

Charanjit Singh

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EDUCATION

Clemson University

Aug'22-May'24

MS Computer Science (Specialization in Data Science), 3.85 GPA

- Courses: Statistics (Hypothesis Testing, Regression Analysis), Data Preprocessing and Cleaning, Advanced Machine learning, DBMS (MySQL), Descriptive & Predictive Analytics, Data Visualization

Punjab Engineering College, Chandigarh

Aug'16-May'20

Bachelor of Technology, Mechanical Engineering

- Published a Research paper in SAE International with Mahindra & Mahindra Ltd in 2021

PROFESSIONAL EXPERIENCE

Prisma Health & Clemson university

SC, USA

Graduate Research Assistant – Data Scientist

Jan'23-Present

Improving quality of healthcare education by using workload adaptive AR surgical training system with Prisma Health doctors

- Engineered a real-time data acquisition pipeline using python websockets, used asynchronous programming (asyncio) for concurrent periodic API requests and obtained physiological metrics by using multiprocessing with a latency of less than 3s.
- Developed task surveys, designed research methodology and conducted pilot study to get data for neural network training.
- Enhanced data quality by cleaning sensor raw data and smoothening the time series, leading to 90% accuracy in cognitive load (high/low) estimation using a 3 layer Neural Network.
- Created a workload adaptive augmented reality training tool in Python using OpenCV by implementing Canny edge detection.
- Conducted t-tests on control and intervention group test scores to determine the effectiveness of training system on performance and used interaction plot to prove the effect of training system on performance at a given task difficulty.
- Drafted 2 research papers and received 100% scholarship for significant contributions to the research endeavor.

Clemson University

SC, USA

Graduate Writing Consultant

Oct'22-Aug'23

Consulted fellow graduate students on appropriate writing techniques and organized writing workshops.

- Orchestrated the mentorship and guidance of over 150 student writers to improve their communication skills, fostering an environment conducive to the development of compelling arguments and the proficient articulation of their ideas.

ZS Associates

Gurugram, India

Decision Analytics Associate

Feb'22-Jun'22

Performed analytics and operation solutions to render sales and marketing consulting for global pharmaceutical clients.

- Devised a 'Where to play' strategy for a Fortune 100 company by implementing market segmentation across geographies by leveraging machine learning techniques such as K-means and K-mode clustering on HCP data.
- Streamlined weekly brand-level analysis workflows, saving over 5 man-hours per week, through the creation of interactive Power BI visualizations that enhanced data visibility and decision-making processes.
- Catered to ad hoc requests from different stakeholders by running SQL queries on AWS Redshift, generated insights/recommendations and responsible for creating and delivering high priority weekly reports.

Honda R&D (India) Pvt. Ltd.

Gurugram, India

Engineer, Engineering Research Division

Sept'20-Jan'22

Analyzed vehicle level test data to identify gaps and achieve desired performance.

- Conducted competitor analysis for Indian 2-Wheeler market and built a Power BI dashboard which presented 2-Wheeler sales in India by state and OEM, and highlighted market quality issues with a geospatial graph to identify specific dealer issues.
- Designed a holistic two-wheeler benchmarking database in Excel and automated the appending process post vehicle testing using an ETL pipeline which reduced the documentation time per test by 2 hours.

Mahindra Research Valley

Chennai, India

Research Intern, Vehicle Energy Management

Jan'19-May'19

- Formulated a predictive model in MS Excel to estimate frictional power loss in axles and ran a parameter sensitivity analysis to identify the most influential design parameter contributing to power loss without actual testing.
- Successfully proposed a 3% reduction in frictional power loss and published the innovative approach in the prestigious journal of SAE International titled '[Frictional Power Loss Distribution of Automotive Axles - Experimental Evaluation and Analysis](#)'.

Academic Projects

- **Campaign Success and Customer Conversion:** Analyzed 2-year consumer data and designed 3 A/B Tests to determine the most successful campaign type (using 5% significance) and determined the customer conversion rate as 17%.
- **ML projects:** Recommender System using Matrix Factorization, Emotion recognition using multimodal analysis.

TECHNICAL AND SOFT SKILLS

- **Technical Skills:** Python, C++, PostgreSQL, MATLAB, Tableau, Power BI, Hypothesis Testing, A/B Testing, MS Office Suite, Advanced Excel, AWS: Sagemaker, Glue (ETL), Apache Spark, Git, Docker
- **Machine Learning:** EDA, Regression, Decision Tree, Random Forest, Ensemble Methods, Gradient Boosting, Support Vector Machines, k-Nearest Neighbors, k-Means Clustering
- **Certifications:** Google Analytics Certification, Power BI (Udemy), AWS Machine Learning Specialist, SQL, MATLAB