Alpesh Kumar

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SKILLS

- **Artificial Intelligence** : Large Language Models (LLM), ChatGPT, Langchain, NER, Classification, GENAI
- **Analytical Focus** : Hypothesis Testing, Machine Learning, Deep Learning, NLP, Reinforcement Learning
- **Languages** : Python, React, HTML/CSS
- **Databases** : MySQL, PostgreSQL, Vector DB (PGVector, FAISS, ElectricSearch)
- **Software/Tools** : Jupyter Notebook, PyTorch, TensorFlow, GIT, Docker, Kubernetes, Jenkins, Terraform, VS Code
- **Libraries** : Pandas, PySpark, Polars, Cython, Seaborn, Scikit-learn, Numpy, BeautifulSoup4
- **Frameworks** : Django, Next.js, FastAPI, SQLAlchemy, Flask, Bootstrap5, Tailwind
- **Design patterns** : Microservices, RESTFul APIs, MVC
- **Systems** : AWS, Azure, GCP, Cloudways, cPanel/WHM, Apache
- **Methodologies** : Agile (Scrum, Kanban), Test-Driven Development (TDD), DevOps Practices
- **Web Technologies** : WebSockets, REST, PWA, Service Workers, TypeScript

PROFESSIONAL EXPERIENCE

Full Stack Developer (GenAI, LLM, Django, PostgreSQL, Vue) — **April 2024 - July 2024**

Full-time | Replicate Labs | London, England, United Kingdom

- Developing a sophisticated web application using **Django** and **Vue.js**, improving functionality and user experience.
- Facilitated seamless product development cycles with a remote team, enhancing communication and project efficiency.
- Enhanced real-time communication features using **WebSockets** and **WebRTC**, and optimized SQL databases for performance.
- Integrated GPT API to advance natural language processing capabilities within the platform.

AI Python Engineer (GenAI, LLM, MLOps, Django, PostgreSQL, React) — **Dec 2023 - April 2024**

Contract | Digital Health | London, England, United Kingdom

- Developed Integrated **Generative AI**, **ChatGPT**, and **LangChain** for advanced, interactive applications, enhancing user engagement and AI's conversational & advanced natural language processing capabilities within the platform.
- Utilised **PGVector** and **vector embeddings** for efficient similarity search, enhancing accuracy and performance.
- Applied **RAG** techniques for advanced NLP tasks, combining retrieval and generation methods; actively collaborating in AI-driven projects for technological advancement.
- Enhanced real-time communication features using **WebSockets**.
- Employed **MLOps** practices and developed robust backend systems using **Django** and **PostgreSQL**; designed dynamic user interfaces with **React**.
- Leveraged **Azure** for deploying and managing scalable, cloud-based applications, optimising operational efficiency.

Python Application Developer (Machine Learning, React) — **May 2023 - Nov 2023**

Contract | Marsh Mclennan | London, England, United Kingdom

- Developed a new integration solution for Finance Systems using Python and RESTFul APIs in the MMC CIS team.
- Used **NLP models** like Logistic Regression, Random Forest, SVM and Neural Networks to process the data files and do document classification, demonstrating proficiency in machine learning techniques.
- Preprocessed and cleaned the raw data for modeling by applying techniques like tokenization, stemming, lemmatization, stop-word removal, and feature engineering.

- Utilised embedding models like **Word2Vec, Doc2Vec** & **BERT** to represent the textual data in a high-dimensional vector space, capturing the semantic and syntactic relationships between words and documents.
- Built, trained, and fine-tuned various ML models to achieve high accuracy in document classification tasks.
- Evaluated the performance of the models using metrics like accuracy, precision, recall, F1-score, and confusion matrix.
- Visualized the data and model's results using tools like **Matplotlib** and **Seaborn** to gain insights and make informed decisions.
- Used **FastAPI** framework and **SQLAlchemy** for developing RESTFul APIs and **Postgres** relational database backend.
- Utilised **React Typescript** to build a responsive and user-friendly frontend for the RESTful APIs that interacts with the backend API to provide a seamless user experience.
- Demonstrated excellent problem-solving skills and the ability to think laterally.

