

Joshua Garcia

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PROFESSIONAL APPOINTMENTS

- 2023-2024 **University of California President’s Postdoctoral Fellow**, Department of Land, Air, and Water Resources. University of California, Davis.
- 2022-2023 **Postdoctoral Research Scholar**, Department of Land, Air, and Water Resources. University of California, Davis.

EDUCATION

- 2017-2022 **Doctor of Philosophy**, Horticultural Biology. Cornell University.
Dissertation: *Understanding the Influence of the Rhizosphere Microbiome on Horticultural Crop Traits and Production.*
- 2013-2017 **Bachelor of Science**, Biological Sciences (Evolution, Ecology, and Biodiversity emphasis). University of California, Davis. Minor in Chicax Studies.

AWARDS AND FELLOWSHIPS

- 2024-2026 National Science Foundation Postdoctoral Research Fellow in Biology
- 2023-2024 University of California President’s Postdoctoral Fellow
- 2023-2024 UC Davis Graduate Studies Professors for the Future Fellow
- 2022 Virginia Tech Future Faculty Diversity Program Fellow
- 2022 Edward A. Bouchet Graduate Honor Society Member
- 2022 Cornell University Graduate School Office of Inclusion & Student Engagement Excellence in Leadership Award
- 2020-2022 Cornell Center for Teaching Innovation Fellow (Lead Fellow 2021-2022)
- 2017-2022 National Science Foundation Graduate Research Fellow
- 2017-2022 McNair SUNY Graduate Diversity Fellow
- 2017-2022 Cornell University Graduate School Dean's Scholar
- 2021 Cornell University Graduate School Travel Grant Recipient
- 2018-2019 Atkinson Center for a Sustainable Future Sustainable Biodiversity Fund Fellow
- 2018 Cornell University Graduate School Travel Grant Recipient
- 2015-2017 Ronald E. McNair Post-Baccalaureate Achievement Program Scholar
- 2015 UC Davis College of Biological Sciences Dean’s Honors List

RESEARCH EXPERIENCE

- 2022-Present **Postdoctoral Research Scholar**
- Pursued research and extension activities on climate-smart and regenerative agricultural management practices with BIPOC growers.
 - Mentored graduate students, developed and optimized laboratory protocols, and assisted with the composition of new research proposals.
- PIs: Dr. Cristina Lazcano & Dr. Mallika Nocco, UC Davis Department of Land, Air, and Water Resources.

2017-2022 **National Science Foundation-Sponsored Graduate Student Researcher**

- Conducted and published research on the effects of the rhizosphere microbiome on horticultural crop traits.
- Troubleshoot and optimized laboratory protocols.
- Mentored undergraduates and fellow graduate students in laboratory work.

PI: Dr. Jenny Kao-Kniffin, Cornell University Department of Horticulture

2015-2017 **McNair Scholars Program-Sponsored Undergraduate Researcher**

- Conducted and published two research projects on the potential of soil microorganisms to improve resource acquisition in horticultural crops.
- Troubleshoot and optimized laboratory protocols.
- Analyzed experimental data and presented results at professional meetings.

PI: Dr. Amélie Gaudin, UC Davis Department of Plant Sciences.

2015 **Student Research Assistant**

- Assisted with research on the response of native tree species to climate change in the Sierra Nevada.
- Processed field samples, ran laboratory analyses, and assisted with other projects.

PI: Dr. Andrew Latimer, UC Davis Department of Plant Sciences.

2015 **Laboratory Intern**

- Assisted with research investigating the roles of ammonium, nitrate, and labile carbon in nitrous oxide production from the soils of California specialty crops.
- Processed field samples and ran laboratory analyses.
- Performed routine maintenance in the laboratory.

PI: Dr. William Horwath, UC Davis Department of Land, Air, and Water Resources.

TEACHING EXPERIENCE

2022 **UC Davis Graduate Group in Ecology NSF GRFP Seminar Instructor**

- Led one discussion section for the UC Davis Graduate Group in Ecology's NSF GRFP writing seminar.
- Facilitated weekly writing workshops and advised graduate students in the composition of their NSF GRFP applications.

2021 **Cornell Knight Institute First Year Writing Seminar Instructor**

- Created and taught the course PLSCI1107: Writing in the Life Sciences.
- Assisted every student in identifying academic interests, conducting library research, and composing full-length scientific literature reviews on their chosen topic.
- Designed class activities, held regular office hours, and completed grading.

