

Piyush Tandon

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Education:

- **Master of Science** in Mechanical Engineering (Data Science Specialization) **GPA 3.72** **Sep 2022 – Aug 2024**
University of Washington, Seattle, WA.
- **Bachelor of Engineering** in Mechanical Engineering (CS Minor) **GPA 8.13/10** **Jul 2017 – Jul 2021**
Thapar Institute of Engineering & Technology, Thapar University, India.

Skills:

- **Design and Prototyping:** NX, SolidWorks, CREO, Rapid Prototyping, 3D Printing, FEA, GD&T, ASME Y14.5 standards.
- **Machine Learning & AI:** TensorFlow, Keras, Scikit-learn, PyTorch, Random Forest, SVM.
- **Automotive systems and Powertrain:** Braking systems, HVAC, Suspension, Chassis systems, Electric and Hybrid drivetrain.
- **Data Science:** Data Preprocessing, Feature Engineering, EDA, Model Deployment, Predictive Analytics.
- **Data Visualization:** Tableau, Power BI, Matplotlib.
- **Big Data & Analytics:** Data wrangling, ETL, Data Mining, Dimensionality Reduction.
- **Programming Languages:** Python, SQL, HTML, CSS.
- **Soft skills:** Experienced in working with cross-functional teams, ensuring alignment, and facilitating efficient project execution. Strong communicator capable of articulating technical and non-technical concepts to diverse audiences with strong presentation skills.
- **International Experience:** Summer School Abroad at **University of Oxford**, Leadership Exchange program in **Istanbul, Turkey.**

Work Experience:

- **Product Engineering Co-op** **Jan 2024 – Aug 2024**
Bendix Commercial Vehicle Systems – Kalamazoo, MI
 - Engineered process improvements and optimized designs for heavy duty vehicle brake components using CAD and DFMEA.
 - Participated in Design Review Council, Design Verification Plan and documenting key design changes.
 - Utilized ML (Scikit-learn) for Legacy bracket cross reference with New gen brackets which resulted in reducing 90% of manual effort.
- **Senior Analyst (Data)** **Jul 2021 – Sep 2022**
Capgemini Technology Services – Pune, India
 - Conducted data exploration and analysis on multi-million record datasets, uncovering key insights that drove product launch at an investment client.
 - Collaborated with cross-functional teams to collect and analyze data, improving system processes and reducing errors by 25%.
 - Assisted in automating data extraction pipelines, resulting in a 30% increase in data processing efficiency.
- **International Internship program** **Feb 2020 – Aug 2020**
Mercedes-Benz US International – Tuscaloosa, AL
 - Utilized data-driven optimizations of assembly line layouts for GLE and GLS models, reducing takt time, increasing production by 2%.
 - Utilized Python and SQL to analyze production data, identifying key bottlenecks and proposing solutions that improved workflow.
 - Developed predictive models using historical production data to forecast equipment downtime, reducing maintenance by 15%.
 - Conducted time series analysis of assembly line performance metrics to identify patterns and inform process improvements.
 - Collaborated with cross-functional teams to design dashboards in Power BI, enabling real-time monitoring of key performance indicators (KPIs) such as takt time, cycle time, and production efficiency.

Projects:

- **Tiny ML smart watch** [project link](#) **Jun 2023 – Present**
 - Led development of a voice-activated panic detection system for healthcare, managing a team and integrating TinyML technologies in a smartwatch.
 - Prototyped and designed smartwatch hardware using ARM Cortex-M microcontrollers and TensorFlow Lite for on-device processing.
- **ML Control on UR5e robotic arm and a Cart-Pole system** [project link](#) **Mar 2024 – Jun 2024**
 - Evaluated traditional control techniques (PID, LQR) against modern reinforcement learning (PPO) in the ROS environment, focusing on controlling a UR5e robotic arm and a Cart-Pole system.
 - Demonstrated the comparative effectiveness of these approaches for precise robotic control and dynamic system stabilization.
- **Slope Estimation for Lower Limb Wearable Robots** [project link](#) **Mar 2024 – Jun 2024**
 - Developed a machine learning model for real-time slope estimation in lower limb wearable robots, focusing on adaptive control based on terrain variations. Leveraged sensor fusion from accelerometers, gyroscopes, and force sensors, and used advanced algorithms to improve over the baseline linear regression model, achieving 78% accuracy on unseen data.
- **ML for Lunar Rover NASA JPL** [project link](#) **Jan 2023 – Jun 2023**
 - Led the data acquisition phase by collaborating with engineers and scientists to gather large-scale sensor data from various lunar ground-penetrating radar (GPR) systems.
 - Analyzed the quality of data using EDA and performed feature selection to identify the most relevant parameters.
- **Control model for automated traffic navigation** [project link](#) **Jan 2023 – Mar 2023**
 - Developed and simulated CLF and CBF controllers in MATLAB and Simulink, focusing on energy-efficient control for automated navigation tasks like roundabout maneuvers and lane changes.