JACQUELINE R.M.A. MAASCH

jmaasch — jmaasch@seas.upenn.edu — jmaasch

EDUCATION

2019 – Present

Master of Computer & Information Technology
University of Pennsylvania, Philadelphia, PA, USA
Department of Computer & Information Science | School of Engineering & Applied Science
GPA 3.95/4.0 — Interdisciplinary Innovation Fellow — Reproducible Research Fellow

2016

Bachelor of Arts
Smith College, Northampton, MA, USA
Major Anthropology, Minor Environmental Science & Policy
GPA 3.97/4.0 — Summa Cum Laude — Phi Beta Kappa — Sigma Xi

PROFICIENCIES & PROJECTS

Proficient Java – R – Python – LaTeX | *Actively Learning* C – JavaScript – Bash – Supercomputing

R projects **sanzo** CRAN package – Rectal swab *Giardia* D_x – **ashR** bespoke data vis
Python projects Deep learning for proteolytic cleavage site prediction (public release TBA)

Coursework *(In progress)* Linear Algebra; Machine Learning Special Studies. *(G)* Algorithms; Discrete Math; Data Structures; Software Development; Computer Systems Programming; Computer Hardware. *(UG)* Human Genetics; Primate Evolution; Molecular Biosciences; Statistics; Biomath.

RESEARCH EXPERIENCE

05.2020 – Present

Computational Researcher, Machine Biology Group
University of Pennsylvania Department of Bioengineering, Philadelphia, PA
PI: Dr. César de la Fuente. The Machine Biology Group integrates synthetic biology and artificial intelligence to computerize biological systems and engineer novel therapies.
- Engineer predictive models of peptide function to guide experimental design.
- Build R packages to automate high-throughput data processing and visualization.
- Improved weak cleavage site classifier performance by 8.81 percentage points.

10.2017 – 07.2019

Research Associate & Project Lead, Soil-Transmitted Helminth Group
Smith College Department of Biological Sciences, Northampton, MA
PI: Dr. Steven A. Williams. Gates Foundation reference laboratory investigating the molecular biology and diagnosis of agents causing neglected tropical diseases (NTDs).

11.2016 – 05.2017

Next-Generation Sequencing Technician, Biology Research & Development
PathoQuest, Paris, France
PI: Dr. Éric Cabannes. Institut Pasteur spin-out developing blood-based metagenomic NGS assays for the clinical diagnosis of viral and bacterial pathogens.

02.2016 – 09.2017	**Molecular Diagnostic Technician, Laboratory for Molecular Medicine** **Massachusetts General Hospital Human Genetics Unit, Cambridge, MA** *PI: Dr. Heidi Rehm.* Harvard-affiliated CLIA laboratory providing clinical diagnostics for genetic diseases and personalized medicine research support for the Broad Institute.
06.2014 – 12.2015	**Undergraduate Research Assistant, Collaborative Crop Research Program** **Cornell University Department of Plant Breeding & Genetics, Ithaca, NY** *PI: Dr. Rebecca Nelson.* Gates and McKnight Foundation funded laboratory investigating plant pathology, genomics-assisted crop breeding, soil science, and agroecology.

HONORS & GRANTS

2020 Reproducible Research Fellowship, Open Knowledge Foundation & Alfred P. Sloan Foundation
2020 GAPSA-Provost Fellowship for Interdisciplinary Innovation, University of Pennsylvania
2016 Summa Cum Laude (highest honors – 1% of graduating class), Smith College Class of 2016
2015 Phi Beta Kappa, Junior Inductee (3% of graduating class), Zeta of Massachusetts Chapter
2014 Schulz Foundation Travel Grant for Student Research, Biological Sciences
2014 Margaret A. Walsh Grantham Summer Research Fellowship, Biological Sciences

PEER-REVIEWED PUBLICATIONS

2020 **Maasch J**, Arzika AM, Cook C, Lebas E, Pilotte N, Grant JR, Williams SA, Keenan JD, Lietman TM, Aiemjoy K. Rectal swabs as an alternative sample collection method to bulk stool for the real-time PCR detection of *Giardia duodenalis*. *American Journal of Tropical Medicine & Hygiene.*

2020 Benjamin-Chung J, Pilotte N, Ercumen A, Grant JR, **Maasch J**, Gonzalez AM, Ester AC, Arnold BF, Rahman M, Haque R, Hubbard AE, Luby SP, Williams S, Colford JM. Comparison of multi-parallel qPCR and double-slide Kato-Katz for detection of soil-transmitted helminth infection among children in rural Bangladesh. *PLOS Neglected Tropical Diseases 14*(14): e0008087.

2020 Hasegawa M, Pilotte N, Kikuchi M, Means AR, Papaiakovou M, Gonzalez AM, **Maasch J**, Ikuno H, Sunahara T, Ásbjörnsdóttir K, Walson JL, 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**, Easton AV, Dahlstrom E, Nutman TB, Williams SA. Targeting a highly repeated embryonic DNA sequence for improved real-time PCR-based detection of *Ascaris* infection in human stool. *PLOS Neglected Tropical Diseases 13*(7): e0007593.

POSTERS & PRESENTATIONS

2019 **Maasch J**, Arzika AM, Cook C, Lebas E, Pilotte N, Grant JR, Williams SA, Keenan JD, Lietman TM, Aiemjoy K (presenter). Rectal swabs for molecular detection of *Giardia duodenalis. Proceedings from the Annual Meeting of the American Society of Tropical Medicine and Hygiene.* National Harbor, MD.

2018 Pilotte N (presenter), **Maasch J**, Easton AV, Dahlstrom E, Nutman TB, Williams SA. Improved molecular detection of *Ascaris lumbricoides* utilizing an embryonic sequence for assay design. *Proceedings from the Annual Meeting of the American Society of Tropical Medicine and Hygiene.* New Orleans, LA.