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: Artificial Intelligence and Scientific Computing 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, 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.
Courses	Generative & Probabilistic Models; Causal ML; Bayesian Analysis; Algorithmic Theory; NLP; Computer Vision; Linear Algebra; Discrete Math; Systems Programming.

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.* Health informatics lab investigating machine learning methods for 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. Engineered ML systems to predict peptide functions and inform deep learning-based *de novo* peptide design.

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 Fellowship for Interdisciplinary Innovation | University of Pennsylvania Provost, GAPSA
2020 Reproducible Research Fellowship | Open Knowledge Foundation, Alfred P. Sloan Foundation
2016 Summa Cum Laude (highest honors – 1% of graduating class) | Smith College

PRE-PRINTS & WORKSHOP PAPERS

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

2023 **Maasch J**, et al. Regularized Data Programming with Automated Bayesian Prior Selection. *Under review.* arXiv: 2210.08677. Workshop poster: *ICML Workshop on Structured Probabilistic Inference & Generative Modeling*.

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.* (*Equal contribution.)

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. (*Equal contribution.)

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

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.

PROFESSIONAL ACTIVITIES

Referee *[Computing]* AISTATS; ACL Rolling Review; ICML Workshop on Structured Probabilistic Inference & Generative Modeling; NeurIPS WiML Workshop. *[Life sciences]* Communications Biology (Nature Portfolio); Bioinformatics (Oxford Academic); ACS Infectious Diseases (American Chemical Society).

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.