John Wesley D. Pabalate

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Education

University of California, San Diego - La Jolla, CA — Fall 2022 - Present
B.S. Cognitive Science specializing in Machine Learning and Neural Computation
Double Minor: Data Science and Business Analytics

Experience

Rob Knight Lab - La Jolla, CA — Feb. 2025 - Present

Analyst

- Under the guidance of a PhD researcher Sam Degregori, I compiled 16S rRNA sequencing metadata from 100+ international gut microbiome studies spanning six continents, and using Excel to create a master sheet of each studies.
- Developed Python dashboards (matplotlib, seaborn) to review study origins, validating balanced coverage throughout all six inhabited continents and marking under sampled regions for follow up collection.

San Diego Biomedical Research Institute (Dr. Gregory Seumois' Lab) - La Jolla, CA — Nov. 2024 - Present

Lab Research Assistant

- Analyzed and organized clinical datasets from over 50+ samples, including airway sputum and bronchoalveolar lavage, using techniques like RNA-sequencing using beads or columns, and doing RNA quantification and quality.
- Managed procurement and logistics during lab setup, organized purchasing, coordinated with vendors, and implemented a materials tracking system to reduce supply issues and improve efficiency.

UCSD Undergraduate Economic Society - La Jolla, CA — Dec. 2024 - April. 2025

Website Developer

- Designed, developed, and maintained the official website of the UCSD Undergraduate Economic Society using a combination of JavaScript, HTML, and CSS, enhancing user experience and increasing engagement by 20%.
- Collaborated with a team of 5 committee members to design and implement new features, such as resource pages and member profiles, resulting in a 10% increase in user engagement during recruitment and event seasons.

Projects

Macronutrients and Ratings: The Impact of Carbs and Protein on Recipe Ratings — Jan. 2025 - Mar. 2025

- Analyzed 80k+ recipes and 730k+ reviews to assess how macronutrient profiles (carbohydrate and protein content) influence user ratings, leading to statistically significant insights.
- Cleaned and combined recipe and review data to create a unified dataset, handled missing values, and transformed nutrition info into meaningful features to support a more accurate and insightful analysis.
- Built interactive data visualizations using Plotly and developed a website with HTML to communicate key findings and insights from the analysis in an engaging, user-friendly format.

Bone Fraction Classification — Oct. 2024 - Dec. 2024

- Implemented pre-processing techniques (e.g., noise removal, contrast improvement, edge detection) and advanced feature extraction methods like GLCM, LBP, and HOG, enhancing bone fracture detection accuracy.
- Utilized PCA for dimensionality reduction and fine-tuned a ResNet-based deep learning model, attempting to achieve high classification performance on medical imaging datasets by optimizing hyperparameters and improving accuracy.

Socioeconomic and Public Health Analysis: Fast Food, Poverty, and Obesity Rates — Oct. 2024 - Dec. 2024

- Conducted data analysis on the correlation between McDonald's franchise density, poverty levels, and obesity rates across the U.S. (2021-2023), identifying key trends in low-income areas with high fast food availability.
- Performed Exploratory Data Analysis (EDA) through choropleth maps and geospatial analysis to graphically and examine county-level distributions of obesity rates and poverty percentages across the U.S.

Skills

Programming: Python (pandas, numpy, scikit-learn), SQL, JavaScript, HTML, CSS

Data Analysis: MS Excel, Data Visualization (Tableau), Data Cleaning, Statistical Analysis, Machine Learning

Tools and Knowledge: Linux, Jupyter Notebook, VS Code, Business Operations, Usability and Information Architecture