Baljindersingh Surendrasingh Bedi

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Python | R | Java | ML Algorithms | Data Preprocessing | Visualization | Model Evaluation & Validation | TensorFlow
PyTorch | scikit-learn | Keras | Hadoop | Spark | Flink | Version Control (Git) | NPL | Bagging and Boosting

AI Engineer | ML Engineer | AI/ML Researcher

Summary:

- Graduated with a Master of Science in Artificial Intelligence from DePaul University, with expertise in Natural Language Processing, Computer Vision, Neural Networks, and Deep Learning through rigorous coursework and hands-on projects.
- Demonstrated ability to rapidly acquire new skills and adapt to changing environments, recognized for effective problem-solving and applying academic knowledge to practical scenarios.
- Highly motivated to start as a Junior AI & Machine Learning Engineer, aiming to contribute effectively to innovative projects while continuously advancing technical skills and industry knowledge.

Education:

- **DePaul University, Chicago, IL:** Master of Science in Artificial Intelligence **|GPA: 3.5**   **June 2024**
- **The Institute of Chartered Accountants of India, India:** CA Intermediate, Tax Law/Taxation **|GPA: 3.6**   **June 2018**
- **The Gujarat University, India:** Bachelor of Commerce – Accounting, Finance, Taxation   **March 2016**

Work Experience

Artificial Intelligence Engineer Intern | RadicalX, New York   **June 2023 – Aug 2023**

- Advocated for the use of **open-source models** to uphold **data privacy standards**, ensuring ethical practices in AI development.
- Implemented **FAISS** for managing **high-dimensional vector databases**, significantly **enhancing** data retrieval efficiency **by 40%.**
- Developed an AI system leveraging the **OpenAI** API with a team of five members, establishing a comprehensive knowledge base spanning diverse subject areas and applications, significantly enhancing information retrieval and **user interaction**.
- Enhanced question-answer (QA) formats and synthesized a vital dataset for **model fine-tuning**, significantly contributing to improved accuracy and **reducing errors by 40% and 25%,** respectively, leading to better overall performance.
- Conducted a comprehensive **comparative performance analysis** between **BERT** and **LLama2** models, demonstrating LLama2's superior capability in managing complex queries and outperforming BERT in various evaluation metrics.

Project Experience

- **Hybrid 3D Pooling CNN for Gesture Recognition:** Developed a CNN model enhancing gesture recognition in low-resolution videos; achieved 93% accuracy, published findings in a collaborative research paper. – **Computer Vision 3D**
- **Computer Vision for 3D Reconstruction:** Developed a 3D reconstruction model from RGB and depth images as part of my master thesis, focusing on the accuracy and efficiency of the reconstruction process. – **Computer Vision 3D**
- **AI-Driven Dino Game Using CNN:** Developed an autonomous game player for the Chrome Dino game using convolutional neural network and reinforcement learning techniques. – **Computer Vision 2D**
- **Tutor Buddy**: Teaching using LLM: Created a personalized tutoring system using LLMs like LLama3, LLama2, and Gemini, incorporating personalized algorithms for adaptive learning. **– Generative AI and LLMs**
- **RAG Application for Chatbots:** Designed a Retrieval-Augmented Generation system for chatbots, integrating FAISS for efficient data retrieval and large language models for generating accurate responses based on user queries. **– Generative AI and LLMs**
- **Predicting Bank Loan Defaults Using Machine Learning:** Employed various machine learning algorithms including regression models and ensemble methods to predict the likelihood of loan defaults. **– Predictions using Machine Learning**
- **Retail rocket Recommender System Data Analysis:** Analyzed e-commerce behavioral data using item-based, user based, and hybrid recommendation models to uncover patterns and improve product recommendations. – **Recommendation System using ML**

Technical Skills

- **Programming Languages and Frameworks:** Python, Java, PHP, SQL, PyTorch, TensorFlow
- **Artificial Intelligence and Machine Learning:** Artificial Intelligence, Machine Learning, Natural Language Processing (NLP), Computer Vision, Neural Networks
- **Models and Learning Techniques:** Transformers, Large Language Models, Supervised & Unsupervised Learning, Reinforcement Learning
- **Machine Learning Libraries and Techniques:** Linear Regression, Decision Trees, Bagging and Boosting, XGBoost, Deep Neural Networks (DNN), Recurrent Neural Networks (RNN)
- **Data Science and Analysis:** Data Visualization, Feature Engineering, Scikit-Learn, OpenCV, Tesseract OCR Engine
- **Algorithms and Data Structures:** Algorithm Design, Advanced Algorithms, Database Structures, Data Structures