SHIVANI KOTIAN

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EDUCATION

California State University – Los Angeles, USA **December 2024**
Master of Science in Computer Science | GPA: 3.93.0/4.0

PES University - Bangalore, India **September 2020**
Bachelor of Engineering in Computer Science | GPA: 3.6/4.0

WORK EXPERIENCE

ARCS lab - California State University Los Angeles, USA **June 2023 – Present**
Graduate Research Assistant - Machine Learning & Edge computing

- Conducted performance analysis of object detection CNN models on NVIDIA Jetson-Orin, Intel NUC, and Raspberry Pi, processing datasets of 10,000+ images to evaluate computational efficiency for real-time IoT systems.
- Assessed training time, inference time, and hardware utilization metrics to validate suitability for UAV-assisted ITS applications.
- Published findings in IEEE CCNC 2025 - IIWoT Workshop, addressing QoS challenges in resource-constrained environments.

Ernst & Young **October 2020 – January 2023**
Data Scientist – Predictive Modelling

- Engineered demand forecasting models (ARIMA, Croston, RandomForest, and XGBoost) using Scikit-learn and did back testing to fine-tune models for time series data that improved FMCG sales volume prediction accuracy by 15% over traditional methods.
- Conducted EDA on 500GB+ datasets, collaborated cross-functionally to integrate feature engineering using demand planner insights on seasonality, supply issues, COVID-19 impact and cannibalization - and validating the results with the stakeholders.
- Reduced processing time by 70% by designing end-to-end model lifecycle on Microsoft Azure and contributing to €4.2 million in cost savings through efficient demand planning across multiple FMCG product categories.
- Handled ad-hoc data analysis requests, created Root Cause Analysis reports and automated generation of Key Performance Indicators(KPI) dashboards on PowerBI, providing stakeholders with updated information and actionable insights.
- Awarded EY Kudos! in June 2021 and 2022 for exemplary performance and commitment to excellence.

Ernst &Young **January 2020 – February 2020**
Data Analyst - Intern

- Applied advanced deep-learning and computer vision methods to identify barcodes on supply chain pallets, significantly enhancing warehouse tracking and operational efficiency.
- Augmented the dataset with transformations to increase the dataset size to 3k+ images and utilized Faster R-CNN with ResNet50 for detection, followed by pyzbar for decoding, boosting model accuracy.
- Achieved a 95% success rate on diverse barcodes, streamlining supply chain operations and improving inventory tracking efficiency.

PROJECTS

CodeSage: AI-powered study assistant **Spring 2025**

- Developed a RAG-based QA system (92% faithfulness) for a software engineering textbook—optimizing chunking/retrieval by 30% and reducing redundant LLaMA API queries by 40% via semantic caching & rate-limited batching.
- Tools: Python, LangChain, ChromaDB, FAISS, Groq LLaMA, Streamlit, OpenAI, Tesseract OCR.

Medical Test Report Analyzer (In Progress) **Spring 2025**

- Developing an interactive Streamlit web application that creates dynamic visualizations to track biomarker trends and health metrics for improved patient understanding, translate complex medical terminology into personalized, actionable health insights.
- Tools: Python, Streamlit, Plotly, Camelot, Regex, Large Language Models (LLMs), RAG, Vector Search Database.

CerebroVision: Advanced CNN Diagnostics for Brain Tumor Identification, **Spring 2024**

- Employed transfer learning with ResNet50, VGG19 and designed custom CNNs for classification of brain tumors from MRI images and achieved 99.88% accuracy and 99.98% AUC, significantly outperforming traditional architectures with lower loss.
- Tools: Python, TensorFlow, Keras, Scikit-learn, Seaborn and Weights & Biases (wandb) for tracking model performance.

EXTRA-CURRICULAR ACTIVITIES

Diversity and Inclusion Officer – Associated Students. INC, Los Angeles, USA *2023-24*
AI/ML Lead – Google Developer Student Club, California State University, Los Angeles *2023-24*

SKILLS

Programming & Databases: Python, R, SQL, Postgres | **Cloud & Big Data:** Microsoft Azure, AWS, GCP, Databricks, Hadoop, Spark, Kafka | **Machine Learning & AI:** Pandas, NumPy, matplotlib, Seaborn, scikit-learn, PyTorch, Keras, TensorFlow, LLM, Regression, Classification, Clustering, Predictive Modeling, Time Series Analysis, Neural Networks, Attention, NLP. | **Statistical Methods:** Descriptive & Inferential Statistics, A/B Testing, Hypothesis Testing, Bayesian Testing, Univariate & Multivariate Analysis.