Xiran Li

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SKILLS

- Programming languages: Python, JavaScript
- Frameworks: Django, React, Fast API
- Other skills: R, Shell scripting, Pytorch, Scikit-learn, omics data analysis, Snakemake.

PROJECTS

Lab Inventory Management system (Independent developer) June 2024 - July 2024

- Developed a full-stack lab inventory management system with Django REST (backend) and React (frontend), deployed on AWS EC2, serving daily active users.
- Enabled users to submit lab supply inquiries through this app and the lab manager will get notified by email and follow up, streamlining communication between lab members..
- Allowed registered users to track inventory, purchase records, and bacterial culture locations,improving efficiency in inventory management.
- Built database models using SQLite to store and manage laboratory data such as purchase orders, request tracking, and bacterial culture collection..
- Implemented secure user authentication and authorization, featuring role-based access controls for lab staff and administrators.
- Reduced the average order processing time from days to hours.
- Github: https://github.com/xiranli007/Lab-Inventory-System-v2.git

San Francisco Crime Prediction (Project leader) Apr 2024 - June 2024

- Collaborated on a full-stack project to analyze the Kaggle San Francisco Crime Classification dataset, predicting crime categories based on time and location.
- Preprocessed data using pandas and Scikit-learn, and evaluated models including XGBoost, Logistic Regression, Random Forest, Naive Bayes, and Multi-layer Perceptron (MLP).
- Optimized the XGBoost model using BayesSearchCV, achieving a final prediction accuracy of 57%.
- Developed a FastAPI backend and React frontend for the machine learning model, packaged with Docker and deployed on Heroku.
- https://sf-ml-backend-e212ab5750b3.herokuapp.com/
- https://sf-ml-frontend-fad676678abc.herokuapp.com/

SQL Middleware for Django (Independent developer) July 2024 – Aug 2024

- Developed a Django ORM middleware tool that captures and logs raw SQL queries for performance tuning and debugging.Tracked execution time to log slow queries exceeding a configurable threshold.
- Identified potential N+1 problems and flagged expensive joins and large result sets in SQL queries.
- Packaged as a reusable Python package, enabling developers to configure query thresholds and logging preferences.
- https://pypi.org/project/abb-sql-inpection-tool-v2/1.0.2/

BIOINFORMATIC RESEARCH AT UC DAVIS

Mitigation of Antimicrobial Resistance (AMR) in Aquaculture (Research project leader) Feb 2022 – Present

- Led a cross-disciplinary team of 10 to design and execute a model aquaculture system for Antimicrobial Resistance assessment, completing critical experiments.
- Built Web App by Django running on the local machine to let the team record experiment data easily. The app allows the team to convert recorded data into different file formats for easier importing in different analysis tools.
- Developed a genomic data analysis pipeline using Python, shell scripting and Snakemake to perform metagenomic analysis and microbial tracking on HPC (High Performance Cluster).
- Github:https://github.com/xiranli007/meta_snakemake_workflow.git

EDUCATION

- **University of California, Davis**, Davis, USA
  Computer Science — M.S. GPA: 4.00/4.00 Expected graduation date: Dec 2025
  Food Science and Technology— Ph.D. GPA: 4.00/4.00 Expected graduation date: Dec 2025
- **University of British Columbia**, Vancouver, Canada
  Food Science — B.S GPA: 3.75/4.00 Sept 2015 - 2020