JACQUELINE R. M. A. MAASCH

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Focus *Advancing machine intelligence for reasoning and decision-making.*

Education

05.2026 **Cornell Tech | New York, NY**
Doctor of Philosophy in Computer Science (anticipated)

05.2024 MS in Computer Science, conferred on PhD candidacy | GPA 4.00
Areas: AI / ML, Scientific Computing, Applied Probability & Statistics
NSF Graduate Research Fellow | Presidential Life Science Fellow

05.2021 **University of Pennsylvania | Philadelphia, PA**
Master of Computer & Information Technology | GPA 3.97
Interdisciplinary Innovation Fellow | Reproducible Research Fellow

05.2016 **Smith College | Northampton, MA**
BA Anthropology (Biological, Medical), Environmental Science | GPA 3.97
Summa Cum Laude | Phi Beta Kappa | Sigma Xi

Experience

05.2024 – 08.2024 **Research Intern**
Microsoft Research (MSR) Machine Intelligence Core | Cambridge, UK
PI: Dr. Aditya Nori, Dr. Javier González. Methods for the evaluation and elicitation of causal and compositional reasoning in language models.

05.2022 – 08.2022 **Clinical Data Science Intern**
Boehringer Ingelheim, Biostatistics & Data Sciences | Ridgefield, CT
PI: Dr. Yi Liu. Multimodal deep learning methods for survival analysis in pharmaceutical development.

08.2021 – Present **PhD Student Researcher**
Weill Cornell Medicine Institute of AI for Digital Health | New York, NY
PI: Dr. Fei Wang. AI for clinical risk modeling, causal inference, target trial emulation, and computational biomedicine.

Cornell Tech Operations Research | New York, NY
PI: Dr. Kyra Gan. Robust and efficient statistical inference, scalable causal discovery, and causal fairness in healthcare.

Cornell Tech Computer Science | New York, NY
PI: Dr. Volodymyr Kuleshov. Core problems in generative and probabilistic modeling with applications to genomics and biomedicine.

05.2020 – 07.2021 **Master's Student Researcher**
University of Pennsylvania Bioengineering | Philadelphia, PA
PI: Dr. César de la Fuente. New paradigms for computational antibiotic discovery using discriminative and generative ML.

Skill Areas Probabilistic graphical models; AI reasoning; AI evaluation; causal discovery; causal inference; causal fairness; graph theory; applied probability; AI4Science; AI4Health.

Languages *Proficient*: Python; R; LaTeX. *Prior experience:* Java; C; JavaScript; MATLAB.

Tools *Constant use:* numpy; sklearn; tidyverse; networkx; git; high-performance computing.
Experience with: PyTorch; TensorFlow; Stan.

Select Peer-Reviewed Publications (Google Scholar)

2025 ICLR - ORAL - TOP 1.8% Hüyük, A; Xu, X; **Maasch, J**; et al. *Reasoning Elicitation in Language Models via Counterfactual Feedback.* 13^{th} International Conference on Learning Representations. [ARXIV]

2025 AAAI **Maasch, J**; et al. *Local Causal Discovery for Structural Evidence of Direct Discrimination.* 39^{th} Annual AAAI Conference on Artificial Intelligence. [ARXIV] [SLIDES] [POSTER]

2024 NEURIPS Hiremath, S; **Maasch, J**; et al. *Hybrid Top-Down Global Causal Discovery with Local Search for Linear and Nonlinear Additive Noise Models.* 38^{th} Annual Conference on Neural Information Processing Systems. [ARXIV]

2024 UAI **Maasch, J**; et al. *Local Discovery by Partitioning: Polynomial-Time Causal Discovery Around Exposure-Outcome Pairs.* 40^{th} Conference on Uncertainty in Artificial Intelligence. [ARXIV] [SLIDES] [POSTER]

2023 CELL H&M **Maasch, J***; Torres, M*; et al. *Molecular de-extinction of ancient antimicrobial peptides enabled by machine learning.* Cell Host & Microbe. 31. 8. 1260-1274. e6. 2023. **Equal contribution.* [CELL]

Workshop Presentations

2023 NEURIPS **Maasch, J**; et al. *Local Discovery by Partitioning: Polynomial-Time Causal Discovery Around Exposure-Outcome Pairs.* NeurIPS Causal Representation Learning Workshop. [WORKSHOP] [ARXIV]

2023 ICML **Maasch, J**; et al. *Regularized Data Programming with Automated Bayesian Prior Selection.* ICML Workshop on Structured Probabilistic Inference & Generative Modeling. [WORKSHOP] [ARXIV]

In Preparation & Under Review

2025 Kuleshov, V; **Maasch, J**; Ermon, S. *Probabilistic Graphical Models: A Concise Tutorial.* Preliminary acceptance, *Foundations & Trends in ML.*

2025 **Maasch, J**; Hüyük, A; Xu, X; Nori A; González J. *Compositional Causal Reasoning Evaluation in Language Models.* Under review. [ARXIV]

Invited Talks

05.25 Cornell INFO 5375: Machine Learning for Health | New York, NY [SLIDES]
10.24 INFORMS Annual Meeting | Seattle, WA [SLIDES]
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 [SLIDES]

Select Fellowships & Awards

2023 Outstanding Service and Community Award | Cornell Tech
2021 NSF Graduate Research Fellowship | US National Science Foundation
2021 Presidential Life Science Fellowship | Cornell University
2021 Reproducible Research Fellowship | OKFN, Alfred P. Sloan Foundation
2020 Interdisciplinary Innovation Fellowship | University of Pennsylvania
2020 Grace Hopper Celebration Scholarship | University of Pennsylvania

Professional Activities

24-25 Co-organizer, NYC Learning on Graphs Workshop
24-25 Reviewer, Cornell CS PhD Admissions
23-25 Student leader, Cornell CS PhD Visit Days
2023 Co-developer, Cornell CS 6006: Succeeding in the Graduate Environment
2023 Founder / organizer, Cornell Causal Reading Group

Peer Review

AI ICML; UAI; AISTATS; ACL ARR; ICML SPIGM; NeurIPS WiML.
Bio Communications Biology (Nature Portfolio); Journal of Biomedical Informatics (Elsevier); Bioinformatics (Oxford Academic); ACS Infectious Diseases.

Pending Patents

2024 Hüyük, A; Xu, X; **Maasch, J**; Nori A; González J. *Fine-tuning Language Models for Reasoning with Counterfactual Feedback.* App no: 63/699,777.

2022 de la Fuente, C; Torres, M; Melo, M; **Maasch, J**. *Identification of antimicrobial peptides.* App no: 63/383,761.