

Josephine M. Cardelle

(607) 353-9367 | jcardelle@bren.ucsb.edu | Santa Barbara, CA
jocardelle.github.io | [GitHub](#) | [LinkedIn](#)

EDUCATION

Master of Environmental Data Science (June 2025)

Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)

Highlighted Coursework: Geospatial Analysis and Remote Sensing, Machine Learning in Environmental Science, Environmental Policy Evaluation, Data Visualization and Communication, Modeling Environmental Systems, Ethics and Bias in Environmental Data Science, Python for Environmental Data Science

Involvement: Mentor for Bren-Environmental Studies Fellows Program

Bachelor of Engineering in Civil Engineering (May 2021)

McGill University, Montreal, QC

Honors/Awards: National Merit Hispanic Scholar

Involvement: Engineers Without Borders, Sustainability in Engineering at McGill, Bridge Building Team

TECHNICAL SKILLS

Programming: R, Python, SQL, Bash, Git/GitHub

Computer: ArcGIS, QGIS, AutoCAD, Microsoft Excel, Microsoft Suite, Canva, Affinity, Tableau

MASTER'S CAPSTONE DATA SCIENCE PROJECT

Identifying Disadvantaged Communities Based on Cumulative Environmental Burdens

Client: Dr. Jayajit Chakraborty **Deliverables**: Interactive Dashboard, Analytical Report

- Developed statistical and spatial models in Python to analyze cumulative environmental burdens across US census tracts, incorporating demographic and pollution variables to identify disadvantaged community clusters for climate policy applications
- Designed and built an interactive web application to improve upon the Climate and Economic Justice Screening Tool (CEJST), displaying cumulative environmental impact data, allowing users to explore burden metrics across different US regions (live web application: apps.bren.ucsb.edu/justice40)
- Led analysis comparing current vs. proposed CEJST approaches, delivering recommendations for more effective environmental justice fund allocation based on cumulative burden assessment

EXPERIENCE

GIS Graduate Researcher (November 2024 – June 2025)

UCSB – Earth Research Institute, Santa Barbara, CA

- Digitize and georeference hand-drawn 1900's agricultural maps from Kern County using scikit-learn's machine learning tools to automate feature detection and classification under the supervision of Dr. Ashley Larsen
- Create GIS workflows in Python to process historical Department of Water Resources maps for identifying long-term retired farmland
- Manage and analyze spatial datasets related to land use/land cover, climate, and agriculture to identify long-term trends in land retirement and its ecological impacts
- Conduct comprehensive literature reviews on land use, agriculture, and biodiversity to support spatial data analyses and ensure data-driven research

Agricultural/Civil Engineer (GS 9) (January 2022 – April 2024)

USDA – Natural Resources Conservation Service (NRCS), Commonwealth of the Northern Mariana Islands (CNMI)

- Served small shareholder and historically underserved farmers by designing and implementing conservation practices including animal waste systems, erosion control structures, and sustainable irrigation systems
- Conducted comprehensive field assessments through site investigations, feasibility studies, and topographic surveys to develop site-specific engineering solutions for diverse agricultural operations
- Managed full project lifecycle from initial planning through construction completion, coordinating between contractors, farmers, and agency stakeholders while ensuring regulatory compliance and quality standards
- Provided technical expertise in agricultural engineering practices, delivering hands-on guidance to farmers on implementing conservation designs appropriate for their operations
- Facilitated stakeholder communication through pre-construction meetings and ongoing project coordination, ensuring clear expectations and successful project delivery for farming communities

AmeriCorps Member (July 2021 - November 2021)

American Conservation Experience, Hurricane, UT

- Implemented conservation projects in public lands such as Zion National Park, Bryce Canyon National Park, and Leavenworth National Fish Hatchery
- Participated in projects such as forest fire fuels reduction, invasive species removal, trail maintenance and construction, and cattle exclusion fencing construction
- Collaborated with federal employees such as the Zion NP Fire Management Crew and Vegetation Crew

Engineering Undergraduate Researcher (May 2019 – August 2019)

McGill University – Environmental Geomechanics Laboratory, Montreal, QC

- Analyzed the suitability of Lac du Bonnet Granite to serve as a deep geological repository for nuclear by product under the supervision of Dr. A.P.S. Selvadurai
- Mastered the use of an X-ray diffraction machine to determine mineralogical composition and taught the proper use of the machine to the other researchers in the laboratory
- Provided research support for the paper *Estimate for the Effective Permeability of Intact Granite Obtained from the Eastern and Western Flanks of the Canadian Shield* (Selvadurai et al., 2020)
- Presented a research poster at the Summer Undergraduate Research in Engineering (SURE) Design Day

Conservationist (May 2018 – July 2018)

Operation Groundswell, Tanzania & Rwanda

- Collaborated on conservation and community centered projects with local NGOs including The Jane Goodall Institute, Rau ECO, Rwanda Environmental Conservation Organization, and the Association pour la Conservation de Nature au Rwanda.
- Built and improved various necessary structures in local communities.
- Contributed to restoration efforts of local forests.

COMMITTEES/VOLUNTEER EXPERIENCE

Watershed Working Group Member (January 2022 – April 2024)

Department of Coastal Resources Management, Commonwealth of the Northern Mariana Islands (CNMI)

- Collaborated with federal and local agencies to review watershed management plans and provide feedback on restoration projects, including rain gardens, mangrove nurseries, and erosion control measures
- Served as USDA representative providing agricultural expertise and perspectives on watershed protection strategies, ensuring farming community interests were considered in conservation planning

- Engaged in cross-agency discussions on watershed health indicators, water quality monitoring, and implementation of best management practices to reduce land-based sources of pollution
- Participated in bi-monthly multi-agency Watershed Working Group meetings to coordinate watershed management initiatives and provide input on conservation strategies across Saipan, Tinian, and Rota's priority watersheds

Environmental Studies Fellows Program Mentor (September 2024 – June 2025)

University of California, Santa Barbara

- Mentor undergraduate Environmental Science Fellows in professional development, academic planning, and navigating research and internship opportunities
- Support first-generation and underrepresented students in building connections within the environmental science field and accessing academic resources
- Meet monthly with assigned student mentees to discuss career pathways in environmental science and share insights from personal research and work experience

Volunteer (April 2024 - Present)

Worms Waste Not, LLC, Oneonta, NY

- Manage social media presence for local organic waste hauling business, creating content to educate community about composting and waste reduction practices
- Support weekly farmers market operations through customer education and subscription sign-ups, helping expand the composting service within the local community
- Assist with residential food waste collection and drop-off logistics, ensuring smooth operation of community composting program

CERTIFICATIONS & LANGUAGES

Certifications/Trainings: NRCS Level I Certified Conservation Planner, Certified Comprehensive Nutrient Management Planner, California Polytechnic State University Designer/Manager School of Irrigation Training, PADI Open Water Diver

Languages: Proficient Spanish