Atharva Jitendra Hude

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TECHNICAL SKILLS

Programming Languages: Python, C++, Matlab
Libraries and Tools: PyTorch, Tensorflow, Keras, Sklearn, ONNX, TensorRT, ONNX Runtime, ONNX Graph Surgeon, TensorRT, OpenCV, Nvidia DeepStream, Pandas, Numpy, OpenCV, Git, Docker, Scipy, Matplotlib

EDUCATION

Arizona State University   **Tempe, Arizona**
MS Robotics and Autonomous Systems Artificial Intelligence   *Aug 2023 - May 2025*

Savitribai Phule Pune University   **Pune, India**
BE Computer Engineering   *Aug 2017 - Aug 2021*

WORK EXPERIENCE

Research Aide   **Jan 2024 - Present**
Arizona State University, Tempe, AZ

- Conducted research focused on building **Neuro-Symbolic AI** classifiers and object detection algorithms.
- Tested the model's robustness on diverse adversarial attacks, including **PGD, FGSM, Hop Skip Jump and patch attacks** to assess and fortify against potential threats.
- Led the efforts for the creating a dataset sourced from satellite images and conducted experiments to evaluate and enhance the model's predictions.

AI Solutions Architect   **Oct 2021 - May 2023**
Automaton AI, Pune, India

- Collaborated with domain experts including **Agriculture, Retail, and Drone Imagery**, to develop real world solutions with a focus on cutting-edge techniques for object detection, tracking, and segmentation.
- Transformed the learning experience for **1800-2000** students and educators at **ADVIT**, a deep learning platform, through innovative contributions leveraging Generative AI to address challenges in image augmentation and model training, fostering AI empowerment within the student community.
- Spearheaded teams in collection and creation of datasets; refined sampling methodologies, resulting in a **25%** increase in data accuracy and a **20%** reduction in data processing time.
- Mentored and trained over **10+** interns, providing hands-on guidance and support within the organization.

PROJECTS

- **GAN based Data Augmentation Feature**
  - Implemented a synthetic data generation pipeline, realizing a **25%** enhancement in data augmentation techniques (Denoising, Deburring, Image Super resolution) using advanced GAN models.
  - Deployed the models as microservices through Flask and Docker for efficient and scalable implementation.

- **Retail Human Video Analysis Nvidia Deep Stream**
  - Engineered and deployed an IVA pipeline leveraging DeepStream SDK on Nvidia Jetson boards.
  - Resulted in a **40%** reduction in processing time, optimizing real-time video analytics performance for enhanced operational efficiency.

- **Tic Tac Toe Robotic Arm**
  - Programmed a 6 Degree of Freedom Robotic Arm (Cobot 280M5) to engage in Tic Tac Toe with a human counterpart, utilizing a suction pump for interactive moves.
  - Integrated a Camera Module for object detection, maintaining an impressive accuracy rate of **95%+** in recognizing and responding to the player's input during the game. Github YouTube.

PUBLICATIONS

- Hude, A., Pawase, A., Jadhav, A., & Wadkar, A. (2021). Semantic Image Segmentation of Kidney Histology Images using Unet Architecture and Sliding Window-Like Algorithm. IJRPR Vol. 2, Issue (7) Page 2050-2055.   Link.