JACQUELINE R. M. A. MAASCH

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EDUCATION

2021 – Present | **Cornell Tech**, NY, USA | Doctor of Philosophy in Computer Science
Department of Computer Science | Areas: AI / ML, Scientific Computing, Applied Probability & Statistics
GPA 4.0/4.0 — **NSF Graduate Research Fellow** — **Presidential Life Science Fellow**

2021 | **University of Pennsylvania**, PA, USA | Master of Computer & Information Technology
Department of Computer & Information Science | School of Engineering & Applied Science
GPA 3.97/4.0 — **Interdisciplinary Innovation Fellow** — **Reproducible Research Fellow**

2016 | **Smith College**, MA, USA | Bachelor of Arts
Major: Anthropology (Focus: Biological, Medical Anthropology) | Minor: Environmental Science
GPA 3.97/4.0 — **Summa Cum Laude** — **Phi Beta Kappa** — **Sigma Xi**

PROFICIENCIES

Interests	Machine learning; causal inference, discovery; graphical models; biomedicine; drug development.
Languages	*Proficient*: Python; R; LaTeX. *Prior experience:* Java; C; JavaScript; MATLAB.
Tools	PyTorch; TensorFlow; sklearn; tidyverse; Stan; git; high-performance computing.

GRADUATE RESEARCH EXPERIENCE

08.2021 – Present | **PhD Student Researcher**, Institute of AI for Digital Health
Cornell University Dept. of Computer Science, Weill Cornell Medicine, New York, NY, USA
PI: Dr. Fei Wang. Machine learning and health informatics group investigating clinical risk modeling, computational drug discovery, and causal inference for biomedicine.

08.2021 – Present | **PhD Student Researcher**, Kuleshov Group
Cornell University Dept. of Computer Science, Cornell Tech, New York, NY, USA
PI: Dr. Volodymyr Kuleshov. Machine learning research group investigating core problems in generative and probabilistic modeling with applications to genomics and biomedicine.

05.2022 – 08.2022 | **Clinical Data Science Research Intern**
Boehringer Ingelheim, Global Biostatistics and Data Sciences, Ridgefield, CT, USA
PI: Dr. Yi Liu. Pharmaceutical industry research investigating deep learning methods for survival analysis that combine imaging, clinical, and radiomics data modalities.

05.2020 – 07.2021 | **Master's Student Researcher**, Machine Biology Group
University of Pennsylvania Dept. of Bioengineering, Philadelphia, PA, USA
PI: Dr. César de la Fuente. DOD-funded laboratory integrating synthetic biology, machine learning, and molecular dynamics to engineer novel antimicrobials.

SELECT FELLOWSHIPS, GRANTS & AWARDS

2023 Cornell Tech Service and Community Award
2021 National Science Foundation Graduate Research Fellowship
2021 Presidential Life Science Fellowship | Cornell University
2020 Reproducible Research Fellowship | Open Knowledge Foundation, Alfred P. Sloan Foundation

WORKSHOP PAPERS & CONFERENCE PRESENTATIONS

2024 Maasch J†, et al. Local Causal Discovery for Downstream Inference Tasks. *Production and Operations Management Society Annual Conference.* [INVITED TALK].

2024 Pan W†, Su C, **Maasch J**, et al. Learning Phenotypic Associations for Parkinson's Disease with Longitudinal Clinical Records. *AMIA Informatics Summit.* [PAPER].

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

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

†*Presenter.*

PRE-PRINTS

2023 Maasch J, et al. Local Discovery by Partitioning: Polynomial-Time Causal Discovery Around Exposure-Outcome Pairs. *Under review.* arXiv: 2310.17816.

2023 Su C, Hou Y, Xu J, Xu J, Brendel M, **Maasch J**, et al. Identification of Parkinson PACE subtypes and repurposing treatments through integrative analyses of multimodal clinical progression, neuroimaging, genetic, and transcriptomic data. *Under review.* medRxiv: 2021.07.18.21260731.

PEER-REVIEWED PUBLICATIONS

2023 Maasch J*, Torres M*, et al. Molecular de-extinction of ancient antimicrobial peptides enabled by machine learning. *Cell Host & Microbe 31.*

2023 Su C, Hou Y, Rajendran S, **Maasch J**, et al. Biomedical discovery through the integrative biomedical knowledge hub (iBKH). *iScience 26* (4).

2022 Melo M*, **Maasch J***, de la Fuente-Nunez C. *ACS In Focus: Machine Learning for Drug Discovery.* American Chemical Society. eISBN: 9780841299238.

2021 Melo M*, **Maasch J***, de la Fuente-Nunez C. Accelerating antibiotic discovery through artificial intelligence. *Communications Biology 4*(1).

2021 Palmer N, **Maasch J**, et al. Molecular dynamics for antimicrobial peptide discovery. *Infection and Immunity 89*(4).

2020 Maasch J, et al. Rectal swabs as an alternative sample collection method to bulk stool for the real-time PCR detection of *Giardia duodenalis*. *Am J of Tropical Medicine and Hygiene 103*(3).

2020 Benjamin-Chung J, Pilotte N, Ercumen A, Grant JR, **Maasch J**, et al. Comparison of multi-parallel qPCR and double-slide Kato-Katz for detection of soil-transmitted helminth infection among children in rural Bangladesh. *PLOS NTDs 14*(14): e0008087.

2020 Hasegawa M, Pilotte N, Kikuchi M, Means AR, Papaiakovou M, Gonzalez AM, **Maasch J**, et al. What does soil-transmitted helminth elimination look like? Results from a targeted molecular detection survey in Japan. *Parasites and Vectors 13*(6).

2019 Pilotte N, **Maasch J**, et al. Targeting a highly repeated embryonic DNA sequence for improved real-time PCR-based detection of *Ascaris* infection in human stool. *PLOS NTDs 13*(7): e0007593.

**Equal contribution.*

PROFESSIONAL ACTIVITIES

Extracurriculars *[2023]* Founder, Cornell Causal Reading Group; *[2023]* Czar, Cornell CS PhD Visit Days; *[2024]* Reviewer, Cornell CS PhD Admissions

Referee *[Computing]* AISTATS; ACL Rolling Review; ICML SPIGM; NeurIPS WiML. *[Life sciences]* Communications Biology (Nature Portfolio); Bioinformatics (Oxford Academic); ACS Infectious Diseases.

Patents *Pending* (2022). Co-Inventors: de la Fuente-Nunez C, Torres M, Melo M, **Maasch J**. Title: *Identification of antimicrobial peptides.* Docket no: 104377.000299 / 23-10289. Application no: 63/383,761.