R SOORYA NARAYANAN

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EDUCATION

Chennai, India — **IIITDM Kancheepuram** — **2020 - 2024**

- B. Tech in Smart Manufacturing. CGPA of 8.07
- Relevant courses :
  - Image Processing
  - Computer Vision
  - Machine Learning
  - Natural Language Processing
  - Data Science in Python
  - Microcontrollers

Kerala, India — **Kailasanadha Vidyanikethan**

Class XII (Central Board of Secondary Education) | Percentage: 90.8% — **2019 – 2020**

Class X (Central Board of Secondary Education) | CGPA: 9.16(10) — **2017 – 2018**

EXPERIENCE

Intern — **Talakunchi Networks Pvt Ltd IT and Network Security Services** — **Sept - Nov 2021**

- Learnt softwares and operating systems relevant in the field of cybersecurity and penetration testing.
- Tasked with penetration testing and securing websites with varying security.
- Practiced penetration testing and ethical hacking on devices.

Intern — **TiHAN IIT - Hyderabad** — **May 15 - Present**

- Working on Monocular depth analysis controlled, GPS denied AGV navigation for seamless tracking.
- Currently developing an AGV for industrial application, with pedestrian detection, tracking and trajectory prediction for occlusion detection and occlusion delay.
- Monocular depth estimation and panoptic segmentation integrated for better depth estimation of pedestrians.
- Primary tasks involve hardware integration, algorithm optimization, benchmarking, etc.

Intern — **Veyyil Robotics Private Limited** — **Sept 25 - Present**

- Strategic Image/Video Data collection and annotation.
- Training Object detection, segmentation, pose estimation and tracking models for industrial scenarios.

TECHNICAL SKILLS

- Languages: C, C++, Python, HTML, CSS, PHP
- Databases: SQL, MongoDB
- Software/OS: Windows, Linux, ROS, AutoCAD, Fusion 360, MS Office, Unity, Visual Studio Code, PyCharm
- Version Control: Git, Github
- Cloud Platforms: AWS
- Microcontrollers/Boards: (TM4C123GH6PM), ESP8266, ESP32, Arduino, Raspberry Pi, Jetson Nano, Jetson Xavier NX

- Object Detection, Object Tracking and Re-identification, Pose Estimation, Trajectory Prediction, OpenCV, YOLO, MiDaS, SLAM, Tensorflow, Keras, PyTorch, GANs
- Point cloud processing, Meshing, Open3D, PPTK, Photogrammetry, Agisoft Metashape/PhotoScan, 3DF Zephyr, Meshroom, NeRF, Luma AI, Nerfstudio, Instant-NGP, COLMAP

POSITIONS OF RESPONSIBILITY

- Member of Computer Vision team in AUV Technical Club (Dec 2022 - July 2023).
- Mentor for AUV Society IIITDM (July 2023 - Present).
- Member of the CS team in FROST club formed to educate and train new recruits for technical clubs.
- Coordinator of Decor Club - Samgatha 2022 (cultural event).

PROJECTS/ACHIEVEMENTS

- **Secured 3rd position globally in the 2023 MATE NOAA Ocean Exploration Video Challenge, USA**
  - Trained a custom object detection and classification model for detecting and classifying deep-sea organisms in the NOAA ship *Okeanos Explorer*.
  - Model judged on the basis of accuracy of classification and localizations of bounding boxes when applied on test data.
  - Project github link: https://github.com/havok69/2023-MATE-NOAA-Ocean-Exploration-Computer-Coding-Challenge

- **Web Application developed for ordering food in hostels of IIITDM-K**
  - Designed a web app for online food ordering.
  - User-friendly form for ordering food items and storage of ordered food items in a PHP file on the server
  - Technologies used were HTML, CSS and PHP and managed Databases using MySQL
  - Using the data obtained as the test data for initial orders we explored the data using python for Scheduling and Forecasting

- **Implemented a KNN and K-means multi-classification on Kaggle datasets**
  - Pre-processed a Kaggle dataset for Basketball players and their performance
  - Evaluated model performance using metrics like accuracy, precision, recall, and F1 score

- **Computer Vision projects for AUV Technical Club**
  - Responsible for training multiple object detection data models to detect various objects and organisms underwater for AUV club competitions
  - Developed models to detect underwater gates, buoys, and perform animal life classification
  - Additionally, worked on photogrammetry of underwater biome replicas

- Multilingual Speech Recognition Model for RAG chat-bot without Training
  - Built a multilingual speech recognition model to enable RAG to perform tasks in multiple languages.
  - Used LangChain, OpenAI and Pinecone vector DB to build chat-bot capable of learning using RAG.
  - Can input queries from audio/video files in multiple languages.

- Designed and developed a smart projector for 2-wheeler safety
  - Projector serves as indicator lamps for the rider, with a simple installation of our product.
  - Eliminates the risks due to absence of an indicator lamp in 2-wheelers.