Arpan Patel

Vadodara, Gujarat 390018

+91 8980037825 arpanpatel1998@gmail.com https://www.linkedin.com/in/arpanpatel98/

Education

Artificial Intelligence (M.Tech) **Nov. 2020 – June 2022**
A. D. Patel Institute of Technology, CVM University *Anand, Gujarat*

Information Technology (B.E.) **Aug. 2016 – Aug 2020**
Vadodara Institute of Engineering, GTU *Vadodara, Gujarat*

Technical Skills

- **Programming Languages:** Python, JavaScript, C#
- **Frameworks and Libraries:** TensorFlow, Keras, OpenAI, LangChain, llamaIndex, AutoGen, Django, Django REST API, Docker, Bootstrap, .NET Core
- **Artificial Intelligence:** Machine Learning, Deep Learning, CNN, Generative AI models, Generative AI, Larger Language Models(LLMs), Prompt Engineering, Text Embeddings, Vector Databases,Retrieval Augmented Generation (RAG)
- **Data Visualization:** Matplotlib, Seaborn
- **Database and Data Management:** SQL, Elasticsearch, Postgres, MongoDB
- **Web Technology:** Bootstrap, JSON, XML, AJAX, REST API, HTML, CSS
- **Cloud Platforms:** AWS, Azure
- **Cloud Storage:** S3 Bucket
- **Version Control and DevOps:** Git, BitBucket, CI/CD, Jenkins
- **Software Development Methodologies:** Agile Methodology
- **Data Structures and Algorithms:** Proficient in designing and implementing various data structures and conducting in-depth analysis of algorithms.
- **Computer Vision and Robotics:** Computer Vision, Robotics Automation
- **Integrated Development Environments:** Arduino IDE

Experience

AI Software Developer **Nov. 2022 – Present**
Infodesk *Vadodara, Gujarat*

- Revolutionizing Healthcare Information Processing:
  - Collaborated on the development and implementation of a robust article classification system for the Healthcare Domain, leveraging supervised and unsupervised learning algorithms. This system efficiently categorizes and organizes vast amounts of medical information, enabling faster and more accurate retrieval.
  - Contributed to the creation of an article/text summarization feature from the ground up, utilizing pre-trained models from reputable sources like Google and Hugging Face. This feature achieved remarkable results in extractive summarization, allowing users to quickly grasp key points of medical articles.
  - Supported the development of advanced summarization capabilities by integrating industry-leading LLM models and frameworks. This project ensured summaries were highly relevant and domain-specific, aiding healthcare professionals in making informed decisions.

- Building Intelligent Conversational Interfaces:
  * Participated in the creation of document-based LLM-powered chatbots, initially starting with basic embedding models and Vector Databases. The project transitioned to a more optimized solution for improved efficiency and library support.
  * Contributed to establishing an Azure Bus for automatic text embedding generation and updates, ensuring seamless real-time data access for the chatbots.
  * Explored ElasticSearch methodologies to fine-tune chatbot responses, prioritizing user-centric experiences and engagement.
- Facilitating Integration and Quality Assurance:
  * Deployed Django REST Framework to engineer robust API endpoints for efficient data interchange.
  * Implemented a sophisticated human-in-the-loop system to iteratively enhance AI model performance and precision.
- Driving Technological Advancements:
  * Actively engaged in cutting-edge research to explore emerging AI technologies and methodologies.
  * Played a pivotal role in advancing Infodesk's commitment to revolutionize healthcare information accessibility and processing.

AI Automation Engineer **Dec 2020 – Nov 2022**

Aartlink An Automation Software Solution *Anand, Gujarat*

- Spearheaded the development of an innovative automation software solution for the "Cashew Sorter Machine," leveraging AI models and computer vision algorithms in Python.
- Designed and implemented robust AI algorithms to accurately grade cashews based on various criteria and variations, enhancing the efficiency of the sorting process.
- Collaborated closely with cross-functional teams to gather requirements, define project objectives, and ensure alignment with client needs.
- Conducted thorough testing and validation procedures to verify the effectiveness and reliability of the sorting system, ensuring adherence to quality standards.
- Provided technical support and troubleshooting assistance to ensure seamless operation of the cashew sorter machine.
- Stayed abreast of the latest advancements in AI and automation technologies, continuously researching and exploring innovative techniques to optimize sorting processes.
- Contributed to the overall growth and success of the company by delivering high-quality solutions and exceeding client expectations.

