

Kshitij Ajaykumar Patel

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EDUCATION

Master of Science, Computer Science

University of Southern California, Los Angeles, USA

August 2022—May 2024

GPA : 3.75

Bachelor of Technology, Computer Engineering

Pandit Deendayal Energy University, Gandhinagar, India

August 2018—May 2022

GPA : 4.00

TECHNICAL SKILLS

Programming: Python, R, SQL, C++, C#(.Net Framework), C, Java, JavaScript ES6, PHP

Database: MySQL, MongoDB, Firebase, DynamoDb

Data Science/ML: Statistical Analysis, TensorFlow, PyTorch, Transformers, NLTK, Scikit-learn PySpark, Pandas, Matplotlib

Platforms/Tools: GIT, Tableau, AWS(SageMaker, S3, Kinesis), GCP, Docker, Elastic Search, Kibana, Hadoop, MapReduce, Spark

EXPERIENCE

Software Development - Artificial Intelligence Intern, *Ria Money Transfer*, Buena Park, USA

June 2023—August 2023

- Utilized **elastic-search** and **kibana** to perform analysis of log files. Preprocessed time-series data and trained **LSTM-based model** to forecast trends of API failures. Achieved **MSE of 4.287** and contributed to enhance decision-making capabilities.
- Demonstrated adeptness in **Large Language Models(LLMs)** and leveraged **HuggingFace Transformers** library to **fine-tune GPT-2, RoBERTa and ALBERT models** to develop in-house **question-answering system** for company's API documentations.

Machine Learning Intern, *Silver Touch Technologies Ltd*, Ahmedabad, India

January 2022—April 2022

- Employed **YouTube Data APIs** to extract meta-data about 40000 videos and formulated advanced **recommendation engines** utilizing **BERT, FastText, and TF-IDF Vectorizer** to provide personalized recommendations, leading to an **Intra-Similarity score of 0.7233**.
- Productionalized recommendation system using **Flask-based REST API** for deployment and maintained dataset.

Undergraduate Research Assistant, *Pandit Deendayal Energy University*, Gandhinagar, India

August 2021—December 2021

- Worked under Prof. Samir Patel on project to identify abnormalities in musculoskeletal radiographs. Leveraged **transfer learning** and trained deep neural networks on **MURA dataset** to detect fractures in **seven** different body parts like Elbow, Fingers, etc.
- Applied **Edge Detection** and **Image Sharpening** Techniques to enhance base model **accuracy by 5%**. Achieved an average **Precision value of 84.55%** and outperformed **Stanford ML Group's** performance in case of Fingers **by 11%**.

Data Science Intern, *Silver Touch Technologies Ltd*, Ahmedabad, India

May 2021—September 2021

- Conducted **exploratory data analysis** of about 20000 schools in a team. Utilized **Pandas for data cleaning and preprocessing** and applied **statistical analysis** and employed Data Visualization libraries to translate data insights into graphical representations.
- Coordinated with development team for deployment and designed APIs to retrieve and manipulate data, enhancing usability.

PROJECTS

Generating SQL Queries from Natural Language — [Code](#)

Spring 2023

Python, PyTorch, Generative AI, Natural Language Processing, Semantic Parsing

- Implemented **BiLSTM Seq2Vec models** in **PyTorch** based on **ACL publication** for tasks including selecting aggregation functions, selecting operators, and selecting columns in SELECT and WHERE clauses.
- Employed **attention mechanism** between columns and questions to enhance the baseline accuracy by more **than 10%**.

Time Series Classification for Human Activity Recognition — [Code](#)

Spring 2023

Python, Scikit-Learn, Statsmodels, Statistical Analysis, Time-Series Analysis

- Conducted time-series analysis for seven different human activities, extracting **seven time-domain features** for each activity.
- Utilized **cross-validation** and **backward selection methods** to find **statistically significant features** and trained classification models to classify activity, achieving an **accuracy of 94.73%** using **Multinomial Naive Bayes algorithm**.

Sentiment Analysis of Amazon Customer Review Dataset — [Code](#)

Spring 2023

Python, PyTorch, Scikit-Learn, NLTK, Gensim, NLP, Sentiment Analysis, Machine Learning, RNN, LSTM, GRU

- Preprocessed data, extracted **TF-IDF word embeddings** and trained models including **SVM, RNN, LSTM, and GRU** to perform **multiclass classification**. Utilized **word2vec-google-news-300** for word embeddings to increase **base accuracy by 5%**.

Game Playing Agent for Go (Achieved top 10 ranking among 240 peers) — [Code](#)

Fall 2022

C++, Artificial Intelligence

- Implemented **AI Agent** for **5x5 Go board game**. Designed custom heuristic to find best move for **depth of 7 plys** using **Alpha-Beta Pruning** for **Minimax algorithm**. Defeated Random, Greedy, Aggressive, Alpha Beta and Q-learning agents in **over 95% of games**.

PUBLICATION

- K. Patel** and M. Patel, "Smart Surveillance System using Deep Learning and RaspberryPi," 2021 8th International Conference on Smart Computing and Communications (ICSCC), 2021, pp. 246-251, doi: 10.1109/ICSCC51209.2021.9528194.