Mahesh Saravanan

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AI Engineer with a Master's degree and hands-on experience in deep learning and image-based systems.

EXPERIENCE

Data Scientist (Computer Vision) **Feb 2025 - Present**
IceApple Technology Solutions, Chennai, India.

- Collaborated with Prysm, Inc. (USA) to develop a display calibration solution, including Mura detection, for Laser Phosphor Display (LPD) systems.
- Performed on-site display tuning and calibration at factory and customer locations, and improved the factory tuning workflow by automating key steps based on FAE-driven requirements.
- Designed and implemented a camera-based tuning pipeline, combining classical image processing with GAN-based deep learning model to reduce Moiré patterns and optical distortions.
- Developed an automated Go/No-Go quality inspection system using a scientific camera.
- Currently developing a display tuning robot to reduce human error in the calibration process.

Machine Learning Engineer **Feb 2024 - Dec 2024**
Freelance, Würzburg, Germany.

- Developed an end-to-end deep learning workflow on Azure ML to predict anemia and blood hemoglobin levels based on images of human conjunctiva, nails, and palms.
- Trained a deep learning architecture, establishing a framework for continuous model improvement with new data inputs or upon data drift.

Research Assistant **Mar 2023 - Jan 2024**
Centre for Artificial Intelligence and Robotics, THWS, Würzburg, Germany

- Engineered an automated data collection pipeline to capture and process multimodal data from various sensors in robotic experiments, followed by ETL processing and storage in a relational database.
- Conducted comprehensive data analysis and feature engineering, performing statistical evaluations and utilizing Power BI to design detailed visualizations for clear communication of findings.

EDUCATION

Artificial Intelligence - Master of Science (M.Sc.) **Mar 2022 - Mar 2024**
Technical University of Applied Sciences Würzburg-Schweinfurt, Germany

- Strong mathematical foundation with expertise in statistics, linear algebra, and probability theory.
- Hands-on-experience in deep learning, from foundational architectures to cutting-edge techniques such as attention mechanism, ViT, Autoencoders, VAEs .

Mechanical Engineering - Bachelor of Engineering (B.Eng.) **Jul 2017 - Mar 2021**
KPR Institute of Engineering and Technology, Anna University, India

- Developed skills in designing mechanical systems using 3D modeling and 3D printing.
- Collaborated with interdisciplinary teams, integrating mechanical engineering with software development and embedded systems to deliver end-to-end project solutions.

CERTIFICATIONS

Microsoft Certified: Azure Data Scientist Associate (DP – 100). **Nov 2024**

Microsoft Certified: Azure AI Engineer Associate (AI – 102). **Aug 2024**

AREAS OF EXPERTISE

ML Frameworks: TensorFlow, PyTorch, OpenCV, Scikit-learn, Pandas.

CAD & Simulation Tools: Autodesk Fusion 360, SolidWorks, 3D Printing, Ansys.

Programming: Python, C#.

Specializations: Advanced image analysis, Feature Engineering, Data Visualization Tools Development.

LANGUAGES

Tamil: Native, **English**: Proficient (C2), **German**: Intermediate (B2)

PUBLICATIONS

"Navigating the Future: An Approach of Autonomous Indoor Vehicles" **May 2023**
7th International Conference on Informatics ICDD, Sibiu, Romania.

NOTABLE WORKS

Autonomous indoor vehicles using Deep Reinforcement Learning **May 2022 – Feb 2023**
Technical University of Applied Sciences Würzburg-Schweinfurt, Würzburg

Developed a mobile robot powered by Nvidia Jetson Nano, equipped with LiDAR and Intel RealSense Depth Camera for environment perception. Trained a neural network model for autonomous navigation using deep reinforcement learning, leveraging a SLAM-generated map within a custom simulation environment.

Mura Detection and compensation **Feb 2023 - May 2023**
Prysm Systems, Milpitas, USA.

Developed a camera-based tuning algorithm to detect and compensate for luminance non-uniformity (Mura) in Laser Phosphor Displays caused by factors such as calibration drift, laser power imbalance, and defective light engines. The system utilized a Nikon D850 DSLR camera to capture high-resolution screen images. A robust image processing pipeline was implemented to analyze brightness variations, compute quantitative correction maps, and apply localized compensation to achieve uniform luminance across the display. The workflow was fully automated, incorporating image stitching across multiple tiles and minimizing human intervention, thereby enabling precise and repeatable factory-level display calibration.