Devadarshini Pazhanivel Thenmozhi

Linkedin Github Portfolio pazhanivelthenmozh.d@northeastern.edu 617-602-5527

Education

Northeastern University Sep 2024 – Aug 2026
Master of Science in Artificial Intelligence *Boston, Massachusetts*
- **Relevant Coursework:** Machine Learning, Foundations of AI, MLOps, NLP, Algorithms

Anna University Sep 2020 – May 2024
Bachelor of Technology in Artificial Intelligence and Data Science *Chennai, India*
- **Relevant Coursework:** Machine Learning, Deep Learning, Cloud Computing, Probability and Statistics, Big Data Analytics

Work Experience

National University of Singapore (NUS) Jul 2023
Deep Learning Intern *Singapore*
- Collaborated with a research team at NUS to build VizCap, a real-time image captioning system with **ResNet + LSTM**, delivering **50+ captions/sec** to assist visually impaired users.
- Executed training on **30,000+ image–caption pairs** integrating **GloVe 300D embeddings** and custom preprocessing.
- Achieved a **BLEU score of 0.62** on **Flickr30k images**; conducted **data preprocessing** and **model evaluation**.

VLOG Innovations Jan 2023 – Mar 2023
Artificial Intelligence Intern *Chennai, India*
- Trained a **YOLOv5 model** to detect 6 PCB defect types (mouse bites, shorts, missing holes), boosting micro-defect detection accuracy by **18%** compared to manual inspection.
- Partnered with the **QA and R&D teams** to align AI outputs with PCB fabrication workflows, reducing **false positives by 12%**.
- Designed and deployed a **Tkinter GUI** for real-time defect visualization and severity scoring across **100+ PCB samples**, improving inspection efficiency and usability.

Projects

NL2SQL using Retrieval-Augmented T5 - Link | *PyTorch, Hugging Face Transformers, LangChain, T5, RAG, FAISS* Jun 2025 – Aug 2025
- Fine-tuned and deployed a **T5-base** model on the Spider dataset for natural language question to SQL conversion, achieving 54.96% execution accuracy on the test set using **AdamW, warmup schedulers, gradient accumulation, and mixed precision**.
- Created a **RAG**-powered GenAI pipeline with **LangChain, LlamaIndex, SentenceTransformer embeddings, and FAISS**; deployed via **Streamlit**, enabling schema retrieval with 73.34% execution accuracy on simple queries while reducing hallucinations.

Candidate Recommendation Engine — Link | *Python, Streamlit, Transformers, NLP, scikit-learn, Explainable AI* Apr 2025 – Jun 2025
- Designed an AI-powered resume ranking app using **BERT NER**, **Sentence-Transformers**, and hybrid scoring to analyze **50+ resumes per run**, delivering transparent match percentages for candidate–JD alignment with up to 90% accuracy in top candidate selection.
- Shipped a **Streamlit app** with 2 input modes (PDF/TXT upload), 4-part score breakdown, Top-N rankings, and AI summaries; supports batch uploads with **100% local processing**.

Fetal Health Risk Prediction and Patient Clustering - Link | *Python, Random Forest, XGBoost, PCA, KMeans, UMAP* Jan 2025 – Mar 2025
- Processed and analyzed **2,126 CTG records** with 22 clinical features, engineering a PCA-based ML pipeline with Ridge Regression, Random Forest, and XGBoost that improved fetal health risk prediction accuracy over baseline models.
- Clustered patients using **UMAP + KMeans and Hierarchical Clustering**, achieving **silhouette scores up to 0.53** and delivering interpretable insights via SHAP explanations.

AI-powered Sports Video Highlight Generation - Link | *Python, ResNet50, GRU + Attention, Computer Vision* Oct 2024 – Dec 2024
- Developed a deep learning system with **ResNet50 + LSTM** to auto-generate soccer highlights, classifying goals/fouls and ranking key moments across **25 full-match datasets**.
- Devised temporal segmentation and stitching logic to compile **500+ personalized highlight clips**, enabling user-specific preferences.

Technical Skills

Languages	Python, SQL, R, Java, C, HTML, CSS
Developer Tools	Jupyter, PyCharm, SQLite, IntelliJ, Git, GitHub, VS Code, AWS, Tableau
Core Skills	Machine Learning, Natural Language Processing, Deep Learning, Computer Vision, Information Retrieval, Explainable AI,Data Analytics & Visualization, Version Control, GUI Development
Libraries & Frameworks	NumPy, Pandas, OpenCV, Seaborn, TensorFlow, PyTorch, Hugging Face Transformers, Sentence-Transformers, Keras, scikit-learn

Research & Activities

Graduated top of class in B.Tech Artificial Intelligence and Data Science (Anna University) May 2024

Cognitive Defense: Cyber Attack Prediction and Security Design in ML Models (IEEE) - Link Jan 2024
- Co-authored an IEEE paper proposing a hybrid ML framework for anomaly detection and cognitive defense, achieving **97% prediction accuracy** in cyber-attack detection.

IoT–based Smart Home Automation for Energy Conservation (IEEE) - Link Oct 2023
- Applied ML-driven optimization methods to enhance IoT home automation, reducing household energy consumption by **150 kWh**.