Manuel Magana

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Education

University of California, Berkeley

B.A Molecular and Cell Biology: Neurobiology

Berkeley, CA Graduation: May 2021

San Francisco, CA | November 2022-Present

San Francisco, CA | March 2021 – July 2021

Relevant Courses in Molecular and Cell Biology: Biochemistry (MCB 102), Circuit, Systems & Behavioral Neuroscience (MCB 161), Cellular and Molecular Neurobiology (MCB 160), Neurobiology Lab (MCB 160L), Genetics, Genomics, and Cell Biology(MCB 104) Relevant Courses in Computer Science and Engineering: Data Structures (CS61B), Machine Structure (CS61C), Designing Information Devices and Systems (EE16A/ EE16B), Principles and Techniques of Data Science(Data100), Discrete Mathematics

Skills

Languages: Python, R, Java, SQL(PostgreSQL/BigQuery/SQLite), C, Bash, HTML/CSS

Technologies: Git, Docker, Regex, Jupyter Notebook, NumPy, Matplotlib, Pandas, OpenMP, ggplot2, scikit-learn, Vim, PyArrow

Work Experience

Genentech | *Mass Spectrometry*, *Bioinformatics*

- Developed and containerized a robust Quality Control Python library, enabling reproducible data analysis and report generation • for large-scale datasets
- Designed and implemented comprehensive **unit tests** to validate code functionality, significantly enhancing software reliability .
- Utilized **PvArrow** to efficiently handle 200GB files, optimizing memory usage and streamlining data processing
- Developed a QC R Shiny application to compare various proteomics methods, providing users with tools to assess performance
- Created intuitive data visualizations for clinical trial datasets ranging from 10MB to 70GB, facilitating effective data interpretation
- Visualized quantitative capabilities and performance of OLINK, mass spectrometry, and ELLA data

Weill Cornell Medicine | Research Technician

- New York, NY| January 2021 July 2021 Managed and set up Virtual Machines (VMs), Anaconda, and Docker environments to support postdoctoral research
- Developed a Python script to search FASTA files, extract peptide n-mers with specific motifs, and output results in FASTA format
- Utilized open-source software to generate DIA and DDA spectral libraries, assessing their quality using lab and published data
- Created visualizations to analyze motifs of strong and weak binding MHC peptides predicted by a neural network •
- Cleaned, processed, and formatted data using grep, awk, and other Linux commands for subsequent analysis in Python

Endless West | Junior Data Scientist, Analytical Chemistry

- San Francisco, CA | July 2021-November 2021 Utilized Ridge Regression, Principal Component Regression and Partial least squares to predict the woodinessness whiskeys •
- Built Logistic Regression and Random Forest models to classify unknown whiskey's flavor and aroma profile •
- Analyzed features importance in order to provide the development department with compound associated with flavor and aroma
- Built a web scrape, employing **beautiful soup**, in Python to expand the internal chemical database
- Created Interactive Google Colabs for the R&D department to more easily interact with the the company's database

Endless West | Analytical Chemistry Intern

- Utilized an Orthogonal Projection to Latent Structures (OPLS) model to predict the woodiness of an unknown whiskey and used Variable Importance on Projection (VIP) score to determine the most important chemicals that contributed to wood aroma
- Created a Python script that took the Excel files outputted by MS/LC and MS/GC and created a heat map that included all relevant information for ease of access and ease of understanding data for the scientist
- Automated the cleaning of mass spectrometry data and implemented a K-Nearest Algorithm to select K closest standards to the mean concentrations of different chemicals found in various whiskeys to be used for least squares

Projects | Software Engineering/Data Analysis/Data Science

Simple Git | Java

- Implemented a version control system with 13 commands such as init, add, commit, merge, branch, and check-out
- Utilized Linked-Lists and Hashing in order to efficiently access and store files

Bear Maps | Java

- Developed backend for web mapping application similar to OpenStreetMap •
- Implemented A algorithm to find shortest path for requested destinations in Berkeley

Demon, Creature, Elf Battle Game | C++

- Utilized **OOP** to develop different types of creatures with their own health points, attack points, and special attack abilities
- Wrote a battle function that took in two different creatures to simulate a battle, and print the progression and result of the battle

Spam/Ham Classifier | *Python. Pandas. Scikit-Learn*

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