Swapnil Tukaram Mane

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EDUCATION

Binghamton University, Thomas J. Watson College of Engineering and Applied Science Aug 2023 - May 2025
Master of Science in Computer Science | **GPA: 3.71/4.00**
Coursework: Operating System, Design and Analysis of Algorithms, Design Patterns, System Design and Architecture, Data Mining, Data Science, Artificial Intelligence, Machine Learning, Systems Programming, Computer Vision

Fr. C. Rodrigues Institute of Technology, Navi Mumbai, India Aug 2016 - Nov 2020
Bachelor of Engineering in Electronics and Telecommunication Engineering
Coursework: Image Processing, Machine Vision, Neural Networks, Computer Architecture, Data Compression and Encryption, Digital System Design, Signal Processing

TECHNICAL SKILLS

Programming Languages & Databases: Python, MySQL, Java, NoSQL, HTML, CSS, C, C++, SAP ABAP
Tools and Technologies: Tableau, MATLAB, Git, Microsoft Azure (Azure ML Studio, Azure AI Cognitive Services), Google Cloud Platform (GCP), Amazon Web Services (AWS), React.js, Android Studio, SAP Logon NetWeaver, LabView, Linux
Frameworks: PyTorch, PySpark, TensorFlow, Keras, Sci-kit Learn, Hugging Face, OpenCV, Ollama, Hadoop
AI/ML Algorithms & Techniques: Deep Learning, Neural Networks, Natural Language Processing, Reinforcement Learning (RL), Generative AI, Fine-tuning LLMs, Data Science, Time Series Forecasting, Predictive modeling, Machine Vision

PROFESSIONAL EXPERIENCE

Bridge Green Upcycle Corp*, Software Engineering Intern* Dec 2023 – Dec 2024
Python, Pandas, PySpark, Tableau, NumPy, Plotly, Matplotlib, Scikit-Learn, MATLAB, Data Science, AI/ML

- Developed a PySpark ETL pipeline to ingest and process 3 million+ battery samples per unit, applying physics-based feature extraction for real-time battery State of Health (SOH) analysis and reduce execution runtime
- Deployed a hybrid LSTM-DNN models via distributed PySpark computing, achieving a 5.7% MAE on capacity prediction and RUL estimation, enabling predictive maintenance, failure forecasting, and battery repurposing strategies
- Automated interactive Tableau dashboards in Python and embedded them into the cloud platform to visualize actionable battery analytics, facilitating Memorandums of Understanding (MoUs) and supporting the startup's Series A launch

LTIMindtree Ltd. (formerly Larsen & Toubro Infotech Ltd.)*, Software Engineer* Aug 2022 – Jul 2023
Natural Language Processing (NLP), Python, Scikit-Learn, Azure Machine Learning Studio, Azure AI Cognitive Services

- Led the development of a Natural Language Processing (NLP) solution in Azure ML Studio to automatically classify 900K+ historical IT service tickets using word embedding and TF-IDF vectorization for feature extraction
- Mitigated severe class imbalance through stratified sampling, SMOTE oversampling, and class-weighted Logistic Regression & Random Forest models, driving 66% accuracy on a highly skewed dataset
- Deployed real-time inference via Azure ML endpoint with Reinforcement Learning with Human Feedback (RLHF), integrated into the ticketing web app to boost model generalization, reduce MTTR and streamline incident response

Larsen & Toubro Infotech Ltd. (LTI)*, Software Engineer* Aug 2020 - Jul 2022
Python, Image Processing, Reports, Enhancements, User Exits, BADIs, Interface, ABAP List Viewer (ALV)

- Developed and optimized SAP ABAP programs using AMDP, CDS views, and SELECT optimizations to enhance system performance while implementing User Exits, BAPIs, BADIs, and Enhancements
- Automated SAP NetWeaver monitoring using .NET-based VB script, which reduced manual monitoring time per system by approximately 86% (from 35 to 5 minutes), saving roughly 90% of annual monitoring effort (900 minutes annually)
- Built a Python GUI-based user search system with image processing, Tesseract OCR and MS Excel integration, which reduced user search time by 67%, streamlining entity retrieval and eliminate error-prone manual lookups

Navavidha Techsolutions Pvt. Ltd.*, Junior App Developer* Jun 2019 - Jul 2019
Git, Github, IoT, Arduino, GPIO, Python, Pandas, NumPy, Tkinter, PySerial, OpenCV

- Developed games and managed device communication using Tkinter and PySerial for HMI in Embedded Systems
- Deployed processed code to embedded system (Arduino, Raspberry Pi, STM32) to enable real-time data acquisition

PROJECT EXPERIENCE

Multi-agent LLM text-to-SQL, (GitHub) Present

- Built a multi-agent Text-to-SQL system using Ollama LLMs and the Autogen framework to orchestrate collaborative agents that convert natural language queries into optimized SQL, built on Bird.dev database and tested on MySQL

Conversational ChatBot, (Live Demo) Mar 2025

- Deploy a personalized AI chatbot for a portfolio website by fine-tuning LLM models and using contextual retrieval augmentation with vector-enabled relational database

Data Mining: Dimensionality Reduction, Classification and Clustering, (GitHub) Apr 2024

- Implemented PCA and DCT for image dimensionality reduction, a Deep Neural Network with a 76.44% accuracy to enhance classification, and optimized KNN with k=4 using the elbow method for improved clustering

Thought to Text Conversion Using Deep Learning, (Publication) Mar 2020

- Utilized MATLAB and Python for EEG signal processing and trained a supervised learning model to recognize neural activity patterns, achieving 59% accuracy in thought-to-text classification under predefined test conditions