Kushagra Mehrotra

International Institute of Information Technology, Bangalore
+91 70000-92411 kushagra.mehrotra@iiitb.ac.in linkedin.com/in/kushaagr github.com/kushaagr

Education

International Institute of Information Technology, Bangalore **Aug. 2024 – Present**
Master of Science by Research in Data Science *3.55/4.0*

Acropolis Institute of Technology & Research **Aug. 2019 – June 2024**
Integrated Masters in Computer Applications *8.61/10.0*

Experience

Yarasi Tech **May 2024 – December 2024**
React Native Developer Intern *Remote*

- Developed a peer-to-peer video calling app using **React Native** with **JWT authentication** and **GraphQL** backend integration.
- Added **multilingual support**, built a responsive **landing page**, and integrated **push notifications** for real-time updates.
- Utilized **Zustand** for efficient state management and ensured a seamless, scalable user experience.

Projects

High-Quality 3D Rendering with NeRF and Gaussian Splatting | *Python, COLMAP* **December 2024**

- Implemented 3D rendering pipelines to convert 2D images into high-quality 3D models using **NeRF** and **Gaussian Splatting**.
- Achieved a 90% reduction in training time with Gaussian Splatting while maintaining rendering quality, enabling rapid prototyping.

Camera Calibration with Geometric Objects | *Python, OpenCV* **November 2024**

- Designed a calibration pipeline using a **Rubik's cube** to compute the camera projection matrix for accurate 3D-to-2D mappings.
- Enhanced calibration stability and noise resilience by implementing **SVD** and normalization techniques.
- Validated calibration accuracy through reprojection error analysis, achieving consistent results for 3D reconstruction tasks.

Homography Estimation Using Manual and Feature-Based Matching | *Python, OpenCV* **November 2024**

- Compared **manual point matching** and **SIFT-based automated feature detection** for estimating image homography.
- Applied **RANSAC** to eliminate outliers, improving the reliability of image transformations for applications like image stitching.
- Demonstrated comparable precision between methods, showcasing their strengths for different use cases.

Demand Prediction for Bike-Sharing Systems | *Python, Scikit-learn, Numpy, Pandas* **October 2024**

- Developed a machine learning model to predict hourly and daily bike rentals using features like weather, time, and holiday status.
- Used **clustering techniques** to identify demand patterns, revealing insights into peak times and low-demand periods.
- Recommended resource allocation strategies based on predictive insights, improving system performance and user satisfaction.

Technical Skills

Languages: Python, C++, Javascript
Technologies/Frameworks: Pytorch, OpenCV, WebGl, Numpy, Pandas, Matplotlib, Docker, Git, React Native

Relevant Coursework

- Machine Learning
- 3D Vision
- Visual Recognition
- Computer Graphics
- Networks and Semantics
- Programming Languages