Uma Iyer

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Education

University of Michigan Aug. 2022 - May 2026
Majors: Data Science and Economics, GPA 3.4 *Ann Arbor, MI*

London School of Economics Summer Program Jun. 2024 - Aug. 2024
Courses: International Economic, Behavioral Economics *London, England*

Courses: Data Mining, Machine Learning, Database Management Systems, Macro and Micro Economics, Intermediate Probability, Advanced Statistics, Econometrics, Game Theory

Technical Languages/Tools: Python, C++, SQL, Snowflake, PostgreSQL, Java, Spark, PyTorch, NumPy, Pandas, DuckDB, scikit-learn, Pytest, Poetry, Tableau, Linux, Git, Docker, Excel, MongoDB, Power BI

Work Experience

The MITRE Corporation | Data Science Intern Jun. 2025 - Aug. 2025 | McLean, Virginia

- Developed a **Python package** to automate efficient reading and writing of large geospatial datasets in **PostgreSQL**, supporting batch inserts, SQL query execution, and automatic database connection handling.
- Achieved 98% unit test coverage with **pytest**, created isolated tests to preserve database integrity, ensured reproducibility and dependency management using **Poetry**, and implemented CI workflows via **GitLab CI**.
- Containerized the package with **Docker** and published it to a private registry; now used across MITRE engineers to manage database input/output and standardize I/O operations.

Farcast Biosciences | Machine Learning Intern Nov. 2024 - Mar. 2025 | Remote

- Built a centralized relational database using **SQL** to unify disjointed lab and research datasets, standardize hematology time-series records to enable consistent data entry and efficient querying.
- Standardized and formatted patient datasets using **Python** and **pandas**, performing cleaning, normalization, and feature engineering on explant and arm-level hematology data to improve consistency and model interpretability.
- Developed predictive models using **logistic regression**, **random forests**, and **SVMs** in **scikit-learn** to assess treatment efficacy in cancer patients; evaluated with **cross-validation**, **ROC curves**, and **confusion matrices**.

Projects

Data Mining and Frequent Pattern Analysis Jan. 2025

- Analyzed Movie ratings data using **PySpark** and **FP-Growth** to identify frequently co-watched movie pairs/triplets, generating high-confidence association rules to inform recommendations.
- Processed Amazon review data (120M records) with **Spark DataFrames**, applying frequent itemset mining to identify product co-purchase patterns and recommend items based on past customer purchases.

Predicting ICU Patient Survival Sept. 2024 - Oct. 2024

- Developed a logistic regression model using **scikit-learn** to predict ICU patient mortality from time-series medical data, performing feature extraction and data preprocessing with **Python** and **pandas**.
- Performed hyperparameter tuning via 5-fold cross-validation and compared linear versus kernel ridge regression models to optimize performance metrics including accuracy and AUROC, visualizing results using **matplotlib**.

Fakebook Database Management Sept. 2024

- Designed an **ER diagram** to structure data storage and relationships for a Fakebook social media platform.
- Wrote **SQL** scripts for data management using sequences and triggers to enforce constraints. Developed SQL views for data display, handling complex dependencies in Oracle SQL.

Leadership Experience

Michigan Data Science Team | VP Finance, Social Media Manager Jan. 2024 - Present

- Act as an authorized signer, raised over $5,000 from sponsors, and supervise budget for a 300+ member club.
- Doubled our social media following using campaigns to promote the club and attract sponsors.

ECAS Center at UofM | Tutor Aug. 2024 - Present

- Provide assistance to students with their Programming and Calculus course work.
- Guide students with assignments, projects, homework, exam preparation, and any general conceptual questions.