

# RIYAADH BUKHSH

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## Education

University of California, Davis – Davis, CA

December 2024

Bachelor of Science – Data Science, AS-T Computer Science, **Minor** – Mathematics

3.7/4.0 GPA

**Related Coursework:** Calculus, Probability, Statistics, Regression, Forecasting, Optimization, Optimization, Machine Learning, Deep Learning, Big Data, SQL/NoSQL, Algorithms and Data Structures,

## Skills

**Programming Languages:** SQL, Python (Django), JavaScript (ReactJS, NextJS), R, LaTeX, Linux, C++, HTML5, CSS

**Libraries:** NumPy, Pandas, Scikit-Learn, SciPy, PyTorch, Matplotlib, Seaborn, NPM

**Database Technologies:** MongoDB, PostgreSQL, Microsoft SQL Server

**Frameworks and Tools:** Apache Spark, Microsoft Office (Excel, PowerPoint, etc.), Git, Tableau, Firebase, Linux

## Work Experience

Software Engineering Fellow, Headstarter - Hybrid

June 2024 – Present

- Building 5+ AI apps and APIs using NextJS, OpenAI, Pinecone, StripeAPI with 98% accuracy as seen by 1000 users
  - Developing projects from design to deployment leading 4+ engineering fellows using MVC design patterns.
  - Coached by Amazon, Bloomberg, and Capital One engineers on Agile, CI/CD, Git, and microservice patterns.
- Δ **Skills Used:** JavaScript (ReactJS, NextJS), HTML5, CSS, OpenAI, StripeAPI, AWS, Firebase

Financial Analyst, UC Davis - Davis, CA

March 2023 – July 2024

- Analyzed, and audited **30,000+** unique student ledgers using Student Information System (**SIS**) and **Excel**.
- Automated audit processes for the team by creating macros with **Visual Basic**, boosting efficiency by **500%**.
- Consulted students with requests, refund processing, debt deferral, balance insight, and financial information.
- Managed the consolidation and issuance of checks totaling \$20 million.

Δ **Skills Used:** Microsoft Office (Excel, PowerPoint, Mail), Visual Basic, SIS, Touchnet, CheckTrack

## Projects

MNIST Image Reconstruction

May 2024 – June 2024

- Led a team in performing **Principal Component Analysis** (PCA) on **5000** MNIST digits to visualize projections
- Applied **Kernal Density Estimation**, reconstructed images and analyzed associations between bandwidths.
- Computed **Gap Statistic** and compared clustering results using PCA and **Monte Carlo** simulations.

Δ **Skills Used:** Python (Keras, NumPy, Matplotlib, Ipywidgets, Scikit-Learn), Google Colab

Airbnb SQL Benchmarking

April 2024 – June 2024

- Extracted, Transformed, and Loaded (ETL) **14,299,870** Airbnb entries into a **PostgreSQL** server.
- Set up a test harness in **Jupyter Lab**, connected to PostgreSQL, and optimized relations with indexes.
- Performed **1020+** SQL queries (searches, updates, aggregations), and measured retrieval speeds.
- Conducted comparative analysis between control and **indexed relations**, increasing retrieval efficiency by **230%**.

Δ **Skills Used:** Python (psycopg2, sqlalchemy, Matplotlib, NumPy, Pandas), SQL, Jupyter Lab

Dermatological Predictive Analysis

January 2024 – March 2024

- Led a team of 4, cleaned data on **999 individuals** with 12 factors to hair loss, validating and imputing values.
- Visualized data with Matplotlib, and Seaborn, revealing genetic and environmental impacts on alopecia.
- Executed **Chi-Square** test, **Analysis of Variance**, and Feature Importance to find relationships between predictors.
- Engineered predictive classifiers (Logistic Regression, Linear Discriminant Analysis, Quadratic Discriminant Analysis, and Random Forest), achieving an **84%** prediction accuracy on hair loss.

Δ **Skills Used:** R (dplyr, ggplot, glmnet, MASS, caret, randomForest), Rstudio (Markdown)

## Spaced Repetition Application

June 2023 – September 2023

- Developed an app that optimizes learning and reinforces memory based on spaced retrieval practices (Ebbinghaus).
  - Applied OOP principles and inheritance to build a modular and scalable application, which gained traction among **30 beta testers** for its user-friendly interface and effective logic.
  - Employed **Firebase** as a real-time database and management tool for efficient storage tasks (update, insert, delete).
  - Utilized Python and **Pyrebase** for back-end logic and data management, while employing **Django** for a user-friendly front-end, adhering to modern web development standards.
- Δ **Skills Used:** Python (Django, Pyrebase, msvcrt, security), Firebase

## Neuroscience Data Analysis and Modeling

April 2022 – June 2022

- Led a team in analyzing **5081** trials of neural activity data across **113** brain areas for mice response to light stimuli.
  - Cleaned and aggregated **18** sessions of mice data into a comprehensive data frame, for easier manipulation.
  - Explored relationships between contrast levels and feedback types, increasing experimental efficiency by **20%**.
  - Created data visualizations of neural activity and applied spectral clustering, achieving an **83%** classification rate.
- Δ **Skills Used:** R (dplyr, ggplot, caret, kernlab, tidyverse, cluster), Rstudio (Markdown)