

Kush Patel

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Education

University of California, Berkeley | Master of Information and Data Science Expected May 2027

University of California, Berkeley | Bachelor of Arts in Data Science May 2022 - May 2024

Relevant Coursework: Data Engineering; Foundations of Data Science; Data Mining & Analytics; Statistical Inference & Decision-Making; Probability Theory & Discrete Mathematics; Intro to Artificial Intelligence (Machine Learning, Neural Networks); Data Structures & Algorithms; Structure and Interpretation of Computer Programs; Advanced iOS Programming (SwiftUI)

Work Experience

DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL: INFORMATION TECHNOLOGY Jun 2024 - Present
FULL-STACK SOFTWARE ENGINEER

- Design and maintain RESTful APIs in Python (Flask) supporting internal compliance and licensing workflows used by state stakeholders.
- Optimize PostgreSQL queries and indexing strategies, improving average endpoint response time by ~20% and reducing redundant database calls.
- Build and maintain data ingestion pipelines to process structured and semi-structured data for reporting and anomaly detection.
- Containerize services using Docker and implement CI/CD workflows to streamline deployments and reduce manual release overhead.
- Develop internal dashboards and analytics views to surface operational metrics for fraud monitoring and compliance tracking.

DEPARTMENT OF JUSTICE: CRIMINAL JUSTICE INFORMATION SERVICES Jul 2020 - Jan 2022
STUDENT ASSISTANT - SOFTWARE ENGINEER

- Developed and maintained full-stack features using React and Python, supporting internal case management and reporting systems.
- Built data validation and transformation logic to ensure integrity across multiple government data sources.
- Collaborated with cross-functional teams to translate regulatory requirements into scalable back-end workflows.
- Implemented authentication and role-based access controls to strengthen application security and compliance.
- Participated in code reviews and refactoring efforts to improve maintainability and reduce technical debt.

DEPARTMENT OF JUSTICE: APPLICATION DEVELOPMENT BUREAU Jun 2023 - Aug 2023
STUDENT ASSISTANT - DATA ANALYTICS

- Analyzed structured datasets using Python (Pandas) to identify patterns and inconsistencies in operational records.
- Built regression-based models to explore drivers of anomalous reporting trends, improving internal review prioritization.
- Automated recurring Excel-based reporting processes, reducing manual effort and reporting errors.
- Presented findings to senior staff, translating statistical insights into clear, actionable recommendations.

Skills

Languages: Python, SQL, Java, TypeScript | **Data & ML:** Pandas, NumPy, scikit-learn, TensorFlow, Statistical Modeling, Regression, Time Series | **Databases:** PostgreSQL, MongoDB | **Frameworks:** Flask, FastAPI, React, Next.js | **Cloud & DevOps:** AWS (Lambda, S3), Docker, CI/CD | **Tools:** Git, Jira, Tableau

Certifications & Projects

Certifications: CompTIA Security+ 2024

Shipped Products: Founder, Educational Nonprofit iOS App — 7,000+ downloads and 50,000+ App Store impressions
App Store Products — 100,000+ total purchases and 2,000,000+ cumulative App Store impressions

Affiliations:

Apple Developer Program (Nonprofit Organization Account)

Projects:

Telco Customer Churn Prediction

- Built and evaluated ML models (Logistic Regression, Random Forest, XGBoost) to predict customer churn using structured telecom data.
- Engineered tenure and behavioral features; optimized models using cross-validation.
- Achieved strong ROC-AUC performance and improved recall for high-risk customers through threshold tuning.
- Interpreted model outputs using SHAP and feature importance analysis to derive actionable business insights.

TextJournal

- Built an iOS journaling application (SwiftUI) with a Python (Flask) backend deployed on AWS.
- Integrated Twilio SMS workflows to enable low-friction journaling via text.
- Implemented NLP-based sentiment analysis and topic modeling to generate mood summaries and reflection prompts.
- Designed secure data storage and processing pipelines for user-generated content.