RONGKUI **HAN**

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CORE QUALIFICATIONS

- Deep and clear understanding of frequentist and Bayesian statistical methodologies
- Proficiency in sequestering whole genome sequencing data for a large variety of analytical purposes
- Well-rounded skillset for designing experiments and computational pipelines to answer biological questions
- Strong ability to compile and deliver engaging scientific presentations

EDUCATION

SEPTEMBER 2016 – PRESENT

PHD CANDIDATE | PLANT BIOLOGY, UNIVERSITY OF CALIFORNIA, DAVIS

GPA: 3.88/4.00

Coursework, Biology: Advanced Plant biology, Advanced Genetic Analysis, Comparative Genomics, Genomics, Quantitative & Population Genetics, Statistical Genomics, Plant Morphology.

Coursework, Statistics: Analysis of Variance, Linear Regression, Probability Theory, Mathematical Statistics I & II, Experimental Design & Analysis, Time Series Analysis, Multivariate Data Analysis.

AUGUST 2011 – MAY 2015

BACHELOR OF SCIENCE | AGRICULTURAL SCIENCES, CORNELL UNIVERSITY

Summa Cum Laude

AWARDS & HONORS

- 2016 – 2021 **National Science Foundation, *Graduate Research Fellow***
- 2015 Weed Science Society of America, *Undergraduate Research Award*
- 2014 ASA-CSSA-SSSA, *National Golden Opportunity Scholar*
- 2014 New York State Agribusiness Association Seed Committee, *Undergraduate Award*

RESEARCH

SEPTEMBER 2016 – PRESENT

PHD DISSERTATION PROJECTS, UC DAVIS | MICHELMORE LAB

Project I: QTL mapping of flowering time and photoperiod sensitivity in lettuce

- Obtained and processed Genotyping-by-Sequencing data and weekly developmental phenotype data for a lettuce Recombinant Inbred Lines (RIL) population
- Performed QTL mapping for the signature GxE trait using custom R scripts
- Discovered five independent major loci underlying variations in photoperiod sensitivity

Project II: High-throughput drone phenotyping and QTL mapping of lettuce floral opening time

- Collected hourly field drone images of a lettuce RIL population during flowering season
- Processed GPS-anchored raw images into field-level images using software Pix4D
- Accurately isolated floral pixels from field images using a machine learning algorithm

- Used Bayesian statistics to infer plot-level floral opening time from time-stamped flower pixel count data
- Discovered two QTLs underlying variations in floral opening time

Project III: Phylogenetic footprint analysis of lettuce flowering time genes

- Identified interspecific orthologous gene groups using genomic animo acid sequences of seven eudicot species, including cultivated and wild lettuces
- Extracted promoter sequences of orthologous genes from respective reference assemblies
- Will perform promoter-region sequence conservation analysis to identify putative regulatory elements

Project IV: Bioinformatic prediction of transcription factor binding sites of lettuce reference genome

- Obtained Power Weight Matrices of experimentally validated core plant cis-regulatory motifs from database JASPAR 2018
- Annotated lettuce promoter sequences with regulatory motifs using software FIMO

JULY 2015 – JULY 2016

TECHNICIAN, CORNELL UNIVERSITY | SORRELLS LAB

- Built ridge regression models to predict protein, β-glucan and lipid contents in wheat and oat grains from infra-red spectrum data
- Managed germplasm records on T3 Wheat database

AUGUST 2013 – MAY 2015

UNDERGRADUATE RESEARCHER, CORNELL UNIVERSITY | McCOUCH LAB

- Performed and visualized model-based population structure analysis on historical US rice varieties using Genotyping-by-Sequencing data and software PLINK, FastStructure and Distruct
- Developed genetic distance trees among US rice varieties using TASSEL and Geneious

PUBLICATIONS

Wang, D. R., **Han, R.,** Wolfrum, E. J., & McCouch, S. R. (2017). The buffering capacity of stems: Genetic architecture of nonstructural carbohydrates in cultivated Asian rice, Oryza sativa. New Phytologist, 215(2), 658-671. doi:10.1111/nph.14614

