Uttapreksha Patel

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EDUCATION

Northeastern University **Boston, MA**
Master of Science in Electrical and Computer Engineering (GPA: 3.9/4.0) May 2026 (Expected)
Concentration: Computer Vision, Machine Learning, and Algorithms
Coursework: Machine Learning Operations(MLOps), Advanced Computer Vision, Advanced Machine Learning, High Performance Computing, Introduction to Machine Learning and Pattern Recognition, Fundamentals of Computer Engineering
Extracurricular: IEEE Workshop Coordinator (Spring 2025), Global Student Mentee (GSM Program – Fall 2024)

G H Patel College of Engineering and Technology (CVM University) **Anand, India**
Bachelor of Engineering in Electronics and Communication Engineering (GPA: 3.7/4.0) May 2024
Coursework: Digital Image Processing, Information Theory and Coding, IOT and Applications, Python for Engineers

TECHNICAL SKILLS

Programming & Analysis:	Python (Pandas, NumPy, Scikit-learn), C, C++ R, SQL, Java, JavaScript, Excel (Advanced: VBA, Power Query, Pivot Tables), MATLAB, Assembly
Machine Learning & AI:	Learning (CNNs, RNNs), LLMs, Langchain, Model Training & Deployment, Prompt Engineering Supervised/Unsupervised Learning, Regression, Classification, Clustering, Keras, HuggingFace
AI/ML Tools:	Chat GPT API, Claude API, OpenAI Codex, TensorFlow, PyTorch
NLP & Text Mining:	Transformers, Named Entity Recognition (NER), Text Classification, Information Retrieval
MLOps & Deployment:	Docker, AWS (EC2, S3), Google Cloud Platform, Apache Spark, Apache Airflow Azure AI Services, ClickUp, Airtable, CI/CD Pipelines
Software Development & Tools:	Git, GitHub, API Development, Code Optimization, Flask, Jupyter, VS Code Pytest
Data Management	ETL Pipeline Development, Data Warehousing, Data Validation Frameworks, API Integration
Data Tools:	Tableau, Power BI, Looker, dbt, Snowflake, PostgreSQL, MongoDB, Seaborn, Tensorboard, Plotly, Matplotlib

WORK EXPERIENCE

Northeastern University **Boston, MA**
Research Assistant *February 2025 - Present*
- Engineer data collection pipeline using Darshan and LDMS on AWS with I/O benchmarks (IOR, VPIC), creating automated job scorecards and Python visualizations to analyze distributed system performance and collaborate on data-driven optimization strategies
- Deploy containerized ML workloads (miniGAN) via Docker on AWS, generating large-scale test datasets and building monitoring scripts to track and visualize performance metrics during heavy computational operations

TecUnique Pvt Ltd **Vadodara, India**
Python Development Intern *December 2023 – April 2024*
- Developed and implemented an automated testing framework using Python, Pytest, and PyCharm to validate Spectra's API and UI components, resulting in optimized testing processes and faster issue detection
- Created real test cases for key entities, improving test coverage and efficiency
- Generated detailed test reports, enhancing visibility into test results and facilitating quicker resolution of issues

ACADEMIC PROJECTS

AI-Powered Portfolio Data Management System | Northeastern University **January 2025 – April 2025**
- Built end-to-end automated system extracting and cleaning portfolio data from Crunchbase, PitchBook, and company websites using GPT-4 API, processing 50,000+ data points monthly with 95.2% accuracy
- Designed PostgreSQL data warehouse with star schema and Apache Airflow DAGs for daily ETL processes, reducing data processing time from 40 hours/week to 6 hours/week
- Created comprehensive data validation framework with 15+ automated quality checks and Tableau dashboard for real-time portfolio performance tracking and investment decision support

LLM-Powered Compliance Documentation System| Northeastern University **September 2024 – December 2024**
- Built LLM-powered assistant fine-tuning GPT-4 API to automatically generate Standard Operating Procedures (SOPs) for medical device manufacturing, achieving 91% regulatory compliance score by implementing RAG architecture with FAISS integrating FDA guidelines and ISO 13485 standards
- Gathered and preprocessed 5,000+ technical documents creating structured training datasets, conducting systematic evaluation comparing zero-shot, few-shot, and fine-tuned approaches using BLEU, ROUGE, and compliance metrics
- Developed production Flask web service with authentication enabling quality management system integration, creating comprehensive API documentation and deployment guidelines for cross-functional engineering teams

Healthcare Knowledge Retrieval System | Northeastern University **September 2024 – December 2024**
- Developed a RAG-based system to assist healthcare professionals in retrieving and understanding medical information by integrating document retrieval and text generation
- Utilized Elasticsearch and FAISS to retrieve relevant sections from medical databases, then leveraged HuggingFace Transformers (GPT-2, T5) for generating concise, context-aware responses
- Deployed the solution using Docker and Flask, providing a user-friendly web interface for quick access to medical guidelines, patient records, and clinical recommendations