AMOL KERKAR

New York | +1 (607) 2968760 | akerkar@binghamton.edu | Linkedin | Github | Personal Portfolio

WORK EXPERIENCE

Turmerik Inc. , *Machine Learning Intern* | ***Remote, United States*** **May 2024 - Present**

Skills: Python, Machine learning, OpenAI, RAGs, LangChain, Pinecone, JavaScript, NodeJS

- Contributed to developing and implementing machine learning and NLP models for matching patients to clinical trials.
- Developed a system using image processing and OCR to extract text from EMRs, improving data extraction accuracy and efficiency.
- Developed a WhatsApp bot using Node.js to automate clinical trial eligibility screening, enhancing efficiency and accuracy in patient data collection and eligibility determination.

Graphics and Image Computing (GAIC) Laboratory, *Research Assistant* | ***Binghamton, New York*** **June 2024 - Present**

Skills: Computer vision, Machine learning, NLP

- Engaged in research focusing on Computer Vision, Graphics, Image Processing, and Machine Learning

Larsen and Toubro Technology Services, *Engineer* **|** ***Navi Mumbai, India*** **Oct 2022 - Aug 2023**

Skills: Deep learning, ECU-Test, Object detection, SQL, Shell Script, Git, OpenCV, Agile

- Developed a versatile **application** for BMW racks, enhancing data capture and integration across instrument clusters and infotainment displays, showcasing my ability to enhance system functionalities independently
- Developed a utility for BMW racks, enhancing data capture and display integration. Created a Faster R-CNN defect detection system with 91% accuracy for UI components on menu screens, trained on a custom dataset
- Engineered an advanced solution for menu screen defect detection by developing an **Autoencoder-CNN** model and implementing **Image processing** techniques, enhancing UI accuracy and automating language-based anomaly detection
- Won the Spot Award for key contributions in automating processes and implementing **Machine learning** and **Computer vision utilities**, improving overall project efficiency

Larsen and Toubro Technology Services, *Associate Engineer* **|** ***Navi Mumbai, India*** **Oct 2021 - Sep 2022**

*Skills: Neural networks, Computer Vision***,** *Scikit-Learn, Image processing, ECU-Test, Some/IP, Android debug bridge*

- Developed a **Computer vision** system for defect detection in menu screens, automating anomaly identification and utilized **Python for XML parsing** and efficient **data visualization,** reducing manual inspection time by 80%.
- Developed Some/IP scripts in python for BMW MGU to simulate real-time car environments and created a utility for LINUX-based systems using **Python's machine learning** and computer vision libraries
- Proposed an innovative Excel-driven automation concept for Android infotainment navigation, utilizing a proprietary library built with **Appium**, demonstrating proactive **problem-solving** and **client engagement**

EDUCATION

State University of New York, Binghamton, NY **Expected May 2025**

Master of Science in Computer Science - Artificial Intelligence Track (3.71 GPA)

Courses: Machine Learning, Natural Language Processing, High Performance Computing, Human Computer Interaction, Social Media Data Science Pipeline, Artificial Intelligence

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, PySpark

Web Technologies: HTML, CSS, JavaScript, React, Node.js

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), Sequences, Time series and prediction, Convolutional Neural Network, Natural Language Processing (Coursera)

ACADEMIC PROJECTS

P.G.Wodehouse - Style Novel generator | *Python, Transformers (Hugging Face), PyTorch, BART*

- Fine-tuned a BART model on a corpus of P.G. Wodehouse novels to generate text in the author's distinctive style.
- Preprocessed and tokenized a large dataset of text, ensuring compatibility with the BART model for effective training.
- Implemented the model to generate coherent and stylistically accurate text.

Aeolus' Balance | *Reinforcement learning, PyGame, Deep learning*

- Designed a simulated 2D environment using PyGame, mimicking real-world physics for training AI agents.
- Developed a reinforcement learning framework integrating Dueling DQN with benchmarks against SAC and PPO methodologies.

Spam SMS detector | *Transfer Learning, Natural Language Processing, Transformers, Flask, HTML, CSS*

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

EmoVision | *OpenCV, Dense Neural Networks, Data Visualisation*

- Developed and optimized custom CNN models with TensorFlow, achieving 66.08% accuracy through rigorous hyperparameter tuning and regularization.
- Utilized ResNet-50, MobileNet, and MobileNetV2 pre-trained models, enhancing emotion recognition accuracy to 86.75% via transfer learning.
- Engineered a real-time video facial expression detection system integrating AdamW-ResNet with OpenCV for live emotion classification and visualization.

EXTRA CURRICULUM AND INVOLVEMENT

- **Hackathon Winner**: Built a "Smart medicine reminder and vending machine" under the category of **student innovation**
- **TechExpression™**: Ranked **top 22** among global employees at LTTS in an **innovation challenge**
- **Student Safety Assistant**: Working with the New York State University Police Department.