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, GraphQL

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, TensorFlow, Keras, Sci-kit Learn, Hugging Face, OpenCV, LangChain, Hadoop, PySpark

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

Artificial Intelligence, Machine Learning, Python, Pandas, NumPy, Plotly, Matplotlib, Scikit-Learn, MATLAB, Data Science

- Developed supervised state-of-the-art ML models with over 90% accuracy for battery State of Health (SOH) prediction and Remaining Useful Life (RUL) estimation using time-series analysis on historical and real-time battery data
- Optimized Python performance for processing 3.25 million data points per dataset, implementing parallel processing and multithreading, ensuring scalable, high-performance integration of AI solutions into the SaaS platform
- Managed client engagement, product demos and digital platform design during early project phase, securing Memorandums of Understanding (MoUs) for the company's market growth with global equipment handling provider

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 using Python to automate the classification of historical IT service tickets from unstructured text with skewed class distribution over 70% of the data
- Managed large datasets, performing data cleansing, clustering, classification, and analysis throughout the data science project lifecycle, handling up to 900,000 records, automating workflows and optimizing ML pipelines
- Deployed an ticket classification system using TF-IDF vectorization for feature extraction, achieving 66% classification accuracy with Machine Learning models along with hyperparameter tuning and stopword filtering

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
- Developed a SAP NetWeaver monitoring script using .NET, 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)
- Created a Python GUI-based user search system with image processing, Tesseract OCR detection and Excel integration, which reduced user search time by 67%, streamlining entity retrieval and reducing manual search efforts

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

PROJECT EXPERIENCE

Conversational ChatBot Present

- Deploy a personalized AI chatbot for a portfolio website by fine-tuning Hugging Face with PyTorch, leveraging LangChain for contextual retrieval augmentation, and storing user-specific data in NoSQL database

Computer Vision: Edge Detection, Feature Matching, Augmented Reality, and Video Tracking (GitHub) Nov 2024

- Implemented computer vision algorithms for Edge Detection, Feature Matching, leveraging Gaussian filters, Sobel operators, Hough transform, and FAST-BRIEF descriptors for image analysis and object tracking
- Developed 3D pose estimation and video tracking models using epipolar geometry, triangulation, Lucas-Kanade tracking, and inverse compositional alignment, enabling accurate object recognition and augmented reality integration

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