AI Python Engineer (Machine Learning) **June 2022 - Feb 2023**

Full-time | Solelyweb | London, England, United Kingdom

- Developed a web based E-commerce platform using Python & synchronized it with Amazon platform using Amazon API, demonstrating experience in **Microservices,** optimisation & Cloud, Distributed systems etc.
- Utilised **PyTorch, SciKit, Numpy & Pandas** libraries and **neural network** techniques to develop predictive models using time-series analysis to predict product prices and sales trends, resulting in improved inventory management and increased revenue.
- Utilized **K-means clustering algorithms** to segment customers based on their purchasing behavior and preferences, resulting in targeted marketing campaigns and improved customer engagement.
- Developed ML models to predict the likelihood of product returns and reduce the number of returns, resulting in improved profitability and reduced operational costs.
- Designed & implemented **CI/CD pipelines** using feature toggling for ML models to enable rapid iteration & deployment while ensuring code quality and reproducibility, ensuring a smooth workflow and continuous delivery of high-quality products.
- Implemented **Unit Testing** and followed the TDD approach to guarantee code quality for high-performance server-side applications catering to millions of regular users worldwide.
- Followed the **TDD** approach and implemented unit testing for high-performance server-side applications catering to millions of regular users worldwide, ensuring code quality and reliability.
- Leveraged containerization and container orchestration technologies such as **Docker, Terraform** & **AWS EC2** to automate the ecommerce tech stack, resulting in reduced errors, improved customer satisfaction, and saved time.
- Implemented **AWS PAM, IAM**, and **IAMD** for secure access control and privileged access management.
- Leveraged **Kubernetes** features like auto-scaling and rolling deployments for efficient resource utilization and zero downtime deployments, resulting in improved performance and resilience.
- Gained deeper business insights for forecasting and demand planning with efficient management & communicated effectively with stakeholders for a better understanding of their requirements.
- **Technologies Used**: Python, Django, FastAPI, SQLAlchemy, MySQL, GIT, Docker, Kubernetes, Machine Learning

Senior Full Stack Developer **April 2015 - Aug 2021**

Permanent | White Way Web | Ahmedabad, Gujarat, India

- **Leadership**: Supervised a team of 5+ junior web and mobile application developers.
- Provided mentorship and code review for junior developers while leading architectural sessions and participating in interviewing processes to ensure team productivity and maintain code quality.
- **Communication**: Worked for a French client and discussed various options on video calls to make sure projects meet their business requirements. Provided technical support to high-level clients regarding technology stack.
- Automation: Automated the deployment of **AWS IaaS environments** using Terraform scripting.
- Performed testing, optimisation and maintenance of Iaas web application in an AWS environment.
- Worked proactively in all aspects of the project: Development, Production Incident resolution, change requests and enhancements & deployment.
- **Technologies Used**: Python, Django, Wagtail, FastAPI, SQLAlchemy, MySQL, GIT, Docker, Terraform, AWS, VS Code

Full Stack Web Developer **April 2012 - March 2015**

Permanent | White Way Web | Ahmedabad, Gujarat, India

- **Organisational Skill**: Managed and developed websites for global clients from USA, Canada, Europe and Australia while maintaining consistent feel and brand awareness.
- Created web services(API) for mobile application development and sync it with web based platforms.
- **Technical Skill**: Worked at coding level in order to customize various web based portals and their addons.
- **Technologies Used**: Developed web portals using CodeIgniter, MySQL, Ajax, HTML, CSS, AWS, Cloudways

Junior Web developer **Sep 2010 - March 2012**

Permanent | JoomlaVogue | Ahmedabad, Gujarat, India

- Consulted with clients to develop & document the initial requirements. Prepared mock-ups, storyboards and developed Website architecture & determined hardware & software requirements. Responsible for production, testing, and staging environments.
- **Technologies Used**: CodeIgniter, HTML, CSS, JavaScript, jQuery, Bootstrap, Git, Photoshop, Dreamweaver, Filezilla, VPS, Dedicated Servers.

