VATSAL KAMLESH KHANDOR

Seattle, WA (Open to Relocation) | khandorvatsal203@gmail.com | +1 (213) 245-5750
linkedin.com/in/khandorvatsal | github.com/khandorvatsal | khandorvatsal.github.io

EDUCATION

University of Southern California — **Aug 2022 – May 2024**
Master of Science in Computer Science; GPA: 3.85/4.0 — Los Angeles, California

Dwarkadas J. Sanghvi College of Engineering — **Aug 2018 – May 2022**
Bachelor of Engineering in Computer Engineering; GPA: 9.75/10.0 — Mumbai, India

SKILLS

Languages and Databases: Python, Java, JavaScript, C, C++, MySQL, PostgreSQL, MongoDB
Cloud: AWS (DynamoDb, SNS, SQS, EC2, S3, Lambda, Fargate, AppConfig, EventBridge, KMS), Google Cloud Platform (GCP)
Frameworks/Libraries: Django, Flask, Selenium, Pandas, Scikit-Learn, TensorFlow, PyTorch, PySpark, Keras, Hadoop
Other tools and services: Git, Github, Bitbucket, Postman, Docker

EXPERIENCE

Software Engineer | Amazon Web Services | Seattle, USA — **Oct 2024 - Present**

- Drove cost saving initiative that eliminated legacy dependencies by deprecating over **600K** lines of code and **27** unused packages resulting in **$1M+** in annual infrastructure savings for the Organizations Service Control Policies.
- Created core infrastructure and resolved launch blocking NAT hairpinning (networking) problem from VPC traffic. Used CDK-based IaC to handle load of **800,000** requests/second and accelerated region expansion time from **6 weeks** to **3 days**.
- Led migration of monitoring canaries to the new Policy APIs and Enable/Disable workflows, improving system uptime by **28%** and decreased policy enforcement latency by **35%**, while ensuring data consistency and availability.
- Enhanced service reliability and security by integrating stage-aware throttling, integration tests to protect against retry storms, while onboarding **25** critical APIs to authentication framework, accelerating security reviews by **1 week**.

Software Engineer | USC/Saban Research Institute | Los Angeles, USA — **Jan 2024 – Oct 2024**

- Engineered full-stack data collection platform for multi-center registry to handle clinical data (**3+** hospitals).
- Implemented Role-Based Access Control (RBAC) containing data repository, ensuring secure access for **1500 users** with diverse roles (Doctor, Analyst, Administrator) and compliance with healthcare regulations by excluding all PHI.

Machine Learning Engineer Intern | Bombay Softwares | Ahmedabad, India — **Sept 2021 – Dec 2021**

- Devised transient pose conditions using **33** skeleton keypoints and co-ordinates from BlazePose and re-framed other posture conditions. Detection of incomplete/inaccurate reps increased by approximately **25%**.
- Designed metrics for A/B testing. Improvised existing metadata by carrying out **23+** exercises, including redesigning global API conventions and code refactoring. Eliminated **57%** redundant code per exercise, addressing technical debt.

PROJECTS

Automated Calculation of Underwriting for Multifamily Property Investment *(Hackathon Winner – 1st place)*

- Crafted Flask app, scraping **5000+** data points with Selenium, testing APIs with Postman, and applied RandomForest Regression for assisting buyers in determining fair value of listings. Containerized with Docker for deployment.
- Built RAG system using Gemini-1.5-Pro LLM and Streamlit for real-time property insights (NOI, DSCR, COC, CAP Rate). Attained **65%** faster query responses and leveraged Plotly for dynamic visualizations for historical county data.

RecSys: Recommender System using Large Language Models (LLM's)

- Developed a content-based recommender system utilizing LLaMA 2 7B model, to generate 4096-dimensional embeddings for over **200,000** news articles, enhancing personalization and topic modeling techniques.
- Executed similarity search with FAISS, stratifying data into **500+ batches** improving recommendation accuracy by **15%** and lowered retrieval time by **30%**. Optimized data processing pipeline to address computational bottlenecks, bringing embedding and indexing time per batch down from **500 minutes to 200 minutes**, increasing system scalability.

Efficient API Usage for Document Querying *(Langchain, GPT)*

- Designed a document-similarity–based PDF chunking strategy using data science techniques to optimize OpenAI API usage, driving a **92% token-usage reduction** and accelerating user query responses by **18%**.

Automated Extraction of Reproduction Steps from Android Bug Reports *(Deep Learning, Google Colab)*

- Designed crawler that retrieved **70,000+** GitHub Issue Reports in JSON for ETL based on heuristics using markdown parser and NLTK. Employed BIO labeling technique for named entity recognition to form dependent variable.
- Achieved F1 score of **97.65%** deploying a combination of BERT and CRF for predicting sequences in bug reports.

Algorithmic Trading using Reinforcement Learning & Sentimental Analysis *(Feature Engineering)*

- Devised end-to-end pipeline with asynchronous HTML session to extract **100** recent relevant headlines for **top 30** stocks from Yahoo Finance, performing sentiment analysis using FinBERT based on pre-trained financial corpus.
- Evaluated performance of 5 RL algorithms for training agent in developing profit-maximizing strategies, resulting in a **119% increase** in profitability by incorporating sentiment analysis compared to standard index returns.

LEADERSHIP & INVOLVEMENT

- Served as President, leading GRIDS USC (Graduates Rising in Data Science) with **16** E-Board Members and **500+** active members. Ex-Lead Teaching Staff Member for CSCI 585, DSCI 531, DSCI 250, CSCI 455.