



JOYCE HU

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Education

University of California San Diego - Halıcıoğlu Data Science Institute **Exp. Dec 2025**
Master of Science (M.S.) in Data Science *La Jolla, CA*

University of California San Diego **June 2024**
Bachelors of Science in Political Science: Data Analytics, cum laude *La Jolla, CA*

- Minors: Data Science and General Biology
- Coursework and Topics: Probabilistic Modeling and Machine Learning, Text as Data (NLP), Data Structures and Algorithms for Data Science, Data Imputation in Political Science, Object-Oriented Programming, Data Structures and Algorithms, Optimization, Discrete Probability

Experience

Bioinformatics Research Assistant **December 2023 – Present**
J. Craig Venter Institute *La Jolla, CA*

- Conduct cross-validation study to evaluate the single cell transcriptomically-derived cell types in the Human Lung Cell Atlas (HLCA) reference using machine learning and computational algorithms
- Design performance metrics for unbiased evaluation of cross-validation results and benchmarking of algorithms used in the project
- Process scRNA-seq data, metadata collection, normalization and transformation, dimensionality reduction, nearest neighbor search, marker gene identification, and cell type matching

Teaching Assistant **September 2024 - Present**
University of California, San Diego *La Jolla, CA*

- CSS 1: Introductory Programming for Computational Social Science (9/24 - 12/24)
- GPIM 452: Big Data Analytics (1/25-3/25)

Machine Learning Fellow **July 2023 - September 2023**
Launchpad.ai

- Collaborated with team to develop generative AI solutions for virtual fashion try-on imaging, combining expertise in computer vision, deep learning, and fashion technology
- Trained, fine-tuned, and conducted inference on state-of-the-art virtual try-on models such as DreamPose, LaDi-VTON, and HD-VTON to produce high-quality AI images and videos
- Used Stable Diffusion models such as Inpaint and ControlNet to capture and analyze user's input images
- Tested image segmentation models such as OpenPose and Segment Anything to improve image and video generation quality

Research Assistant (Data Analytics) **June 2022 – Dec 2023**
U.S. Immigration Policy Center *La Jolla, CA*

- Built a data pipeline to webscrape, preprocess, and update monthly immigration court database
- Ran and analyzed Difference-in-Difference models in R
- Cleaned and manipulated datasets with over 40 features and over 6500 observations using pandas in Python

Projects

Environmental Performance Classifier | *Tensorflow, Keras, Scikit-learn, Pandas*

- Constructed an environmental performance index using Principal Component Analysis and grouped countries by their environmental performance using KMeans Clustering
- Predicted environmental performance of countries using LASSO and achieved an R-square of 0.93 after cross-validation

San Diego “Get it Done” Pothole Dashboard | *Tableau*

- Created a dashboard in Tableau to inform San Diego council members of the effectiveness of the “Get it Done” app pertaining to potholes on the road
- Created visualizations for San Diego residents to view city responsiveness to their pothole fix-it requests, and to visualize how pothole trends may be influenced by rain, location, and time

Technical Skills

Languages: Python, R, Java, Matlab, Stata, SQL, JavaScript, HTML, CSS, bash

Technologies: Tableau, PostgreSQL, MySQL, Excel, Power BI

Other: Pandas, Numpy, Matplotlib, Seaborn, ggplot, plotly, Scikit-learn, Keras, Tensorflow, Beautiful Soup, Git