Prathamesh Bamb

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Core Competencies

- **Programming Languages:** Python, SQL.
- **Machine Learning & Deep Learning:** RAG, FLAN T5, QCNN's, LeNet-5, Scikit-learn, PyTorch, spaCy.
- **Data Analytics & Visualization:** Pandas, Numpy, Tableau Public, Matplotlib.
- **Frameworks & Tools:** Docker, Git, GitHub, Tensor Flow, Jupyter Notebook, AWS.
- **Databases:** MySQL, Redis, Vector Databases.
- **AI-Specific Skills:** NLP, Computer Vision, Data Pre-processing, Feature Engineering.

Work Experience

Dr. Dy Patil International University (In-House Internship) **May 2023 - July 2023**

Research Intern *Pune, Maharashtra*

- Task: Developed the 'Blood Bank Management System," a comprehensive software solution for donor registration, blood inventory tracking, and blood type matching, streamlining operations and reducing processing time by 40%.
- Optimized scheduling, storage, and access systems for blood supplies, reducing retrieval times by 30% and enhancing operational efficiency to support critical life-saving medical procedures.

Vowtech Technologies Pvt. Ltd. **August 2023 - January 2024**

Web Developer Intern *Pune, Maharashtra*

- Task: Engineered a fully functional E-commerce platform with HTML, CSS, JavaScript, Bootstrap, Python, and Django, achieved a 50% reduction in page load times, resulting in a 25% boost in user engagement.
- Worked with a supportive team and I reinforced my passion for Web Development and gained valuable insights into project management and teamwork.
- **Achievement:** Published a research paper in reputable international journal.

Showcase Projects

Quantum Machine Learning for Image Classification

- Created and implemented Quantum Convolutional Neural Networks (QCNN) algorithms for image classification on quantum computers, achieving a 20% increase in classification accuracy and enhancing processing efficiency by 30%.
- Trained and tested the model using the MNIST dataset from Kaggle, which contributed to a 10% improvement in accuracy by leveraging the dataset's well-defined, labeled images to fine-tune the parameters.
- Implemented LeNet-5, a classical CNN architecture, to serve as a benchmark for evaluating performance. Compared it with the Quantum CNN (QCNN), revealing key differences in quantum gates and quantum circuit complexity, to achieve similar or superior accuracy.
- This cutting-edge technology of integrating quantum computing with machine learning, represents a significant step towards the future of quantum-enhanced artificial intelligence, aiming to revolutionize image classification.

Converse: AI Powered Chatbot

- Developed an AI-Powered chatbot leveraging advanced machine learning models. Built using the FLAN T5 model an enhanced & instruction fine-tuned version of T5 (Text-to-Text Transfer Transformer Language Model.)
- Conducted tests & evaluations on Open Orca dataset, which improved its ability to handle 90% of complex user interactions accurately.
- Fine-Tuned & Optimized model through quantization, distillation, and pruning techniques to improve performance and reduce resource consumption by 40%.
- Our chatbot consistently delivers exceptional results, boasting a 90% accuracy rate and an average response time of under 2 seconds. These metrics are calculated using rigorous evaluation techniques, including precision, recall, and F1-score.
- Designed a user-friendly interface with Gradio and deployed the solution on Hugging Face Spaces. This cloud-based platform ensures easy deployment and accessibility, empowering users to experience the future of AI-driven conversations.

Education

Dr. Dy Patil International University **Aug 2021 – June 2024**

Bachelor Of Computer Engineering *Pune, Maharashtra*

Trade: Artificial Intelligence and Machine Learning (AI & ML)

Pimpri Chinchwad Polytechnic **Aug 2018 – June 2021**

Diploma Of Computer Engineering *Pune, Maharashtra*