Aman Sharma

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Education

Master of Science in Robotics (STEM Designated),
State University of New York at Buffalo *Aug 2021 - Feb 2023*

Bachelor of Engineering, Electronics & Communication,
Jaypee Institute of Information Technology *Jul 2016 - Jul 2020*

Skills

Languages & OS: (Python, Javascript, C/C++, MATLAB, SQL, Bash, HTML, XML, Ubuntu, Windows)
Libraries: (Numpy, Pandas, MatplotLib, Seaborn, Scikit-learn, Keras, Tensorflow, Pytorch, OpenCV, Flask, Open3D,GDAL, GeoPandas, RLLib, PySpark)
Skills: (Object Oriented Programming, Data Structures & Algorithms, Computer Vision, Image Processing, MachineLearning, Deep Learning, Data Analysis & Visualisation, Database Management System, Perception, Version Control,Data Engineering, Automation Scripts, Data Ingestion & Pipe lining, Project Management, Sensor Fusion)
Tools: (DataBricks, MLFlow, Git, Azure Storage, CARTO, OpenStreetMaps, ROS, Spyder, Jupyter Notebook, Google colab,GDAL, Geospatial & Time-series Data Manipulation)

Professional Experience

GCB Services LLC, *Graduate Engineer Trainee* Dec 2023 – present
Real-Time Location Visualization: Developing an internal tool leveraging Google Earth to extract and visualize the real-time locations of field testers, enhancing troubleshooting and site access optimization.
Website Revamp and Overhaul: Playing a key role in the revamping of the company website, focusing on attracting more clients and expanding business opportunities.
Automated Reporting System: Automating the generation of daily summaries and analysis reports, facilitating easier client access and streamlining reporting processes.
5G Infrastructure Deployment Automation: Contributing to the simplification and automation of the 5G Infrastructure Deployment and verification process, leading to increased efficiency in operations.
Proprietary Toolkit for 5G Testing: Assisting in the development of an in-house proprietary toolkit for automated 5G testing, utilizing advanced image processing and stabilization methods to enhance testing precision and reliability.

US Ignite, *Robotics/ Autonomous Vehicle Data Engineer* Jun 2022 – Dec 2023
Data Analysis in Autonomous Vehicle Software: Key role in delineating Key Performance Indicators (KPIs) for assessing functionality, reliability, & security. Collaborated with teams & stakeholders in a data-driven approach.

Automation and Efficiency Improvement: Developed scripts for automating data conversion (gdb to csv), resulting in a **10x reduction** in processing time **(from 250 hours to 25 hours)**.
Data Visualization and Platform Integration: Created Python scripts for automatic dataset uploads to CARTO, facilitating advanced visualization of geospatial features.

F1TENTH Racing, UB, *Software & Algorithms teammate* Jan 2022 – May 2022
Safety Node Implementation and Sensor Integration: Implemented a Python-based safety node utilizing real-time sensor data to prevent collisions in case of autonomous system failure.
Reinforcement Learning in Autonomous Racing: Collaborated with the algorithms team to develop and refine a Reinforcement Learning-based approach for improved driving, overtaking, and speed optimization on the racetrack. Actively contributed to aligning real-world performance with simulation.
Team Collaboration and Race Preparation: Worked closely with a cross-functional team of 10 to integrate hardware and software components, successfully preparing the racecar for competition.

Projects

Harnessing GANs and Deep Learning for Enhanced Visual Clarity:, *Image Super-Resolution*
Developed a high-resolution image transformation Flask web app using TensorFlow and GANs. Enhanced the SRGAN model through hyper-parameter tuning, achieving exceptional image quality with **4x** scaling. Demonstrated research proficiency utilizing Google Colab.

Enhancing Mobility for the Visually Impaired:, *Smart Shoe & Stick System*
Developed a smart shoe and stick system to aid visually impaired individuals, utilizing OpenCV for image processing and object detection. Integrated ultrasonic sensors with Raspberry Pi and Arduino for efficient hardware functionality. The system features directional haptic and voice feedback, significantly improving mobility and life quality.

CNN-based Vision System for Vehicle Control:, *Self-Driving Car*
Engineered a CNN-based self-driving car system achieving 91% accuracy in steering and throttle prediction. Utilized image processing to create a specialized dataset with the Udacity car simulator.

LEADERSHIP & VOLUNTEER EXPERIENCE

Student Mentor, Microcontroller based systems & Robotics Hub(μCR) of JIIT
Proposed & assisted hub faculty coordinator to include image processing & ML techniques for projects.

Mentor, Interactive Data Visualisation Dashboard at US Ignite
Performing code reviews, providing mentorship to capstone students, all the while playing an instrumental role in shaping the design & implementation details of the Interactive Data Visualisation Dashboard.