Projects: Below websites are live examples of my contributions

- **PDF2AI** : https://github.com/alpeshkumar9/PDF2AI
  - Technology: Python, FAISS Vector DB, ChatGPT, Streamlit, Git
  - Description: This application integrates a **PDF text extraction & processing** feature with OpenAI's ChatGPT model to provide an interactive question-answering system. It allows users to query a PDF document and receive contextually relevant answers generated by **ChatGPT**.
  - Features:
    - **PDF Text Extraction:** Extract text & processing from any given page of a PDF document.
    - **Embedding Vector:** Store the extracted text into embedding vector form in a vector database.
    - **ChatGPT-Powered Responses:** Generate answers to questions based on the content of a specific page in the PDF document.
    - **Web-Based Interface:** The application is accessible through a web interface, allowing for easy interaction and use.
- **Summarizer** : https://whitewayweb-ai-summariser.streamlit.app/
  - Technology: Python, Machine Learning (spaCy NLP Model), FastAPI, Beautifulsoup4, Scrapy, Git
  - Description: An API service for customers. The service will be one which makes it easier for people to quickly get the gist of an article, without having to read the whole thing.
  - Role: Responsible for scrapping the plain text using ***Beautifulsoup4/Scrapy*** library from the web page and summarizing the web page text using the ***spaCy NLP model***. Created API service using ***FastAPI*** for customers for easier access to summarized text.
- **Detector** : https://whitewayweb-object-detector.streamlit.app/Yolo
  - Technology: Python, Machine Learning (YOLO), CV2, Streamlit, Git
  - Description: An API service for customers. The service will be one which makes it easier for people to quickly get the gist of an article, without having to read the whole thing.
  - Role: Prepared the dataset, loaded the YOLO model using **OpenCV's DNN** (Deep Neural Network) module, trained and fine-tuned the **YOLO** model, tested the model on new data, and deployed the model in a production environment on **streamlit**, used **Git** for version control.
- **Neutrino** : https://wedesk.whitewayweb.in/
  - Technology: Python (Django), MySQL, Ajax, Bootstrap5.
  - Description: Neutrino is an eCommerce inventory and order management software that helps retailers automate key processes, reduce costs and grow their business.

- Role: Responsible for developing a portal to connect, automate and manage all the ecommerce operations from one centralized location.

❖ **Scrapper** : https://github.com/alpeshkumar9/Car-model-Scrapper
- Technology: Jupyter Notebook, Python, Machine Learning Models, BeautifulSoup
- Description: Scrapped the car data using beautifulSoup library. Performed the machine learning model analysis on the scraped data to further analysis.

EDUCATION

❖ **Royal Holloway, University of London, UK** 🌐 **Sep 2021 - Sep 2022**

Master of Science - MS, Artificial Intelligence | Grade – Merit (68.5%)

- Developed, validated & effectively evaluated techniques such as clustering, Regression, Decision Trees & Neural Networks. Able to implement & apply ML algorithms such as KNN, Random Forests..
- Generated insights from large datasets which helps in generating further strategies.
- Deep understanding of autonomous intelligent systems(AISs) principles & techniques. Familiar with Knowledge representation, Propositional Reasoning & engineering techniques based on formal logic. Tackled autonomous decision-making techniques like Markov Decision Processes.
- Gained an understanding of Pytorch tensors, automatic differentiation, the computational graph and constructed a first neural network.
- Familiar with gradient descent & RMSProp, Overfitting & regularisation, CNN, Siamese Networks.
- **Relevant coursework**: Data Analysis, Machine Learning, Artificial Intelligence, Deep Learning, NLP,

❖ **Jodhpur Institute of Engineering and Technology** 🌐 **2006 - 2010**

Bachelor of Technology - BTech, Computer Engineering | Grade – First Class (72%)

❖ **Lakshmipat Singhania School** 🌐 **2006**

GCSE : English, Computer Science, Maths, Physics, Chemistry | Grade – First Class (75%)

ADDITIONAL INFORMATION

Languages Known	: English, Hindi (Native)
Other Tools	: MS Office Suite, VS Code, Photoshop, Filezilla
Relocation	: Ready to relocate
Hobbies & Interests	: Basketball, Chess, Walking, Travel

I hereby solemnly declare that the above-furnished information is true to the best of my knowledge & belief.

Alpesh Kumar