Kanisha Raja

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EDUCATION

Master of Science in Engineering Science - Artificial Intelligence   *Aug 2024 – Jan 2026*
State University of New York at Buffalo

Bachelor of Engineering in Electronics and Communication Engineering   *Jul 2019 – Jul 2023*
PSG College of Technology

TECHNICAL SKILLS

Machine Learning / Deep Learning Frameworks & Libraries: PyTorch, TensorFlow, scikit-learn, XGBoost, fastai
Natural Language Processing (NLP): Hugging Face Transformers, Large Language Models (LLMs), spaCy, NLTK, Tokenization (BPE), Embeddings
Programming Languages: Python, R, C, C++, SQL, HTML, CSS
Reinforcement Learning (RL): OpenAI Gym, Stable-Baselines3, RLlib
Data Analysis & Visualization: Pandas, NumPy, Matplotlib, Seaborn, Plotly, Tableau, Power BI
Big Data & Systems: Apache Spark, PySpark, Spark MLlib, Hadoop (HDFS), Docker, Docker Compose
Dev Tools: Git, GitHub, GitLab, Visual Studio Code, Jupyter Notebook, Google Colab, Kaggle

PROJECTS

Multilingual Diabetes Chatbot | HuggingFace Transformers, FAISS, BloomZ-3B | [GitHub](#)
- Built a Retrieval-Augmented Generation (RAG) based chatbot to provide personalized diabetes advice in English, Spanish and French, Fine-tuned Fine-tuned BLOOMZ-3B using LoRA adapters on domain-specific medical QA datasets, enabling empathetic, instruction-following responses.
- Integrated WHO and ADA clinical guidelines using MiniLM sentence embeddings and FAISS similarity search to ground responses in authoritative medical knowledge and reduce hallucinations.
- Achieved BERTScore-F1 of 0.78, emphasizing safe deployment and real-world usability in healthcare.

Uncertainty-Aware Lung Segmentation | PyTorch, Bayesian Deep Learning | [GitHub](#)
- Implemented Bayesian U-Net with Monte Carlo dropout and aleatoric perturbation for chest X-ray segmentation.
- Introduced Accuracy vs. Uncertainty loss function to explicitly align model uncertainty with true segmentation errors, producing interpretable uncertainty maps that highlight regions requiring additional clinical review.
- Achieved Dice score of 0.92 and Jaccard Index of 0.86 on the Montgomery County Chest X-ray dataset, demonstrating strong segmentation performance.

Neural Machine Translation System | PyTorch, NLP, Transformers | [GitHub](#)
- Built and evaluated a German to English machine translation system using a BiLSTM encoder–decoder with Luong attention and a Transformer baseline on the Europarl v7 dataset (≈1.9M sentence pairs) using SentencePiece BPE.
- Achieved BLEU 34.53 using label smoothing, gradient clipping, and optimized learning rates, and analyzed trade-offs against a Transformer baseline.

RFID Collision Avoidance using Reinforcement Learning | PyTorch, NumPy | [GitHub](#)
- Built a custom reward-aware Q-Learning algorithm and benchmarked it against SARSA, DQN and Double DQN.
- Modeled a noisy 10 x 10 grid with 50 RFID readers and stochastic jammers and Double DQN achieved the highest average reward ~12, outperforming SARSA and vanilla DQN.
- Incorporated traffic maps, interference zones, and agent memory for realistic simulation and performance gains.

EXPERIENCE

Full stack Developer Intern   *Dec 2023 – May 2024*
Metaplore Solutions Pvt Ltd   Chennai, IN
- Designed and implemented responsive user interfaces using HTML, CSS, and JavaScript for internal and client-facing web applications, configured and managed Apache web servers, ensuring cross-browser compatibility and stable application deployment.
- Integrated frontend, middleware, and database layers to enable end-to-end data flow across web applications.
- Developed backend functionality using Python Django and implemented RESTful API endpoints for frontend consumption.

Project Trainee   *Dec 2022 – Apr 2023*
Zoho Corporation   Chennai, IN
- Gained hands-on experience with networking fundamentals, including IP addressing, DNS, DHCP, worked with web servers and HTTP protocols, request-response cycles, status codes and API usage.
- Configured and administered Active Directory (AD) domains and managed Group Policy Objects (GPOs) in enterprise environments.
- Assisted in domain management and policy deployment, supporting secure and scalable IT infrastructure operations.

CERTIFICATIONS

- AI Agents Intensive Course – Google (via Kaggle)   *Dec 2025*