- 2020 **Cornell Prison Education Program Plant Pathology Teaching Assistant**
- Assisted with the instruction of PLSCI2275: Plant Pathology for the Cornell Prison Education Program at Auburn Correctional Facility.
 - Created lesson plans, delivered lectures, worked with the facility to offer students office hours, produced supplemental study materials for students, and completed grading.
- Supervisor: Dr. William Fry, Cornell University Department of Plant Pathology
- 2019 **Climate Change and the Future of Food Teaching Assistant**
- Assisted with the instruction of PLHRT3600: Climate Change and the Future of Food.
 - Facilitated class activities, including the class’s “Cropopoly” game, answered student questions via email, and completed grading.
- Supervisor: Dr. David Wolfe, Cornell University Department of Horticulture
- 2015 **BIS2C: Biodiversity Laboratory Assistant**
- Aided graduate teaching assistants with instructing the laboratory/discussion portion of the course BIS2C: Biodiversity.
 - Facilitated laboratory activities, assisted students, and lead class discussions.
- Supervisor: Dr. Joel Ledford, UC Davis Department of Plant Biology.
- 2014 **BIS2A: Cell Functions Learning Assistant**
- Aided graduate teaching assistants with instructing the discussion portion of the course BIS2A: Cell Functions.
 - Assisted with the development of lesson plans, answered student questions, and facilitated discussion activities.
- Supervisor: Dr. Erin Easlon, UC Davis Department of Microbiology.

EXTENSION PRESENTATIONS, WORKSHOPS, AND EVENTS

- 2023 ‘Growing the Network,’ Presenter. Civic Urban Farmer Program. Three Sisters Garden, West Sacramento, CA. 25 participants.
- 2023 ‘Soil Health, Composting, and Food Safety,’ Presenter. Civic Urban Farmer Program. Three Sisters Garden, West Sacramento, CA. 25 participants.
- 2023 ‘Soil Health, Composting, and Food Safety,’ Presenter. Civic Urban Farmer Program. Prescott Elementary School, Oakland, CA. 30 participants.
- 2023 ‘Site Selection and Introduction to Plant Biology,’ Presenter. Civic Urban Farmer Program. Webinar. 47 participants.
- 2023 ‘Urban Agriculture Food Policies and Improving Your Soil Quality,’ Presenter. Civic Urban Farmer Program. Webinar. 53 participants.

LEADERSHIP AND COMMUNITY ENGAGEMENT

- 2021-2022 No Mas Lagrimas/No More Tears Volunteer
- 2020-2022 Mutual Aid Tompkins Food Sharing Group Organizer
- 2020-2022 School of Integrative Plant Science Diversity and Inclusion Council Member
- 2020-2022 Cornell QGrads Member
- 2017-2022 Cornell Latinx Graduate Student Coalition Member (Executive Board Member 2020-2022)
- 2017-2022 Cornell Society of Horticulture Graduate Students Member (Executive Board Member 2021)
- 2021 Black Hands Universal Community Gardening and Climate Education Counselor
- 2021 College Initiatives Upstate Math Tutor at Tompkins-Cortland Community College

PUBLICATIONS

- 2023 Malal, H., **Garcia, J.**, Marrs, A., Emerson, C., Nocco, M., Lachtar, H., & Lazcano, C. The resistance of soil microbiome to salinity stress in the presence of organic and inorganic fertilizer in short- and long-term experiment. *In preparation.*
- 2023 **Garcia, J.**, Moravek, M., Fish, T., Thannhauser, T., Fei, Z., Sparks, J., Giovannoni, J., & Kao-Kniffin, J. Transcriptome of Tomato (*Solanum lycopersicum* L.) Reveals Impacts of Root Microbiomes on Host Interactions. *BMC Plant Biology (In revision).*
- 2023 **Garcia, J.**, Bray, N., Butler-Jones, A., Son, Y., Egendorf, P., & Kao-Kniffin, J. Use of municipal excavated subsoils to enhance the sustainability of urban agriculture: A case study of New York City’s Clean Soil Bank. *Journal of Urban Ecology*, 9 (1).
- 2022 **Garcia, J.**, Gannett, M., Wei, L., Cheng, L., Hu, S., Sparks, J., Giovannoni, J., & Kao-Kniffin, J. Selection pressure on the rhizosphere microbiome alters nitrogen use efficiency and seed yield in *Brassica rapa*. *Communications Biology*, 5, 959.
- 2021 **Garcia, J.**, Schmidt, J., Gidekel, M., & Gaudin, A. Impact of an Antarctic rhizobacterium on root traits and productivity of soybean (*Glycine max* L.). *Journal of Plant Nutrition*, 44:12, 1818-1825.
- 2020 Vasilikiotis, C., Li, M., Schmidt, J., Azimi, A., **Garcia, J.**, Volder, A., Lampinen, B., & Gaudin, A. Orchard management practices affect mycorrhizal colonization of almond. *Biological Agriculture and Horticulture*, 36:4, 230-248.
- 2019 **Garcia, J.**, and Kao-Kniffin, J. Can dynamic network modeling be used to identify adaptive microbiomes? *Functional Ecology*, 3, 2065-2074.
- 2018 **Garcia, J.**, and Kao-Kniffin, J. Microbial group dynamics in plant rhizospheres and their implications on nutrient cycling. *Frontiers in Microbiology*, 9 (1516).

