

# BAIBHAV PATHY

## AI & ML DEVELOPER

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### SUMMARY

- Software Engineer with 2+ years of experience in Machine Learning and Data Science.
- Specializes in developing and deploying advanced ML algorithms and models.
- Current Role: Reverie Language Technology, focusing on Indian languages.
- Previous Experience: Intern at DRDO, developing AI drones for 6 month.
- Proficient in Neural Networks, CNNs, Text-to-Speech, Transformers, predictive modeling, recommendation systems, and anomaly detection.
- Expertise in handling diverse data formats, including text, image, and tabular data.
- Skilled at translating complex technical concepts for non-technical stakeholders.
- Drives data-driven solutions and collaborates with interdisciplinary teams to achieve impactful results.

### TECHNICAL SKILLS

#### Languages & Libraries:

Python, Numpy, Pandas, Plotly, Scikit-learn, Keras, NLTK, Spacy

#### Developer Tools:

Git, Docker, AWS, Google Colaboratory, Jupyter Notebook, JupyterLab, VSCode

#### Scalable Frameworks:

TensorFlow, PyTorch, Keras, OpenCV, LangChain, Gradio

### PROFESSIONAL EXPERIENCE

#### Reverie Language Technologies

##### Software Engineer - R&D (Machine Learning - NLP)

Jan 2023 - Present

- **Product: ChatBot QnA**
- Developed a RAG-based chatbot enabling users to query banking documents (MF schemes, FD schemes, loans) and receive contextually relevant answers.
- Implemented a RAG-based recommendation system that suggests suitable investment schemes based on user queries, resulting in a 15% increase in customer interaction and improved decision-making for 23% of users seeking financial advice.
- Utilized cutting-edge tools and technologies including Python, HuggingFace, PyTorch, Pandas, LangChain, VectorStores, and Retrievers.
- **Product: Neural Machine Translation (NMT)**
- Developed specialized modules for Indic languages, including a Hindi grammar checker and NER system across 11 languages using the MURIL model.
- Trained and tested the NER system on the AI4 Bharat Naampandan dataset, enhancing entity detection accuracy by 40%.
- Optimized the NER system, reducing CPU-based inference time by 50%, enabling faster information extraction.
- Employed advanced tools and technologies including Python, HuggingFace, PyTorch, Pandas, and BERT to drive innovation and excellence in machine learning applications.

- **Product: Text-to-Speech (TTS)**
- Text-to-Speech (TTS) Team Lead and managing clients such as ICICI Bank, IRCTC, Callmate AI, and MG Motors.
- Spearheaded end-to-end client service delivery, including the collection, cleaning, and processing of diverse, multilingual audio datasets.
- Optimized production architecture by implementing two new frameworks ( Parler TTS & XTTS), improving voice quality and expanding the client base.

## Defence Research and Development Organisation (DRDO)

Jun 2022 - Dec 2022

### Research Intern

- **Product: Swarm Intelligence Quadcopter**
- Developed Layered Path Planner: Created a path planning algorithm for multi-agent navigation in swarm drone quadcopters, enhancing coordination and mission efficiency.
- Conducted Drone Testing: Piloted nano quadcopters to assess vision inspection capabilities and manage payloads up to 5 kg, ensuring reliable performance.
- Authored Research Paper: Published findings on autonomous drone navigation using Robot Operating System (ROS), contributing to aerospace engineering literature.
- Implemented with ROS: Integrated algorithms using ROS to enable seamless communication between drone hardware and software systems.
- Collaborated with Teams: Worked with engineers and researchers to improve drone functionalities, resulting in a 20% increase in navigation accuracy

## EDUCATION

### B.Tech in Electrical and Electronic Engineering

Jul 2019 - Aug 2023

Vellore Institute of Technology University, Vellore

## RESEARCH PAPER & PUBLICATIONS

- **IoT Enabled Smart Connected Homes and Its Social Graces:** [Link](#)
- **Automatic Street Light Control Based on Pedestrian and Automobile Detection:** [Link](#)
- **Social Distancing Technique for Covid-19 Using Yolo V5 & CNN for Fast object Detection and better Accuracy:** [Link](#)

## PERSONAL PROJECT

- **Product: HeroVerse AI – Superhero Chatbot**
- Developed a RAG-based chatbot that emulates superhero personalities for user interactions.
- Pre-processed and organized dialogues from movie scripts, enabling authentic conversations.
- Integrated Haystack and Llama-3 with Qdrant for efficient response generation and retrieval.
- Built a Streamlit app for users to select and chat with their favorite superheroes.
- Utilized Python and modern NLP/ML tools to create a scalable and interactive AI solution.

## CLUBS AND LEADERSHIP ROLES

- **Matrix ,VIT Vellore** : Director of Design and Media
- **German Literary Association (DLA-VIT)** : Publicity Head
- **Make A Difference (NGO)** : Wingman