Ashrith Adepu

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Education

University at Buffalo - Buffalo, NY — *Master of Science-Mechanical Engineering*

Indian Institute of Technology, Dharwad - India — *Bachelor of Technology-Mechanical Engineering*

Technical Skills

Languages: Python, **MATLAB**, C++, Java

Certifications: Certified Lean Six Sigma Green Belt

CAD Softwares: **SolidWorks**, CATIA, Creo, Siemens NX, **AutoCAD**, Fusion 360

CAE Softwares: **Simulink**, **ANSYS**, ANSYS Fluent, Abaqus, LabVIEW, Minitab

Domain: Control Systems, HVAC, Design for Manufacturability, Mechanical Systems Optimization, Data Center Infrastructure, Mechanical System Design, Preventative Maintenance, Operational Efficiency Root Cause Analysis

Experience

Research Assistant — *Aug 2022 – Present*

University at Buffalo — *Buffalo, NY*

- Enhanced wind turbine performance through the development and simulation of advanced control methods, resulting in a **10%** increase in **power generation** and a **12%** decrease in **operational costs**.
- Spearheaded the creation of high-fidelity models of turbine dynamics and aerodynamics in MATLAB & Simulink.
- Achieved up to 10% increased power output and **reduced structural loads** on wind turbines.
- Pioneered the implementation adaptive, nonlinear, and optimal control algorithms to account for **varying wind speeds**, oscillations, and sensor noise.

Process Modelling Engineer — *Jun 2020 – Jul 2021*

Decibels Labs — *Bangalore, India*

- Modeled 6 EV Powertrain components such as Motor, Transmission, Battery, and Battery Management System.
- Simulated performance of EV models like Ather 450, Nissan Leaf, **Tesla Model 3**, and **Formula E Car**, analyzing acceleration and drive cycle responses using MATLAB and Simulink.
- Validated simulation accuracy against real-world data across WLTP, NEDC, and FTP-75 drive cycles.
- Refined Battery and BMS analysis for battery types such as LFP, LCO, LMO, NMC, and NCA optimizing performance.

Technical Projects

HVAC Control System Optimization Project

Control Systems Engineer, "HVAC" Course Project, University at Buffalo

- Engineered adaptive HVAC control algorithms using MATLAB and Simulink, boosting system responsiveness by **25%** and efficiency by **12%** through empolying predictive control strategies.
- Performed real-time simulations and optimizing system performance under varying load conditions, **ensuring stable operations**, **reducing downtime by 15%**, and improving system resilience.
- Introduced dynamic feedback loops, using sensors to adjust settings based on occupancy, leading to **significant energy savings** and **consistent climate control**.

Defect Reduction and Quality Enhancement Project

Industrial Engineer, Rich Products Corp, "Lean Enterprise and Applications" Course Project, Buffalo, NY

- Led a Lean Six Sigma project, reducing production defects by **20%** through strategic process enhancements, focusing on **waste reduction** and **process streamlining**.
- Introduced enhanced quality control standards that boosted product compliance by **20%**, while simultaneously improving **operational transparency** and **traceability** across the production process.
- Collaborated with cross-functional teams, driving a **25% improvement** in production efficiency by optimizing workflows and fostering stronger stakeholder engagement.

Transformer Design and Manufacturability Optimization

Manufacturing Engineer, "Computer Integrated Manufacturing" Course Project, University at Buffalo

- Optimized transformer designs for **enhanced manufacturability** using AutoCAD and SolidWorks, reducing material costs and simplifying assembly processes in collaboration with Buffalo Transformer Co.
- Conducted detailed simulations and testing using ANSYS to ensure designs met all operational, thermal, and electrical safety standards, leading to a **15% improvement in production efficiency**.
- Implemented and oversaw prototype production, developing comprehensive manufacturing documentation and training materials, significantly improving the **scalability** and **quality of production outputs**.