AI Research Intern **Jul. 2021 – Jun. 2022**

Indian Space Research Organisation (ISRO) *Ahmedabad, Gujarat*

- Engaged in an intensive research project titled "Estimation of Image Quality Parameters in Satellite Imagery" under the mentorship of ISRO scientists.
- Investigated various aspects of image quality assessment, with a particular emphasis on addressing blur as a significant noise factor prevalent in satellite imagery.
- Designed and implemented innovative AI algorithms to effectively categorize satellite images as either blurry or non-blurry.
- Developed sophisticated image segmentation techniques utilizing Binary Blur Masks to isolate and analyze blurred regions within the images.
- Generated comprehensive summary reports summarizing the findings and insights gained from the image quality assessment process, contributing valuable insights to ongoing satellite imagery projects at ISRO.

Projects

Face Recognition using Similarity Search

- Developed and implemented a robust face recognition system utilizing advanced similarity search techniques.
- Conducted comprehensive image preprocessing to ensure precise face detection and embedding generation.
- Utilized cosine similarity search for accurate face identification, leveraging Pinecone vector database for efficient embedding storage and retrieval.
- Achieved an impressive 97% accuracy in face recognition, underscoring the system's effectiveness and reliability.

Veins Detection Machine

- Engineered and implemented a revolutionary device capable of accurately detecting human blood veins, transcending barriers of physique diversity and skin tone variability.
- Leveraged state-of-the-art AI algorithms to enhance security measures, offering a sophisticated authentication solution that outperforms conventional biometric methods.
- Designed with precision and innovation, the Veins Detection Machine heralds a new era in bio-metric technology, ensuring reliability and efficacy in diverse environments.

A.S.P.E.C.S

- Spearheaded the development of the Advanced Smart Peltier-based Eco-friendly Cooling System (A.S.P.E.C.S), a groundbreaking innovation in refrigeration technology.
- By eliminating the need for traditional gas or compressor systems, A.S.P.E.C.S achieves unparalleled energy efficiency, reducing environmental impact while providing exceptional cooling performance.
- Boasting cutting-edge features such as customizing temperature control, seamless WiFi connectivity, and comprehensive defect monitoring, A.S.P.E.C.S sets a new standard for Eco-friendly refrigeration solutions.

VIER Campus

- Led the creation of the VIER Campus Android application, a dynamic platform designed to revolutionize digital education within academic institutions.
- Empowering students and faculty alike, VIER Campus offers a diverse range of features including achievement tracking, access to curated educational materials, and real-time college updates.
- Utilizing Google Sheets as a secure and scalable database solution, VIER Campus ensures seamless integration with existing institutional infrastructure while prioritizing accessibility and user experience.

SDGB India

- Played a pivotal role in the development of the SDGB India Website, a government initiative aimed at promoting awareness of the United Nations' 17 Sustainable Development Goals (SDGs).
- Collaborated with esteemed professionals including Dr. Sudhir Joshi (DY. DDO Vadodara, Country Director WYIMUN) to align the website with organizational objectives and global initiatives.
- Officially inaugurated as part of the Niti Aayog action plan and UN SDG 2030 initiative, the SDGB India Website stands as a testament to collaborative efforts in advancing sustainable development and social progress.

Certifications

Knowledge Graphs for RAG ***DeepLearning.AI***
Certificate of Completion in Knowledge Graphs for RAG

Microsoft AI Classroom ***Microsoft***
Certificate of Completion in AI Fundamentals

Elements of AI ***Reaktor and University of Helsinki***
Certificate of Accomplishment in Basics of AI

Advanced Machine Learning ***Gyanam Academy***
Certificate in Advanced Machine Learning Techniques

Advanced Deep Learning ***Gyanam Academy***
Certificate of Completion in Deep Learning with TensorFlow

Problem Solving ***HackerRank***
Certification in Problem Solving

Python Programming ***HackerRank***
Certification in Python Programming