ROHAN THORAT

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SUMMARY

A highly skilled Artificial Intelligence graduate with extensive experience in AI, ML, Statistics, Software development, and system engineering, adept at thriving in fast-paced environments and delivering exceptional results on data-focused projects**.**

TECHNICAL SKILLS

- Programming Languages: Python, SQL, MATLAB.
- Programming Frameworks: PyTorch, OpenCV, NumPy, Pandas, Matplotlib, Scikit-learn, Seaborn.
- Technologies: Computer Vision, Deep Learning, Linux, GitHub, Tableau.
- Languages: English (Full Professional Proficiency), Marathi (Native), Hindi (Native).

EXPERIENCE

Research Assistant *June 2024 - Present*

University of Sheffield | Sheffield, UK

- Designed and implemented an **end-to-end pipeline** for real-time player tracking and ball trajectory prediction as part of the **Smart Tennis Project**, leveraging advanced computer vision and machine learning techniques.
- Processed and analyzed large-scale **pre-recorded video datasets**, transforming pixel-based coordinates into **real-world metrics (meters)** through spatial calculations and virtual calibration techniques.
- Developed a **YOLO-based object detection model** to accurately identify players and tennis balls, enabling real-time detection and tracking under diverse conditions.
- Annotated tennis match videos to label game phases and player actions, enhancing training and validation datasets to improve model performance.
- Created a **decision-tree-based approach** combined with **LSTM models** to predict ball landing positions and recognize player movement patterns, simulating strategic gameplay.

System Engineer *August 2018 - August 2022*

Tata Consultancy Services Ltd | Delhi, India

- Spearheaded the successful implementation of Microsoft Windows Azure Infrastructure as a Service, creating a robust cloud infrastructure for clients. This transformation streamlined operations, enhancing scalability and cost-efficiency.
- Identified and remediate vulnerabilities within the environment. This initiative resulted in a more secure and compliant infrastructure, fostering client trust and satisfaction.
- As a team lead, effectively managed and mentored a group of professionals, fostering a collaborative and productive work environment. Developed strong soft skills and communication abilities, providing exceptional service demonstrating strong Management and effective engagement with stakeholders.
- Tools: SCCM, Nexthink, Azure, VMware and ServiceNow.

EDUCATION

Queen Mary University London

MSc in Artificial Intelligence (Computer Science) | Grade: Distinction ***September. 2023***

- Relevant coursework: Introduction to Computer Vision, Machine Learning, Artificial Intelligence, Applied Statistics, Cognitive Robotics, Advanced Robotics System, Deep Learning and Computer Vision, Ethics, Regulation and Law in Digital Information Processing and Decision Making.

Dissertation: **Transfer Learning for Car Parking Detection using Single Shot Multibox Detector**

- Conducted in-depth research to develop a robust customer-centric car parking detection system using the SSD object detection algorithm, employing **k-means clustering** to achieve a **20%** improvement in accuracy. Streamlined the state-of-the-art SSD algorithm to reduce computational costs. Prioritized environmental sustainability by minimizing parameter usage and energy consumption during training. [Research Paper]

Tools/Skills: Python, Deep Learning architectures, Data processing, transfer Learning, research writing.

Ramrao Adik Institute of Technology, Mumbai University

Bachelor of Electronics Engineering | CGPA: 7.8/10 ***July. 2018***

- Relevant coursework: Object Oriented Programming, Structure Programming Approach, Communication Skills, Digital Image Processing, Signal and Systems, Business Communication and Ethics, Digital Signal Processing and Processors.
- **Dissertation**: **Automatic Car Driving System Using Fuzzy Logic -** Engineered an autonomous driving system inspired by Tesla, utilizing **python** with fuzzy logic instead of conventional methods. Demonstrated expertise in sensor integration, showcasing the ability to transform sensory input into a functional prototype. Emphasized innovative thinking and technical skills in system design and logic implementation.
- **Tools/Skills** : Python, Raspberry Pi, Fuzzy logic, prototype building, sensor processing.

PROJECTS

- **Accelerating Color Extraction Algorithm using Graphics Processing Unit (GPU) -** Revamped color extraction algorithm by leveraging GPU acceleration, leading to a remarkable **30%** enhancement in performance when compared to CPU implementation. Demonstrated proficiency in **MATLAB**, algorithm optimization, GPU utilization, and a keen ability to deliver impactful solutions in a collaborative environment.
- **Unsupervised Learning by Generative Adversarial Network (GAN).**
  - Addressed the need for robust unsupervised learning by comparing Autoencoder and Generative Adversarial Network (GAN) architectures.
  - Formulated an autoencoder and GAN to explore diverse model structures, optimized objectives, and training procedures.
  - GAN architecture outperformed the autoencoder by **15%** in image quality; demonstrated evolving capabilities with generated images at different epochs.
- **PII Classification for Blogging Platform.**
  - Developed a privacy-preserving text classification model to detect and remove personally identifiable information (PII), achieving an overall accuracy of **93.98%** and an F1 score of **79.21%**.
  - Enhanced data preprocessing and augmentation strategies, improving the recall for "Credit Card Number" by over **10%** and boosting F1 scores by **20%** for minority classes.
  - Optimized the transformer-based architecture, reducing training time by **30%** while achieving up to 24 samples per second processing speed with efficient GPU utilization.