CAROLINE R. BAUMANN

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MASTERS LEVEL GIS | YUCATÁN AND LA COUNTY PROJECTS | NASA LEAD

GIS professional specializing in spatial analysis, coding, and satellite data. Masters-level candidate (graduating May 2025) in GIS and currently managing the NASA DEVELOP Program at JPL. Previous undergraduate double major in Geography and Deaf Studies and recipient of prestigious Dean Scholar award for performance and initiative. Prior GIS work includes lead analyst for Yucatán Mexico projects, undergraduate capstone on Spatial Accessibility to ASL in LA County, development of ECOSTRESS tutorials for NASA, and master's thesis on spatially explicit GIS-MCDA. Highly motivated with a wide range of GIS skills, looking to learn and be productive as part of a large and diverse municipal organization.

PROFESSIONAL AND TECHNICAL SKILLS

Geographic Information Systems | Spatial Analysis, Spatial Statistics, Geocoding, Vector & Raster Data Analysis, Zonal Operations, Least Cost Path Analysis, Network Analysis, Multi Criteria Decision Analysis, Spatial Interpolation, Hotspot Analysis, 2-Step Floating Catchment Area

ESRI: ArcGIS Pro, ArcGIS Online, ArcGIS StoryMaps, and ArcGIS QuickCapture | Open Source: QGIS

Programming | Python, Pandas, GeoPandas, Matplotlib, Arcpy, Rasterio, Rioxarray, R, and GitHub

Remote Sensing | Google Earth Engine (GEE), JavaScript for GEE, GIS Image Analysis, Digitizing, Cloud Masking, Quality Assurance Flags, Composites, and Animations

Geospatial Database | PostgreSQL, PostGIS, PgAdmin, Spatial SQL, and SQL

Data Visualization | Adobe Illustrator, Photoshop, and Microsoft Power BI

EDUCATION

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

Master's Degree | Geographic Information Science | graduating May 2025
- Thesis: Spatially Explicit Weighted OWA for Spatial MultiCriteria Decision-Making
- President of the Geographic Honors Society (2023 - 2025)

Bachelor's Degrees (dual) **| Geography and Environmental Studies, and Deaf Studies |** 2024
- Thesis: Quantifying Potential Spatial Accessibility to Adult American Sign Language Classes in Los Angeles County
- Dual major, Summa Cum Laude, 4.0 GPA; recipient of College of Education's Dean Scholar Award
- President of the Deaf Studies Association (2022 - 2024)

EdX GIS Certification | GIS Foundations, 3D GIS, and GIS Image Analysis

Experience

Analytical Mechanics Associate | NASA DEVELOP Program | JPL Center Lead (2025-Present)

- Overseeing teams of interns throughout the 10-week project term to ensure a successful project and increased capacity in technical and professional skills
- Coordinating and collaborating with outside partners, academics, and science advisors
- Sourcing project ideas by networking with end users in need of satellite data analysis
- Writing project proposals outlining the use of various Earth observation products to accomplish specific deliverable goals
- Filtering through large volumes of applications to interview and hire suitable participants
- Facilitates the development and hand off of high-quality deliverables including data visualizations, technical reports, and presentations

Statistics Specialist Research Assistant | University of California, Los Angeles (2024-Present)

- Investigating elderly opinions on neighborhood satisfaction in Australia using the Household, Income and Labour Dynamics in Australia (HILDA) Survey data
- Data cleaning and processing in R by removing nulls, standardizing, and categorizing
- Conducting descriptive statistics, correlation analysis, and Ordinary Least Squares Regression in R

Science Communication Intern | NASA Jet Propulsion Laboratory (Summer - Fall 2024)

- Creating training material, code, and tutorials to help users access and apply ECOSTRESS data
- Experience in writing detailed instructions to explain complex remote sensing concepts
- Developing Python code to cloud mask, apply QC flags, filter, and sharpen ECOSTRESS data
- Producing video tutorials demonstrating application of data for creating impactful maps
- Teaching other interns and colleges how to develop their own user-friendly tutorials

Analytical Mechanics Associates | NASA DEVELOP Program | JPL (Spring 2024)

- DEVELOP participant involved in researching water quality parameters and their relationship to eelgrass in Newport and Mission Bay using NASA's Earth Observations
- Participated as the technical lead by developing code in both Python and JavaScript for Google Earth Engine to generate water quality datasets from remotely sensed imagery

Student Research Assistant | CSUN Geography Department (2023-2025)

- Research assistant in collaboration with National Autonomous University of Mexico (UNAM)
- Completed 2 projects in Yucatán: Spatial Accessibility to primary healthcare providers and identifying disadvantaged communities using GIS based Multi Criteria Decision Analysis
- Wrote a proposal and received funding for a walkability index for Mexico City to compared to Los Angeles

Python Specialist | Center for Geospatial Science and Technology (2023-2024)

- Developing Python scripts to read, modify, organize, and analyze spatial data