

# Mohammad Ismaeil

Computer Vision  
Engineer

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## Professional Summary

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## Skills

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Riyadh, KSA

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With over six years of experience in Computer Vision, Machine Learning (ML), MLOps, and the FPGA domain, I excel in creating custom datasets, training models, and classical image processing. I have successfully led teams to deliver impactful solutions, managing task allocation and fostering collaboration. My expertise as a solution architect includes designing end-to-end application pipelines, conducting hardware estimation, and defining APIs to ensure seamless integration and high-performance outcomes.

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**Language:** Python, C++.

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

**Framework:** Flask, Nvidia Tao, Nvidia Deepstream, Django, Nvidia Nemo

**Stream Application:** FFMPEG, Gstreamer, Kafka.

**Deployment server:** On-Premise.

**Tools:** Docker, Kubernetes.

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

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## Experience

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### Master-Works / Computer Vision Engineer

Jan. 2021 – Present, Hyderabad, India / Riyadh, KSA

I have a solid track record of effectively developing and deploying a variety of projects that achieve impactful results. 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:
  - Designed solution architectures tailored to client needs and project specifications.
  - Conducted hardware sizing and estimation for optimal resource allocation.
  - Assigned and managed tasks among a team of five members for the TMS project.
  - Organized client demos to showcase progress and gather feedback.
  - Completed successful proof of concepts (POCs) to validate project feasibility.
  - Collaborated with the platform team to define APIs and data structures.
  - Developed end-to-end application pipelines to streamline workflows.
  - Customized Nvidia DeepStream SDK for effective production deployment.
  - Deployed models on Triton inference servers for enhanced performance.
  - Adapted models for edge devices, improving overall 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.

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## Education

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### 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

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## Publications

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- 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.