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

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

KNOWLEDGE & SKILLS

Frequent use R; Java; Excel; LaTeX. *Infrequent use* C; Assembly; JavaScript.

Coursework (G) Intro Software Development; Mathematical Foundations of Computer Science; Intro Computer Systems. *(UG)* Senior Seminar in Human Genetics; Primate Evolution; Genetics, Evolution & Molecular Biosciences; Research Design & Analysis; Statistics; Frontiers in Biomath.

Research Data management; data analysis and visualization; manuscript writing; technical writing (standard operating procedures, training manuals); reports to funders; wet lab procedures; project management.

RESEARCH EXPERIENCE

10.2017 – 07.2019

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

***Analyzed** and visualized data in R for manuscripts using tidyverse and epiR packages.
***Generated** and managed large qPCR datasets to inform WHO NTD diagnostic guidelines.
***Directed** lab trainings in Bangladesh and Uganda on behalf of the Task Force for Global Health.
***Validated** *Ascaris lumbricoides* qPCR diagnostic of ~3,100-fold greater sensitivity than prior assays.

11.2016 – 05.2017

Next-Generation Sequencing Technician
Biology Research & Development Team
PathoQuest, Paris, France
PI: Dr. Éric Cabannes. Institut Pasteur spin-out developing blood-based metagenomic NGS diagnostics for infectious disease.

***Validated** Illumina Propel-certified diagnostic assay using febrile patient blood samples.
***Optimized** assay via investigation of viral nucleic acid stability across sample storage conditions.
***Performed** all stages of manual DNA library preparation and quality control for shotgun NGS.
***Authored** experimental procedure documents and translated protocols from French to English.

02.2016 – 09.2017

Molecular Diagnostic Technician
Massachusetts General Hospital Human Genetics Unit
Laboratory for Molecular Medicine, Cambridge, MA, USA
PI: Dr. Heidi Rehm. Harvard-affiliated CLIA laboratory providing clinical diagnostics for genetic diseases and clinical research support.

***Performed** high-throughput Sanger sequencing the for clinical diagnosis of genetic illnesses.
***Sequenced** DNA for longitudinal personalized medicine research led by the Broad Institute.
***Reviewed** Sanger traces for quality and called pathogenic variants using Mutation Surveyor.
***Managed** cardiomyopathy case logs and contributed to Sanger Standard Operating Procedures.

06.2014 – 12.2015

Undergraduate Research Assistant
Cornell University Department of Plant Breeding & Genetics
Collaborative Crop Research Program, Ithaca, NY, USA
PI: Dr. Rebecca Nelson. Gates and McKnight Foundation funded laboratory investigating plant pathology, plant genetics, and agroecology.

***Refined** soil active carbon and microbial respiration assay protocols for field applications.
***Inoculated** maize trial fields with northern corn leaf blight for disease resistance research.
***Assisted** PhD candidates with background prep for molecular genetic and microbiological assays.
***Contributed** literature reviews to international crop breeding workshops and agroecology database.

HONORS & GRANTS

2018 Sigma Xi, Smith College Chapter
2016 Summa Cum Laude, Smith College
2015 Phi Beta Kappa, Junior Inductee
2014 Schulz Foundation Travel Grant for Student Research, Biological Sciences
2014 Margaret A. Walsh Grantham Research Fellowship, Biological Sciences

SELECT PUBLICATIONS & PRESENTATIONS

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.

2019 Benjamin-Chung J, Pilotte N, Ercumen A, Grant JR, **Maasch J**, Gonzalez AM, Abrams BP, Ester AC, Arnold BF, Rahman M, Haque R, Hubbard AE, Luby SP, Williams S, Colford JM. Comparison of multi-parallel qPCR and Kato-Katz for detection of soil-transmitted helminth infection among children in rural Bangladesh. Under review: *PLOS Neglected Tropical Diseases.*

2019 **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 intestinalis.* Submitted: *Am J of Tropical Medicine and Hygiene.*

2019 **Maasch J**, Arzika AM, Cook C, Lebas E, Pilotte N, Grant JR, Williams SA, Keenan JD, Lietman TM, Aiemjoy K. Molecular detection of intestinal helminths and protozoa among young children in Dosso Region, Niger. Submitted: *American Journal of Tropical Medicine and Hygiene.*

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.