

Ellie Taagen

QUANTITATIVE GENETICIST · DISCOVERY SCIENTIST · USA & EU CITIZEN

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Summary

As a quantitative geneticist, I love to discover the relationships between recombination variation and desirable phenotypes and am driven by their potential to enhance breeding pipeline efficiency and genetic gain. Detail oriented planning and interdisciplinary communication are core pillars of my creative and critical thinking approach to problem solving. I am pursuing a Ph.D. in Plant Genetics at Cornell University with an expected graduation spring 2022, and am drawn to career paths in industry at the intersection of genetics, data science, and molecular biology.

Expertise

Quantitative Genetics	whole genome associations, multi-omics data analysis, structural variant calling, applied plant breeding
Programming	R, Python, Linux command line, LaTeX, Git, skillful data visualization
Data Science	simulations, reproducible analyses, bioinformatics tools, large dataset management (17 Gb)
Statistics	experimental design, generalized linear and mixed model, supervised statistical learning
Soft Skills	multi-disciplinary communication, project management, team leader, creative problem solver

Education

Cornell University

PH.D. IN PLANT GENETICS

Ithaca, NY, USA

2017 - expected 2022

- Minors: Plant Molecular Biology and International Agriculture and Rural Development

University of Washington

B.S. IN MOLECULAR, CELLULAR, DEVELOPMENTAL BIOLOGY

Seattle, WA, USA

2012 - 2016

- Minor: Nutritional Sciences

Relevant Experience

Simulating controlled recombination in allopolyploid genomes

Cornell University

PH.D. | ADVISOR DR. JEAN-LUC JANNINK

2020 - Present

- Leveraging simulation and bioinformatics tools to better understand controlled recombination's potential to reveal currently inaccessible genetic diversity and innovate increased control over the inheritance of preferred haplotypes.
- Exploring the biological constraints of meiotic recombination and prediction-based decisions in a plant breeding context.

Identifying genomic structural variant barriers to gene positional cloning

Cornell University

PH.D. | ADVISOR DR. MARK SORRELLS

2017 - Present

- Applied traditional population development strategies, along with cutting-edge tools in genomics and transcriptomics to better understand the landscape of causal variation based breeding decisions. Talk video link, peer feedback: **4.8/5**
- Determined that chromosome structural variants can overpower traditional fine-mapping approaches to gene discovery, especially in polyploids, and proposed recommendations for new experimental design standards.

Breeding value chain engagement

Washington State University

POST-BACCALAUREATE RA | ADVISOR DR. STEPHEN JONES

2016 - 2017

- Surveyed and engaged supply chain stakeholders when setting objectives for small grains breeding program.
- Delivered lab and field support for graduate student breeding projects sourced from a broad base of genetic diversity.

Characterizing circadian rhythm mechanisms of growth-phase transitions in Arabidopsis

University of Washington

UNDERGRADUATE RA | ADVISOR DR. TAKATO IMAIZUMI

2015 - 2016

- Assessed mechanistic sequence of genes involved in vegetative to reproductive growth transition and characterized circadian rhythm gene.
- Showcased at undergraduate research symposium.

Mentorship & Management

Corteva Agriscience and Cornell School of Integrative Plant Science (SIPS) networking

Virtual

COORDINATOR

2020 - Present

- Built network and relationship pipeline with Corteva Global Academic Relations Manager and Cornell SIPS industry partnerships liaison.
- Developed system for matching 50 graduate students with Corteva scientists based on shared career interests.

Diversity and Inclusion Committee, SIPS Cornell

Cornell University

GRADUATE STUDENT REPRESENTATIVE

2020 - 2021

- Facilitate monthly meetings, titled OpenUpSTEM, which provide a space for graduate students to learn about, discuss, and take action towards building a sustainable culture of anti-racism in our community.

Synopsis, Plant Breeding and Genetics GSA

Cornell University

PRESIDENT

2019-2020

- Executed 2020 graduate student recruitment visitation for 15 students.
- Oversaw communication between current plant breeding and genetics students and faculty.

Plant Breeding and Genetics faculty search committee

Cornell University

GRADUATE STUDENT REPRESENTATIVE

2019-2020

- Screened and evaluated 54 applicant packages, and conducted full day interviews with top 3 candidates (research /teaching /chalk-talk).
- Facilitated graduate student meetings with top candidates and documented graduate student preferences for clear communication to faculty.

Jannink/Sorrells lab meetings

Cornell University

COORDINATOR

2018-Present

- Streamlined meeting schedule and presentation rotations with access to centralized Google drive for 18 people across 2 lab groups.
- Unified communication across listserv, Slack, and Zoom.

Graduate student mentor

Cornell University

UNDERGRADUATE RESEARCH ASSISTANTS

2018-2020

- Hired, trained, and mentored three talented undergraduate research assistants and supervised one honors thesis
- Coached one graduate school application and interview process, accepted to five plant sciences PhD programs.

Bonsai Professional Coaching Service

Virtual

MENTEE

2018-2020

- Partnered with leadership coach [Loriana Sekarski](#) to identify and apply personalized [Clifton Strengths by Gallup](#). Top five strengths: *Learner, Achiever, Focus, Communication, Individualization*.
- Trained in STEM industry professionalism and charted conflict management strategies.

Graduate Women in Science

Cornell University

EXECUTIVE OF ONLINE COMMUNICATIONS

2017-2019

- Operated digital outreach and authored biweekly newsletter for >400 listserv members.
- Devised and improved advocacy, educational, and social events based on polled membership interests.

Awards & Scholarships

2021	WIT Early Career Award , Borlaug Global Rust Initiative	Virtual
2020	Borlaug Scholar , National Association of Plant Breeders	Virtual
2020	3rd Place , C7 Plant and Animal Genome conference poster competition	San Diego, CA
2019	Awardee , Cornell IARD winter interim travel grant	Kerala, India
2018	Awardee , ASA, CSSA and SSSA Congressional Visit Day travel grant	Washington DC
2018	Future Leader in Science , ASA, CSSA and SSSA	Washington DC

Relevant Workshops

Enrolled	Statistical Learning , ten-week course	edX Stanford
2020	Collaborative and Reproducible Data Science in R , NTRES 6940	Cornell University
2019	Linux for Biologists , Institute of Biotechnology	Cornell University
2018	Breeding for Quantitative Traits in Plants , book club facilitator	Cornell University
2017	Tucson Plant Breeding Institute , quantitative genetics bootcamp	Cornell University

Publications

Taagen, E., Bogdanove, A. J. & Sorrells, M. E. *Counting on Crossovers: Controlled Recombination for Plant Breeding*. (2020) [Trends in Plant Science](#)

Taagen, E., Bogdanove, A. J. & Sorrells, M. E. *Achieving Controlled Recombination with Targeted Cleavage and Epigenetic Modifiers*. (2020) [Trends in Plant Science](#)

Sweeney, D. W., Sun, J., **Taagen, E.** & Sorrells, M. E. *Genomic Selection in Wheat*. (Woodhead Publishing, (2019) in [Applications of Genetic and Genomic Research in Cereals](#), 273-302

Song, Y.H. et al. *Molecular basis of flowering under natural long-day conditions in Arabidopsis*. (2018) [Nature Plants](#)