counterfactual Feedback</i>. 13<sup>th</sup> International Conference on Learning Representations. [<a href="#">ARXIV</a>]</p> <p>2025     <a href="#">AAAI</a> <b>Maasch, J</b>; et al. <i>Local Causal Discovery for Structural Evidence of Direct Discrimination</i>. 39<sup>th</sup> Annual AAAI Conference on Artificial Intelligence. [<a href="#">ARXIV</a>] [<a href="#">SLIDES</a>] [<a href="#">POSTER</a>]</p> <p>2024     <a href="#">NEURIPS</a> Hiremath, S; <b>Maasch, J</b>; et al. <i>Hybrid Top-Down Global Causal Discovery with Local Search for Linear and Nonlinear Additive Noise Models</i>. 38<sup>th</sup> Annual Conference on Neural Information Processing Systems. [<a href="#">ARXIV</a>]</p> <p>2024     <a href="#">UAI</a> <b>Maasch, J</b>; et al. <i>Local Discovery by Partitioning: Polynomial-Time Causal Discovery Around Exposure-Outcome Pairs</i>. 40<sup>th</sup> Conference on Uncertainty in Artificial Intelligence. [<a href="#">ARXIV</a>] [<a href="#">SLIDES</a>] [<a href="#">POSTER</a>]</p> <p>2023     <a href="#">CELL HOST &amp; MICROBE</a> <b>Maasch, J*</b>; Torres, M*; et al. <i>Molecular de-extinction of ancient antimicrobial peptides enabled by machine learning</i>. Cell Host &amp; Microbe. 31. 8. 1260-1274. e6. 2023. *Equal contribution. [<a href="#">CELL</a>]</p>	
PEER-REVIEWED WORKSHOP PRESENTATIONS	<p>2025     <a href="#">NEURIPS - SPOTLIGHT</a> <b>Maasch, J</b>; Kalantari, J; Khezeli, K. <i>CausalARC: Abstract Reasoning with Causal World Models</i>. NeurIPS LAW: Bridging Language, Agent, and World Models. [<a href="#">WORKSHOP</a>] [<a href="#">ARXIV</a>] [<a href="#">WEBSITE</a>]</p> <p>2023     <a href="#">NEURIPS</a> <b>Maasch, J</b>; et al. <i>Local Discovery by Partitioning: Polynomial-Time Causal Discovery Around Exposure-Outcome Pairs</i>. NeurIPS Causal Representation Learning Workshop. [<a href="#">WORKSHOP</a>] [<a href="#">ARXIV</a>]</p> <p>2023     <a href="#">ICML</a> <b>Maasch, J</b>; et al. <i>Regularized Data Programming with Automated Bayesian Prior Selection</i>. ICML Workshop on Structured Probabilistic Inference &amp; Generative Modeling. [<a href="#">WORKSHOP</a>] [<a href="#">ARXIV</a>]</p>	
UNDER REVIEW & IN PREPERATION	<p>2026     Lawrence, R*; <b>Maasch, J*</b>. <i>Position: Trustworthy AI Reasoning Requires Process Validity</i>. In preparation. *Equal contribution.</p> <p>2025     <b>Maasch, J</b>; Neiswanger, W; Kuleshov, V; Ermon, S. <i>Probabilistic Graphical Models: A Concise Tutorial</i>. Invited, under review. [<a href="#">ARXIV</a>] [<a href="#">WEBSITE</a>]</p>	
PENDING PATENTS	2024     Hüyük, A; Xu, X; <b>Maasch, J</b> ; Nori A; González J. <i>Fine-Tuning Language Models for Reasoning with Counterfactual Feedback</i> . App no: 63/699,777.	
INVITED POSTERS	01.26 <a href="#">Amazon AGI Trusted AI Symposium</a>   New York, NY [ <a href="#">WEBSITE</a> ]	

INVITED TALKS	07.25	Microsoft Expo Booth, ICML   Vancouver, BC
	04.25	<a href="#">Flatiron Institute</a> , Simons Foundation   New York, NY [ <a href="#">SLIDES</a> ]
	03.25	Cornell INFO5375: Machine Learning for Health   New York, NY [ <a href="#">SLIDES</a> ]
	10.24	INFORMS Annual Meeting   Seattle, WA [ <a href="#">SLIDES</a> ]
	07.24	Microsoft Research Machine Intelligence Core   Cambridge, UK
	06.24	University of Cambridge Statistical Laboratory   Cambridge, UK
	04.24	34th Annual POMS Conference   Minneapolis, MN [ <a href="#">SLIDES</a> ]
PROFESSIONAL ACTIVITIES	24-25	Co-organizer, <a href="#">NYC Learning on Graphs Workshop</a>
	24-25	PhD Application Reviewer, Cornell Computer Science Graduate Admissions
	23-25	Student leader, Cornell CS PhD Visit Days
	2023	Co-developer, <a href="#">Cornell CS 6006: Succeeding in the Graduate Environment</a>
	2023	Founder / organizer, <a href="#">Cornell Causal Reading Group</a>
PEER REVIEW	AI	ICML; UAI; AISTATS; ACL ARR; ICML <a href="#">SPIGM</a> ; NeurIPS <a href="#">WiML</a> .
	Bio	Communications Biology (Nature Portfolio); Journal of Biomedical Informatics (Elsevier); Bioinformatics (Oxford Academic); ACS Infectious Diseases.