AMOL ANIL KERKAR

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EDUCATION

State University of New York, Binghamton, NY **Aug 2023 - May 2025**
Master of Science in Computer Science - Artificial Intelligence Track
Courses: Machine Learning, Advanced ML, Natural language processing, High performance computing, Human Computer Interaction, Design and Analysis of Algorithms, Programming languages

K.J. Somaiya College of Engineering, Mumbai, India **Aug 2017 - May 2021**
Bachelor of Technology in Electronics Engineering
Courses: Digital Signal Processing, Image Processing, Introduction to Robotics

TECHNICAL SKILLS

Programming Languages: Python, C, C++, SQL, Haskell
Libraries/Frameworks: Tensorflow, Scipy, Numpy, Pandas, NLTK, Keras, OpenCV, Pytorch, Matplotlib, Flask, Hadoop
Web Technologies: HTML, CSS, JavaScript, React, TypeScript
Tools/Databases: Git, JIRA, Confluence, AWS, Docker, Jupyter Notebook, MySQL, MongoDB, Anaconda, Redis
Certifications: Machine Learning (Stanford Online), Tensorflow Developer (DeepLearning.ai), Introduction to IOT and Embedded Systems (UCI)

WORK EXPERIENCE

Larsen and Toubro Technology Services (LTTS) | Navi Mumbai, India **Sep 2022 - Aug 2023**
Automation Engineer | Deep learning, ECU-Test, Object detection, SQL, Shell Script, Git, OpenCV

- Designed and deployed a defect detection system using **Faster R-CNN** on HMI images, achieving 91% accuracy and significantly improving efficiency in defect identification
- Revitalized menu screen coverage for defect findings by identifying anomalies and enhancing UI accuracy through the strategic implementation of **Keras-OCR** and **Advanced Image Processing** techniques
- Engineered an **Autoencoder-CNN** model for automated language-based defect identification in menu screens
- **Developed an application** with versatile connection modes to BMW racks, featuring diverse functionalities, including capturing instrument cluster images, infotainment display images, and videos.
- Won the **Spot Award** for being a key member for development of Automation and implementation of utilities in LTTS

Larsen and Toubro Technology Services (LTTS) | Navi Mumbai, India **Oct 2021 - Sep 2022**
Associate Engineer | ECU-Test, Some/IP, Android debug bridge, Neural networks, Scikit-Learn, Image processing

- Developed services packages for **XML-parsing**, and **Python script**s for automating the entire test environment in the **ECU-Test** for the Human-Machine Interface domain.
- Automated and developed **Some/IP scripts** for communicating with the BMW test rack's Media Graphical Unit (MGU) to imitate real-time car environment
- Proposed an innovative concept to the client: **Excel-driven automation** for navigation in Android infotainment, utilizing a **proprietary library** built with **Appium**
- Designed a utility encompassing various image comparison applications for LINUX-based infotainment systems using Python's **machine learning** and **computer vision** libraries

Larsen and Toubro Technology Services (LTTS) | Mysore, India **Jul 2021 - Sep 2021**
Engineering Trainee | C, Python, SDLC, MatLab, Simulink

- Executed projects in Advanced **C** Programming, Advanced **Python**, **SDLC**, **MatLab** and Simulink.

ACADEMIC PROJECTS

Spam SMS detection using BERT | *Transfer Learning, Natural Language Processing, Pytorch, Transformers, Model deployment, Flask, HTML, CSS*

- Developed an SMS classification model using BERT-based **transfer learning** to distinguish between spam and non-spam messages with **94%** accuracy. Employed techniques to handle imbalanced classes, ensuring robust performance
- Successfully **deployed** the model using **Flask**, creating a real-time, user-friendly and interactive web interface

Facial emotion recognition | *Tensorflow, Keras, OpenCV, Dense Neural Networks, Data Visualization*

- Implemented a real-time **emotion recognition** system using a webcam utilizing **Convolutional Neural Networks** (CNN) and transfer learning with **DenseNet169** and **DenseNet201** architectures with a ROC-AUC score of **91.97%**
- Optimized model performance through **hyperparameter tuning**, including learning rate adjustments and L2 regularization

Music Genre Detection | *TensorFlow, Keras, Librosa, Convolutional Neural Networks (CNN)*

- Developed a machine learning model for **audio genre classification** using a Convolutional Neural Network (CNN) trained on the GTZAN dataset, achieving accuracy of **89.8%** across various music genres
- Implemented a **user-friendly GUI** application that allows users to interact with the trained model, making genre predictions by playing audio files

QontexMatcher | *Natural Language Processing, Feature Engineering, Data Science*

- Developed a **question similarity prediction** model using **RandomForest** and **XGBoost**. Implemented text analysis to determine whether pairs of questions are semantically similar or not
- Applied dimensionality reduction techniques like **t-SNE** for visualization of high-dimensional feature spaces
- Natural language processing and feature engineering achieving an accuracy of **79.4%** on a test dataset

EXTRA CURRICULUM AND INVOLVEMENT

- **Won** Intra college **hackathon** by building the model of a "Smart medicine reminder and vending machine" from scratch in 36 hours under the category of **student innovation**.
- **Top 22** among all the employees across the global offices of LTTS in TechExpression™ - An **innovation challenge**
- Achieved third place in the under-25 category of the Somaiya **Pentathlon** organized by the Somaiya Sports Academy
- College Kho-Kho team player in **inter-university tournaments** and departmental football team member.
- Played the role of a **pianist** in the Electronics department's music band
- Part of the **organizing committee** for the college's tech festival "Abhiyantriki" and also the sports festival "Skream"