RESEARCH GRANTS

- 2023-2025 ‘Rapid Decision Support to Manage Carbon-Nutrient-Water Trade-offs from California’s Landmark Methane Policy’ (\$1,999,948). California Climate Action Seed Grant. University of California Office of Research & Innovation. Role: Co-I.
- 2018-2019 ‘Improving Agroecosystem Nitrogen Dynamics through Crop Diversification’ (\$7,500). Sustainable Biodiversity Fund Grant. David R. Atkinson Center for a Sustainable Future. Role: PI.

INVITED SEMINARS

- 2023 ‘Building Sustainable Agroecosystems from the Ground Up.’ Environmental Science, Policy, and Management 2023 Fall Seminar Series. UC Berkeley.
- 2023 ‘Building Sustainable Agroecosystems from the Ground Up.’ Life and Environmental Sciences 2023 Fall Seminar Series. UC Merced.

PRESENTATIONS

- 2023 Gonzalez-Maldonado, N., Steenwerth, K., Nocco, M., **Garcia, J.**, Yao, E., Robles, L., & Lazcano, C. Assessing the soil microbiome’s role on soil health in the context of Napa Valley terroirs. Presented at the Global Soil Biodiversity Conference.
- 2023 Fenn, K., **Garcia, J.**, Robles, L., Gal, A., Lazcano, C., & Nocco, M. Understanding the role of the soil microbiome on soil health in a young almond orchard. Presented at the Global Soil Biodiversity Conference.
- 2023 **Garcia, J.**, Gannet, M., Wei, L., Cheng, L., Hu, S., Sparks, J., Giovannoni, J., & Kao-Kniffin, J. Selection pressure on the rhizosphere microbiome can alter nitrogen use efficiency and seed yield in *Brassica rapa*. Presented at the Global Soil Biodiversity Conference.
- 2023 **Garcia, J.**, Fenn, K., Wong, C., Robles, L., Gal, A., Nocco, M., & Lazcano, C. Examining Relationships Between Soil Carbon and Microbial Communities Across Depths in Two Perennial Cropping Systems. Presented at the Global Soil Biodiversity Conference.
- 2023 Gal, A., Fenn, K., Bambach, N., Borum, J., Bushoven, J., DeVencentis, A., Edwards, E., **Garcia, J.**, Jha, G., Khalsa, S.D., Lazcano, C., McElrone, A., Solis, S., Yeasmin, D., & Nocco, M. Evaluating Climate-Smart Irrigation and Cover Crops in Almond Systems. Presented at the California Irrigation Conference.
- 2022 Gonzalez-Maldonado, N., **Garcia, J.**, Steenwerth, K., Nocco, M., Yao, E., Robles, L., & Lazcano, C. Is microbial diversity related to soil health? A study in Mediterranean vineyards. Presented at the Tri-Societies Annual Meeting.

- 2022 **Garcia, J.**, Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Spatial crop diversity alters soil properties and influences fruit yield of tomato (*Solanum lycopersicum*). Presented at the Soil Ecology Society Biennial Meeting.
- 2022 **Garcia, J.**, Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Understanding the effects of the rhizosphere microbiome on tomato (*Solanum lycopersicum*) foliar and fruit traits. Presented at the Annual Yale Bouchet Conference on Diversity and Graduate Education.
- 2021 **Garcia, J.**, Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Understanding the effects of the rhizosphere microbiome on tomato (*Solanum lycopersicum*) foliar and fruit traits. Presented at the Tri-Societies Annual Meeting.
- 2020 **Garcia, J.**, Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Developing crop microbiomes for enhanced plant productivity. Presented at the Tri-Societies Annual Meeting.
- 2019 **Garcia, J.**, Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Using directed evolution of the rhizosphere microbiome to increase seed yield. Presented at the Soil Ecology Society Biennial Meeting.
- 2018 **Garcia, J.** Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Developing crop microbiomes for enhanced plant productivity. Presented at the Cornell Microbiology Symposium.
- 2018 **Garcia, J.** Giovannoni, J., Sparks, J., & Kao-Kniffin, J. Developing crop microbiomes for enhanced plant productivity. Presented at Ecological Society of America's Annual Meeting.
- 2017 **Garcia, J.** & Gaudin, A. Root and rhizosphere traits for the sustainable production of soybeans. Presented at Ecological Society of America's Annual Meeting.
- 2016 **Garcia, J.** & Gaudin, A. Impact of an Antarctic rhizobacterium on tomato root growth and development. Presented at the Annual National Conference on Undergraduate Research.
- 2015 McClung, T., Schmidt, J., **Garcia, J.**, Gaudin, A., & Volder, A. Potential of mycorrhizal inoculation to mitigate water stress in Almond. Presented at the Almond Conference 2015.

PROFESSIONAL AFFILIATIONS

American Geophysical Union
Soil Ecology Society of America
Soil Science Society of America