Montilla-Bascón, G., Paul, A. R., **Han, R.,** & Sorrells, M. (2017). Quantification of betaglucans, lipid and protein contents in whole oat groats (Avena sativa L.) using near infrared reflectance spectroscopy. Journal of Near Infrared Spectroscopy, 25(3), 172-179. doi:10.1177/0967033517709615

Zhang, Y., Fletcher, K., **Han, R.,** Michelmore, R., & Yang, R. (2019). Genome-Wide Analysis of Cyclophilin Proteins in 21 Oomycetes. Pathogens, 9(1), 24. doi: 10.3390/pathogens9010024

Macias-Gonzalez, M., Truco, M., **Han, R.,** Jenni S., Michelmore, R. W. High resolution genetic dissection of the major QTL for tipburn resistance in lettuce, Lactuca sativa. Submitted to G3.

SKILLS

- R | Unix | Perl | Python
- English | Mandarin Chinese

MENTORING & TEACHING EXPERIENCE

RESEARCH SUPERVISOR | Michelmore Lab, UC DAVIS

- Boao Zhao: Undergraduate in Statistics at UC Davis.
- Fermin Zurissaday Banuelos-Gonzalez: Undergraduate in Biosystems Engineering at UC Davis.

TEACHING ASSISTANT

SEPTEMBER 2017 | Bioinformatics Core Facility RNA-Seq Workshop, UC DAVIS

- Assisted in setting up and teaching of using command line on a high-performance computing cluster to an audience of various level of background knowledge.
- Provided feedback to the instructors on progress and pace of the course.

SEPTEMBER 2014 – DECEMBER 2014 | CSS2110: Field Crop Systems, CORNELL UNIVERSITY

- Led weekly 4-hour field trips and/or lab sessions.
- Held weekly office hours to answer questions on course materials, homework and exams.

LEADERSHIP & SERVICES

PLANT BIOLOGY GRADUATE STUDENT ASSEMBLY | UC DAVIS

JULY 2018 – JUNE 2019 | Chair of the Recruitment Committee

- Worked closely with the program coordinator, faculty and staff, to successfully organize the 2019 three-day recruitment event for the UC Davis Plant Biology Graduate Group.

JULY 2017 – JULY 2018 | Fundraising Chair

- Raised more than $3,000 in financial support from academic and industrial partners for the annual UC Davis Plant Biology Symposium

AGRICULTURAL SCIENCES MAJOR | CORNELL UNIVERSITY

FEBRUARY 2014 – MAY 2015 | Student Ambassador

- Supported prospective and current Agricultural Sciences students in finding and making use of the opportunities available at Cornell through hosting welcome events, consulting sessions, and in-class discussions

AGRICULTURE FUTURE OF AMERICA

FEBRUARY 2013 – DECEMBER 2013 | Campus Ambassador at Cornell University

- Developed leadership skills through intensive training programs and networking opportunities with industrial professionals
- Promoted of ongoing relationships between Cornell and AFA through delivering on-campus presentations, hosting agriculture themed events, and initiating communications with school faculty and staff

UNDERGRADUATE HORTICULTURE CLUB "HORTUS FORUM" | CORNELL UNIVERSITY

MAY 2014 – MAY 2015 | Treasurer

- Managed the income and expenditure of the club
- Enhanced prudent financial decision-making by fostering timely, open and critical discussions among club officers

MAY 2012 – MAY 2013 | Greenhouse Manager

- Managed the club's 1000 ft2 commercial greenhouse of ornamental plants
- Organized plant sale events for fund-raising

MAY 2013 – MAY 2014 | Chair of Public Relations

- Promoted active communication between club members and officers, making sure the officers receive and respond to feedbacks from the members in a timely and open manner
- Established the club's connection with different departments and organizations of the school