

# Cassandra Wattenburger

PLANTS & SOILS · GENOMICS & METAGENOMICS · DATA SCIENCE

Ithaca NY, 14850, USA

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## Skills

<b>Research</b>	experimental design, project management, greenhouse and fieldwork experience
<b>Data Science</b>	R, Python, Bash, Git, data analysis & visualization, algorithm development, machine learning
<b>Interpersonal</b>	science communication, public speaking, writing, collaboration, mentorship

## Work Experience

### RESEARCH

#### Genome Design Data Scientist

*Residence-based*

BAYER CROP SCIENCE | SUPERVISOR DR. ETHAN PICKERING

*Sept. 2023 - present*

- Conducted research on row crop pangenomics for plant breeding
- Responsibilities included evaluating and establishing expertise in cutting edge pangenomics tools, building in-house pangenomics tools and resources, contributing to and maintaining internal and external collaborations

#### Graduate Research Assistant (Ph.D.)

*Ithaca, NY*

CORNELL UNIVERSITY | ADVISOR DR. DANIEL BUCKLEY

*Jan. 2018 - Aug. 2023*

- Researched the role of soil bacterial population dynamics in the carbon cycles of agricultural and natural soil systems
- Developed sequencing method and algorithm to estimate bacterial species growth and death in soils
- Used unsupervised clustering to group bacterial species based on measured growth/death and predicted genomic traits
- Contributed to four non-thesis cross-functional collaborations within and outside of Cornell University

#### Graduate Research Assistant (M.S.)

*Ames, IA*

IOWA STATE UNIVERSITY | ADVISORS DR. LARRY HALVERSON & DR. KIRSTEN HOFMOCKEL

*Sept. 2015 - Dec. 2017*

- Researched the impact of agricultural practices on maize root-associated microbial communities and their function, with a focus on nitrogen-use-efficiency and nitrification
- Designed and conducted greenhouse and field-based experiments, analyzed amplicon sequence data of microbiomes
- Initiated and lead collaboration with scientists at the Donald Danforth Plant Science Center (resulting publication)

### DATA SCIENCE

#### Data Leader

*Ithaca, NY*

VACCINATION CONVERSATIONS WITH SCIENTISTS | DATA LEADERSHIP | CORNELL UNIVERSITY

*Mar. 2022 - Aug. 2023*

- Processed, analyzed, and visualized phone-banking data to derive insights regarding COVID vaccination rates and common vaccination concerns in rural, upstate NY
- Created reproducible analysis workflows in R Markdown and made available to team members on GitHub
- Communicated findings to broader leadership by creating data reports and visualizations

#### Server Administrator

*Ithaca, NY*

BUCKLEY LAB | CORNELL UNIVERSITY

*Jan. 2022 - Aug. 2023*

- Responsible for managing user accounts and file permissions
- Created step-by-step server on-boarding and basic usage instructions for new lab members
- Wrote and made available general-use scripts in Bash, Python, and Jupyter Notebooks for common data analysis needs

#### GitHub Repository Manager

*Ithaca, NY*

BUCKLEY LAB | CORNELL UNIVERSITY

*Jan. 2018 - Aug. 2023*

- Responsible for updating and making accessible Buckley lab protocols
- Wrote common-use protocols including various soil biogeochemical measurements, field sampling best practices, and sequence library preparation and submission
- Created organized spreadsheets of commonly used sequencing primers

## INTERPERSONAL

### B4U Cornell Chapter Core Leader

B4U MENTORING PROGRAM | BAYER CROP SCIENCE

*Ithaca, NY*

*Jan. 2025 - present*

- Responsible for communications with university liaison and students, advertisement of program, matching and overseeing mentorship relationships, organizing and hosting on-site events

### IDP Fellow

INTERGROUP DIALOGUE PROJECT | CORNELL UNIVERSITY

*Ithaca, NY*

*Aug. 2021 - present*

- Trained in communication techniques by Cornell Intergroup Dialogue Project
- Organized and facilitated workshop to teach Cornell students, post-docs, and staff communication skills
- Taught skills such as LARA and strategic and generative questioning

### President & Treasurer

SOIL AND CROPS SCIENCES GRADUATE STUDENT ASSOCIATION | CORNELL UNIVERSITY

*Ithaca, NY*

*Aug. 2019 - 2022*

- Lead meetings and group events as President (2021-2022), created and managed budgets as Treasurer (2019-2021)
- Organized and hosted virtual/in-person Soil and Crop Sciences graduate student recruitment events

## Education

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### Cornell University, Ph.D.

SOIL SCIENCE, MINORS IN GENOMICS AND MICROBIOLOGY

*Ithaca, NY*

*Jan. 2018 - Aug. 2023*

### Iowa State University, M.S.

MICROBIOLOGY

*Ames, IA*

*Sept 2015 - Dec 2017*

### Western Washington University, B.S.

CELLULAR AND MOLECULAR BIOLOGY, MINOR IN CHEMISTRY, HONORS PROGRAM

*Bellingham, WA*

*Sept 2010 - June 2014*

## Major Awards

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2021 **AFRI Pre-Doctoral Fellowship**, USDA NIFA, \$120,000

*USDA, USA*

2016 **NSF Graduate Research Fellowship**, Ecology, NSF GRFP, \$138,000

*NSF, USA*

## Selected Presentations & Publications

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### PRESENTATIONS

#### Evaluating genome graph quality of *Zea mays* built using minigraph-cactus

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APPLICATION OF GENETICS AND GENOMICS FOR LARGE-SCALE BREEDING PROGRAMS

*Jan. 2025; San Diego, CA*

#### Towards pangenomic enablement: Evaluating maize genome graph read-mapping for trait modeling

*ICS2024*

APPLYING PAN-GENOMICS TO CROP SCIENCE AT BAYER – EVERY GENOME, EVERYWHERE, ALL AT ONCE

*June 2024; Chesterfield, MO*

### PUBLICATIONS

**Wattenburger CJ**, Wang, E, Buckley DH. Dynamics of bacterial growth, and life-history tradeoffs, explain differences in soil carbon cycling due to land-use. *ISME Communications* (accepted). **(2025)**

**Wattenburger CJ**, Buckley DH. Land-use alters bacterial growth dynamics in soil. *Environmental Microbiology* **(2023)**

Foxx AJ, Franco Meléndez KP, Hariharan J, Kozik AJ, **Wattenburger CJ**, Godoy-Vitorino F, Rivers AR. Advancing Equity and Inclusion in Microbiome Research and Training. *mSystems* 0:e01151-21. **(2021)**