AMOL KERKAR

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WORK EXPERIENCE

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

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

- Successfully developed advanced machine learning and natural language processing models to accurately match patients with suitable clinical trials.
- Engineered a sophisticated system leveraging image processing and optical character recognition (OCR) to extract text from various electronic medical records (EMRs)
- Developed a robust WhatsApp bot using Node.js to automate the screening process for clinical trial eligibility.
- Successfully pitched the products to potential customers, actively gathering feedback to tailor and enhance product features

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

- Single handedly developed a versatile **application** for BMW racks using Python, enhancing data capture and integration across instrument clusters and infotainment displays
- Created a Faster R-CNN defect detection system with 91% accuracy for UI components on menu screens
- Engineered an automated language-based anomaly detection using **Autoencoder-CNN** model and implementing **Image processing** techniques
- 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*

- Organized and managed data for utility runs at BMW's offshore development center by utilizing SQL for efficient data handling and Python for XML parsing and data visualization, reduced manual inspection time by 80%
- Developed Some/IP scripts in Python for BMW MGU to simulate real-time car environments

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" for Smart India Hackathon
- **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