Mohammad Ismaeil

Computer Vision Engineer

Riyadh, KSA

+966 532608995 / +91 8750650405

Professional Summary

With over six years of experience, I specialize in Computer Vision, Machine Learning (ML), MLOps, and the FPGA domain. My strengths lie in creating custom datasets, training models, classical image processing, and understanding multi-view geometry. Additionally, I have successfully customized the Nvidia Deepstream framework for deploying applications both in the cloud and on-premise servers.

Skills

Language: Python, C++.

Libraries used: OpenCV, PyTorch, Scikit-learn, Scipy, Numpy, TensorFlow, Keras.

Framework: Flask, Nvidia Tao, Nvidia Deepstream, Django.

Stream Application: FFMPEG, Gstreamer, Kafka.

Cloud server: Microsoft Azure

Tools: Docker

Training and customization: Nvidia Deepstream, Triton Inference, Onnx, Tensorrt.

Experience

Master-Works / Computer Vision Engineer
Jan. 2021 – Present, Hyderabad, India / Riyadh, KSA

I have successfully developed and deployed models for various projects. My expertise includes:

- TMS (Terminal Management System):
  - Developed a robust model for detecting airport ground objects.
  - Captured event timestamps after airplane arrival at terminal gates.
  - Deployed the model on-premises servers.
  - Created APIs for browsing terminal camera streams and transmitting event data to the Node server.
- AutoSpot (Parking Area Management):
  - Designed and trained models to detect and track cars in parking areas.
  - Specialized in Arabic number plate detection and recognition.
  - Deployed models on cloud servers.
- Leadership and Architecture:
  - Led a team of five members for the TMS project.
  - Designed end-to-end application pipelines.
  - Customized Nvidia Deepstream SDK for production deployment.
  - Deployed models on Triton inference servers.
  - Adapted models for edge devices, improving performance and efficiency.

Geeky Bee AI Pvt. Ltd. / Software Developer
Jul. 2018 – Dec. 2020, Ahmedabad, India

- Traffic Signs, Lane Lines, and Potholes:
  - Developed precise algorithms for detecting traffic signs, identifying lane lines, and locating potholes.
  - Leveraged shape and color intensity analysis to enhance accuracy.
- Road Pavement Marking Assessment:
  - Designed algorithms to assess road pavement markings, ensuring safety and compliance.
  - Utilized mathematical models for reliable measurements.

- 3D Human Body Shape Generation:
    - Created a 3D human body shape generator based on anthropometric measurements.
    - Trained on the SCAPE dataset, achieving realistic representations.
- 3D Libraries Expertise:
    - Proficient in Point Cloud and Mayavi libraries for 3D visualization and analysis.

Techno Samarthyam. / FPGA AND IMAGE PROCESSING ENGINEER

Jul. 2017 – Jun. 2018, Ahmedabad, India

- Image Processing Algorithms (RTL Design):
    - Developed cutting-edge image processing algorithms using hardware description languages (HDLs) such as VHDL and Verilog.
    - Optimized designs for faster processing, ensuring efficient execution.
- Simulation and Hardware Integration:
    - Proficient in simulating complex systems to validate theoretical models.
    - Integrated hardware components seamlessly for real-world applications.
- Innovation and Problem-Solving:
    - Thrive on solving intricate challenges during prototype development.
    - Leverage creativity and technical acumen to enhance product functionality.

Education

NIT Manipur / M.Tech

August. 2015 - May. 2017, Imphal, India

Thesis: **FPGA BASED IMPLEMENTATION OF FILTERS FOR REMOVING IMPULSE NOISE**

- Developed an Adaptive decision-based filter for images densely corrupted with impulse noise with a PSNR ratio of more than 42%.
- Proposed an architectural design of the filter for implementing on hardware using a fewer number of resources.

JNTU Hyderabad / B.Tech

August. 2010 - Apr. 2014, Hyderabad, India

Publications

- M. Ismaeil, K. Pritamdas, K. J. K. Devi and S. Goyal, "Performance analysis of new adaptive decision based median filter on FPGA for impulsive noise filtering," 2017 1st International Conference on Electronics, Materials Engineering and Nano-Technology (IEMENTech), Kolkata, 2017, pp. 1-5.
- M. Ismaeil, K. J. K. Devi, K. Pritamdas and S. Goyal, "Performance analysis and implementation method of VMF and EVMF for removing of impulse noise on FPGA," 2017 1st International Conference on Electronics, Materials Engineering and Nano-Technology (IEMENTech), Kolkata, 2017, pp. 1-6.