KEDAR GAIKWAD

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EDUCATION

Master of Science, Robotics And Autonomous Systems (Artificial Intelligence) Expected May 2025
Arizona State University

Bachelor of Engineering, Computer Engineering May 2019
University of Mumbai

SKILLS

Languages & Technologies	Python, C++, Docker, Git, Jira, GCP, AWS
ML Frameworks	PyTorch, TensorFlow, Scikit-learn, ONNX, TensorRT, OpenVino
Data Analysis	Matplotlib, Pandas, Numpy, OpenCV, Seaborn, Tensorboard
Embedded Systems	Nvidia Jetson, Ambarella CV22, Raspberry Pi

EXPERIENCE

Research Assistant - Computer Vision (Arizona State University) October 2023 - Present

- Reduced deep learning model size by 80% via model pruning and quantization, maintaining performance and enhancing data processing efficiency, leading to 30% deployment cost savings.
- Directed a proficient team to elevate neural network performance through the integration of **neuro-symbolic** approaches, achieving a remarkable 30% improvement in recall for object detection in satellite imagery compared to traditional models.

Senior Data Scientist (RagaAI) January 2022 - August 2023

- Led deployment of a deep neural network (DNN) for drift tracking and outlier detection in **ADAS**, achieving 95% test accuracy. Featured at **2023 CES** in Las Vegas, resulting in the acquisition of 10 key clients.
- Collaborated to create a project for computer vision drift and model A/B testing, securing seed funding of $4.7 million.
- Designed an **LLM testing** platform incorporating metrics for response quality, context awareness and safeguarding resulting in a comprehensive framework with 15 tests.

Deep Learning Engineer (Uncanny Vision Solutions) June 2019 - July 2021

- Improved verification environment for system-level and intra-module testing of a custom DL framework for an **edge-AI** FPGA device, resulting in better memory utilization and tenfold faster output generation.
- Streamlined and deployed an annotation tool that **automated annotation** processes, resulting in a 40% increase in throughput and equipping the annotation team with essential tool proficiency.
- Engineered a cutting-edge **face mask recognition** model with the industry-specific EfficientNet series, customized for lower resolution images to combat COVID challenges, achieving an exceptional 97% accuracy rate.

PROJECTS

AI Stress Testing Framework for Computer Vision (RagaAI)

- Developed an AI stress testing framework for computer vision, employing synthetic data from advanced generative models to simulate complex edge cases for thorough pre-deployment evaluation.
- Identified five unique failure scenarios, offering insights for model enhancement and data-driven fine-tuning.

ADAS Outlier Detection Project (RagaAI)

- Orchestrated the development of an advanced DNN for ADAS, achieving a 95% accuracy in tracking **data drift** and identifying outliers, with successful deployment on the Ambarella CV22 platform.
- Implemented a strategic approach to improve model performance by selectively transmitting key outlier data, streamlining the fine-tuning process as opposed to annotating the entirety of collected data.

Retrieval-Augmented Generation Pipeline (RagaAI)

- Developed a custom-built Retrieval-Augmented Generation (RAG) pipeline, integrating VectorDB for optimized data storage and retrieval with the GPT-4 API for advanced natural language processing capabilities.

DL Model Optimization for FPGA (Uncanny Vision)

- Streamlined FPGA device performance by adapting key neural network architectures (ResNet, YOLO, SR-GAN, VGG, Mask-RCNN, MobileNet, SqueezeNet) from six deep learning frameworks (TensorFlow, PyTorch, MXNet, Caffe, Chainer, PaddlePaddle) to the custom framework for an FPGA device.
- Halved model sizes and sped up operations using layer fusion and sparsity optimizations for model compiler.