Christopher O. Hernandez

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Basic Info

I'm a post-doctoral researcher working with the Louisiana State University rice breeding program at the intersection of quantitative genetics, data science, and applied plant breeding.

Education

2014–2019 | **Ph.D. in Plant Breeding and Genetics**
Cornell University, Ithaca, NY **Committee Members:** Michael Mazourek, Li Li, Jessica Rutkoski

2010–2014 | **B.S. in Agronomy**
Iowa State University, Ames, IA *Summa Cum Laude*

2010–2014 | **B.S. in Genetics**
Iowa State University, Ames, IA *Summa Cum Laude*

Research Experience

2019-Current | **Postdoctoral Researcher–LSU AgCenter**
Louisiana State University, Baton Rouge, LA; Cornell University, Ithaca, NY Applied Rice Quantitative Genetics **Advisors:** Adam Famoso& Kelly Robbins

2014-2019 | **Ph.D. student in Plant Breeding and Genetics**
Cornell University, Ithaca, NY **Dissertation Title:** Genetics, Genomics, and Prediction of Winter Squash Fruit Quality. **Advisor:** Michael Mazourek

2013 | **Plant Genome Research Program—REU Intern**
Boyce Thompson Institute, Ithaca, NY **Advisor:** Eric Richards

2013 | **Iowa State University Plant Transformation Facility—Undergrad Intern**
Iowa State University, Ames, IA **Advisor:** Kan Wang

2012 | **Iowa State University Borlaug Internship—ISU Borlaug Intern**
International Potato Center, Lima, Peru

Presentations

2020 | **A Practical Implementation of Genomic Selection for Louisiana Rice Variety Development**
Oral Presentation Rice Technical Working Group, Orange Beach, AL

2018 | **Towards Understanding and Predicting Fruit Quality in Winter Squash**
Keynote talk Cucurbitaceae Conference, Davis, CA PDF

2017 | **Squashnomics: leveraging genomics for a better butternut**
Oral Presentation Department Student Presentation, Ithaca, NY

2016 | **Building a Better Butternut: Understanding and Improving Fruit Quality Traits in Winter Squash**
Oral Presentation Vegetable Breeding Institute, Ithaca, NY

Teaching

2018 | **PLBRG 7170 Quantitative Genetics in Plant Breeding—Teaching Assistant**
Cornell University Graded student homework, ran course site, and developed some lecture materials. **Instructor:** Kelly Robbins

2018 | **PLBRG 3250 Plant Genomic Approaches—Co-instructor**
Cornell University I developed curriculum, lectured, and led analysis pertaining to modern genomic approaches using nanopore sequencing as a teaching tool. **Instructor:** Michael Mazourek

2017 | **PLBRG 3250 Plant Genomic Approaches—Co-instructor**
Cornell University I developed a curriculum and taught lectures to teach the basic principles of next generation sequencing data analysis using the Galaxy web-based platform. **Instructor:** Michael Mazourek

2016 | **PLBRG 2252 Introduction to Plant Genetics—Teaching Assistant**
Cornell University Maintained course website and aided in grading. **Instructor:** Michael Mazourek

2014 | **GRASSHOPR Program—Co-instructor**
Cornell University co-taught a course on plant adaptations to elementary school children.

Technical Skills

Programming & statistics | R, Python, Shell, SQL, and some markup languages. Proficient in statistics, and with using statistical software (R, ASReml, BLUPF90, Ehcidna etc.)

Data management & workflows | Git for code and small file management. Experience working on cloud-server platforms, and with containerization technologies like Docker. Able to setup and maintian Linux servers for breeding database systems and applications.

Lab | Familiar with molecular biology techniques including DNA/RNA extraction, NGS library prep, and nanopore sequencing. Also have experience with HPLC sample preparation, mineral analysis, and carbohydrate analysis.

Breeding | Field design and management, crossing, phenotypic selection, marker-assisted selection, and genomic selection. Can lift fifty pound sacks/bundles/crates and/or amorphous blobs.

Grants

2017 | **Schmittau-Novak Small Grants Program—Co-PI**
Partitioning transcriptome-wide variation and rootstock by scion interactions in reciprocal polyploid grafts ***$6,000*** **Collaborators**: Dustin Wilkerson **(PI)**, Laura Dougherty **(Co-PI)**

Publications

In-Prep | **Characterization of the USDA *Cucurbita pepo*, *Cucurbita moschata*, and *Cucurbita maxima* Collections**
Authors: Christopher O. Hernandez, Kyle E. LaPlant, Joanne Labate, and Michael Mazourek

2020 | **Genomic Prediction and Selection for Fruit Quality Traits in Winter Squash**
Authors: Christopher O. Hernandez, Lindsay Wyatt, and Michael Mazourek 10.1534/g3.120.401215

2020 | **Reconsidering Approaches to Selection in Winter Squash Improvement.**
Authors: Michael Mazourek, Christopher O. Hernandez, and Jack Fabrizio 10.1002/9781119717003.ch7

Awards

2014 | **SUNY Graduate Diversity Fellowship**
Cornell University

2012 | **Sui Tong Chan Fung Fund for the Promotion of Study and Research in Genetics**
Iowa State University

2010 | **Agronomy Academic Scholarship**
Iowa State University