Kamala Krishnan

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Education

University at Buffalo, The State University of New York **Aug 2022 – Dec 2023**

Master of Science in Robotics & Artificial Intelligence GPA: 3.54/4.0 *Buffalo, New York*

- Relevant Coursework: Data Structures, Machine Learning, Computer Vision, Deep Learning, Robotics Algorithms

Anna University **Aug 2015 – Jun 2019**

Bachelor of Engineering in Computer Science & Engineering *Chennai, India*

- Relevant Coursework: Data Analytics, Operating Systems, Distributed Systems, Computer Networks, Data Warehousing, Statistical Data Mining

Experience

RadicalX **May 2023 – Aug 2023**

AI/ML Engineer *San Francisco, California*

- Developed LLM (Large Language Models) in Python using the OpenAI API for chatbots and virtual assistants.
- Assisting in AI model design, data analysis, and preprocessing for machine learning.
- Utilizing OpenAI, TensorFlow, Botpress, and Inworld.ai to develop an AI Dev Manager, personalized learning algorithms, and anti-cheat/fraud detection systems.
- Collaborating with cross-functional teams to implement advanced AI algorithms and improve existing models.

TTEC Digital, Inc **Jan 2020 – May 2022**

Software Engineer *Chennai, India*

- Contributed to developing a customer service tool using Amazon Transcribe for real-time chat transcription and Amazon Comprehend for sentiment analysis, optimizing customer interactions and service quality.
- Implemented multiple user stories for MunichRE's insurance application, enhancing resilience and user-focused design.
- Integrated UI components, implemented API changes, and resolved bugs in collaboration with Product Managers, improving application functionality and overall user experience.
- Collaborated with JP Morgan & Chase on a contract basis to implement and conduct unit testing for the initial phase of an application, ensuring online performance validation.

Academic Projects

Computer Vision and Image Processing Projects | *Python, OpenCV*

- **Deep Learning Based Facial Analysis:** Developed a facial analysis system in Python, implementing face detection, recognition, clustering, and emotion/gender/age classification.
- **K-Means Face Clustering:** Implemented face detection modules in OpenCV, achieving 91% accuracy by building a K-Means clustering algorithm from scratch for face clustering.

Robotics Projects | *ROS, Python*

- **Stereo Odometry and Depth Estimation:** Performed stereo odometry computation and visualization by utilizing feature detection, sequential depth estimation, feature extraction, optical flow tracking, and pose estimation techniques.
- **Rapidly-exploring Random Tree for Path Finding:** Developed an optimized pathfinding algorithm based on RRT in Python, effectively generating the shortest feasible path while intelligently avoiding obstacles.
- **PID and Pure Pursuit Algorithm:** Engineered Python and ROS nodes to enable car steering control by integrating PID and Pure Pursuit controllers, while providing visual representation of the trajectory in RVIZ.
- **Evader + Mapper:** Built nodes in a gazebo environment for obstacle avoidance and scanning, saving Cartesian coordinates of scanned obstacles while considering motion.

Machine Learning and Deep Learning Projects | *Python, Sklearn, PyTorch, TensorFlow+Keras, TensorBoard*

- **Driver Drowsiness Detection:** Executed the YOLOv8 model for driver drowsiness detection using a custom annotated dataset, achieving high performance(mAP50: 0.995 on both training and validation sets); seamlessly integrated it into a real-time video processing pipeline for immediate drowsiness detection.
- **Convolutional Neural Network (DTD Dataset):** Trained a variant of VGG16 model from scratch to accurately classify textures in the Describable Textures Dataset, achieving a validation accuracy of 42%.

Technical Skills

Languages: Python, C++, MATLAB, JavaScript, HTML+CSS
Database Technologies: SQL, NoSQL, MongoDB, PostgreSQL
Frameworks & Libraries: ROS, TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, NumPy, Pandas, Matplotlib
AI/ML Techniques and Image Processing: Linear Regression, Logistic Regression, Decision Trees, Random Forests, SVM, k-NN, K-Means, Neural Networks, CNNs, RNNs, Object Detection (YOLO, SSD), Edge Detection, Face Recognition