AKSHIT VERMA

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PROFESSIONAL SUMMARY

- Data Engineer with a strong mechanical and mechatronics background, specializing in Python-based ETL pipelines, big data transformations, and real-time analytics.
- Experience building scalable data models and dashboards that power critical insights for complex electromechanical systems.
- Experienced in working with big data environments through collection and transformation of real-time operational data from E-Drive scissor lifts, integrating data cleaning, statistical validation, and reporting in high-stakes production settings.
- Adept at applying data warehousing principles, structuring machine diagnostic data into query-ready formats to assist in long-term failure tracking and predictive analysis.
- Hands-on experience in statistical process control (SPC), using tools like JMP, SPSS, and custom JSL scripts to conduct Gauge R&R, ANOVA, and regression analysis for production quality improvement and compliance testing.
- Familiar with automation of routine data workflows—from device interfacing using PySerial/PyUSB to generate summary reports via custom scripts, reducing manual effort and increasing consistency across QA documentation.
- Passionate about transitioning into data engineering, bringing engineering intuition and curiosity for scalable, data-driven systems.

WORK EXPERIENCE

Engineering Analyst **May 2024 – Present**
Linamar - Skyjack

- Translated real-time CAN bus data from scissor lift systems into structured insights by building ETL pipelines using Python (Pandas, NumPy, PySerial). Extracted raw diagnostic logs during machine errors and converted them into actionable load sense curves, reducing debug time by 60% and saving $10,000+ annually.
- Engineered automated data ingestion workflows from machine controllers using PyUSB and serial protocols, enabling scalable data capture for trend analysis and defect detection across two full E-Drive assembly lines
- Applied data warehousing concepts by structuring and storing transformed datasets in a query-able format for long-term performance tracking and root-cause correlation across multidisciplinary teams (electrical, hydraulic, software).
- Used statistical tools including JMP, JSL scripting, and SPSS to automate Gauge R&R studies, ANOVA, and regression models, supporting both compliance testing (ANSI, CE, CSA, KC) and continuous improvement initiatives.
- Performed failure mode analysis and time studies by collecting downtime data on paint and hydraulic lines. Applied statistical hypothesis testing (F-test, ANOVA) to pinpoint bottlenecks, guiding process improvements that halved paint-line downtime.
- Created interactive dashboards and visual reports using Matplotlib and Seaborn to present KPIs related to hydraulic performance.

Product Management co-op **September 2023 – April 2024**
Linamar - Skyjack

- Conducted in-depth time studies on production lines, using SPSS and Python to apply statistical techniques (including F-test analysis) that pinpointed production bottlenecks and reduced waste by 50%.
- Streamlined manufacturing data workflows by automating data collection, cleaning, and analysis processes, improving quality.
- Designed fixture, and counterweights for boom machines with available steel plates to enhance sustainability, process design, cost reduction, and waste reduction of manufacturing and shipping from an international vendor.
- Conducted HIRD tests on batteries used in DC scissor lifts to determine efficiency of battery to store and release energy.

Manufacturing Analytics co-op **May 2023 – August 2023**
Linamar - Skyjack

- Process optimization by comprehensive visual and descriptive work instructions, process validation, covering production processes and assembly processes ensuring ease of understanding of manufacturing operations for line production by general laborers.
- Conducted quality engineering checks for paint and welding lines to identify and inspect painted and welded parts.
- Performed time studies on both wet and powder paint lines - Calculated time consumption for each paint line stage and identified bottlenecks emphasizing the critical role of efficient paint processes in a manufacturing company using statistical process control.
- Implemented Lean Manufacturing reducing production waste by 50% and improving material flow by structured methods.

EDUCATION

Masters of Engineering, Mechanical and Mechatronics Engineering **2022 - 2024**
(With Graduate Diploma in Advanced Design Engineering, **University of Waterloo**, ON GPA: 3.9/4
Bachelor of Technology, Mechanical and Automation Engineering **2018 - 2022**
Guru Gobind Singh Indraprastha University, Overall CGPA: 8.98/10

SKILLS

- Data Engineering & Analytics: Python, ETL, **SQL**, SPSS, JMP, Spark, Kafka, AWS, Statistical Analysis, **Warehousing Fundamentals**, **ETL Pipelines**, Big Data Handling
- **Technical Knowledge:** MATLAB**,** C/C++, MS Excel, JavaScript, Spark, Kafka, AWS, or containerization (Docker/Kubernetes)
- **Soft Skills:** Analytical & problem-solving skills, Teamwork, Communication, Leadership, Project Management

PROJECTS

Turtlebot4 SLAM Integration **December 2024**

- Implemented SLAM for TurtleBot 4, enhancing mapping and navigation accuracy.
- Developed and optimized SLAM algorithms in Python and C++, and using technologies such as ROS2 humble, turtlebot4 hardware and processor, electrical engineering principles, LiDAR scanner and ubuntu operating system for simulation.
- Achieved precise mapping outcomes resulting in improved accuracy in navigation of the turtlebot4.

E-Commerce Customer Segmentation ETL Pipeline **January 2024**

- Built an end-to-end ETL pipeline in Python to analyze simulated e-commerce customer purchase data.
- Cleaned and transformed raw CSV data using Pandas; engineered features like total spend and product preferences.
- Segmented customers by region, product category, and spend; visualized insights using Matplotlib and Seaborn.
- Applied data warehousing concepts and created reporting-ready output tables.
- Published the project on GitHub with full documentation and visualizations.

Digital sorting on a conveyer system using machine vision, camera, and a robot arm **February 2023**

- Used Groove Rio PLC to control the conveyer for industrial automation.
- Development of sorting algorithm and imaging techniques to detect an object's colour, size, shape and orientation while travelling on a conveyor system using SCADA and incorporating a pneumatic system.

Design Optimization of Piston Crown **February 2023**

- Designed a Piston Crown in Solid works, performed steady state fatigue analysis - structural and thermal simulations on Ansys.
- Efficiency of the engine and strength of piston was improved, cost was reduced by variation in material.

Topology Optimization of a motorcycle's Swing Arm using Altair Inspire **December 2022**

- Design of a bike's swing arm was made using Solidworks.
- Optimized the swing arm based on load conditions to provide light weighting to the component.
- FEM simulations were run to find the factor of safety, maximum displacement, and stresses.

Automatic Medicine Dispenser **December 2022**

- Performed root cause analysis of a problem and designed and manufactured an automatic medicine dispenser for timely ejection of the medicines, and applied lean methodologies.
- Developed engineering design specification (EDS), sketches, bill of material, and maintenance manual for system.

VOLUNTEERING EXPERIENCE

Enactus, Head - Graphics and Photography, Delhi (Non-Profit Organization) **August 2019 – August 2021**

- Led a dynamic graphics team, not only created compelling visuals for Enactus ADGITM's Instagram page using Photoshop and Canva, but also ensured timely delivery contributing to increased engagement.
- Coordinated with cross-functional teams to align designs with organizational objectives, enhancing online presence. Demonstrated leadership and strategic thinking, fostering a visually cohesive and impactful brand image.
- Created Job opportunities for the underprivileged section of society by introducing projects focusing towards environmental sustainability and health and wellness,