PRAJJWAL PRADEEP GARAG, MS

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Education

Master of Science in Advanced Manufacturing: Work Design and Sustainability Engineering — Oct 2025
- Technische Universität Chemnitz, Sachsen, Deutschland — **GPA: 1,82**
- Relevant Coursework: Life Cycle Impact and Assessment, Sustainability, Material Process flow, Management Accounting Instrumentation, Joining Technologies, Deep passion in Python Programming and Database Mgmt.

Bachelor of Technology Mechanical Engineering: Materials Science minor — Aug 2021
- Manipal Institute of Technology, Manipal, Karnataka, India. — **GPA: 1,92**

Skills

CAD/CAE	SolidWorks, Catia V5 & 3DX, Fusion360, Creo, AutoCAD, ANSYS, Siemens NX.
Fabrication/Prototyping	3D printing (FDM/SLA/SLS), CNC Lathe/Mill, GD&T, Laser Cutter, electric circuits design.
Computer Skills	Python, PostgreSQL, Linux, MATLAB/Simulink, Git, Arduino, RasberryPi, C++, OpenCV, Umberto LCA, MS Office, CSS, HTML, JavaScript, Matplotlib, Pandas, Seaborn, TensorFlow, Keras, Numpy, Flask

Professional Experience

Research Assistant, Fraunhofer IWU, Chemnitz DE — July 2024 – Present
- Developed a two-pronged predictive model for tool life in hard turning operations, achieving 86% accuracy in detecting tool failure during the penultimate cut using Isolation Forests in the frequency domain.100%
- Designed a time-domain model using moving averages, standard deviation differences, and KNN to predict tool wear progression from cutting forces.100%
- Collaborated with Prof. Dr.-Ing. Martin Dix on a publication for the CIRP Society, combining signal processing and machine learning to provide a comprehensive solution for tool life prediction.25%

Student Assistant, iKAT TU Chemnitz, Chemnitz DE — Jan 2025 – Present
- Collaborated on life cycle assessment for hybrid H2 fuel cell drives, integrating environmental and techno-economic factors, 50%.
- Developed a MATLAB socket script to process and analyze JSON-based Umberto raw data for system modeling, 100%.
- Documented MBSE process with SysML modeling and test protocols, supporting TRL advancement from 6 to 7.

Technical Consultant, Vaude GmbH, Baden-Wurttemberg DE — Dec 2024 - Present
- Working in a team of 5 to optimize manual die placement in manufacturing using projection mapping.
- Implemented projector-guided die alignment, improving accuracy by 20% and reducing material waste by 15%.25%
- Integrated real-time feedback with computer vision, shortening setup times by 25% and boosting productivity.25%

Assistant Manager, JSW Steel LTD, Bellary IN — Aug 2021 - Oct 2023
- Oversaw processing of 450 tons of Galvanized steel coils daily while leading a team of 25 subordinates.100%
- Collaborated to commission Continuous Galvanizing Lines 2 & 3, optimizing CAPEX/OPEX budgets and automation readiness working alongside the Danieli Group.
- Reduced rejection rates by 20% and increased OEE by 4.5% through process optimization.100%
- Trained Graduate Engineer Trainees and established CAPA with statistical tools, ensuring ISO compliance and quality.

Projects

Smart Posture Monitoring and Feedback System(Python, Micro:bit, Blender) — Nov 2024 – Jan 2025
Mechanical Engineer, Technische Universität Chemnitz
- Led a team of 5 to develop PostureAware, a system leveraging 6 Micro:bit sensors to monitor ergonomic risks and address chronic back pain in logistics manual load handling.100%
- Designed a GUI processing 33 Hz sensor data to classify posture into 3 risk zones, enhancing safety.100%
- Implemented 81 posture scenarios with feedback mechanisms, reducing high-risk occurrences by over 40%. This lead to “Best Project ” award in the course Insturmentation.100%.

Nischelangelo GmbH – Modelling with Umberto® — Jan 2024 - May 2024
- Evaluated 3 manufacturing processes (CNC Milling, Waterjet Cutting, 3D Printing) for Nischelangelo GmbH’s souvenir busts using Umberto® Software.20%
- Conducted Life Cycle Impact Assessment (LCA), Material Cost Flow Accounting, Functional Assessment achieving 96% functional efficiency for CNC Milling using Eco-Indicator 99.100%.

SAS Employee Leave Management System — Jan 2023 - May 2024
- Designed a Employee Leave Management windows app for Seeh Al Sarya Engineering LLC, Oman streamlining workforce scheduling for middle level management increasing productivity and saving time by 20% (reviwed).100%

Sink-Roll Defect & Failure Analysis — Aug 2023 - Dec 2023
- At JSW steel reduced rejection rates by 20% and improved OEE by 4.5% through sink roll optimization efforts. 100%.

Life Cycle Analysis of Pressure Cooker Lid — Aug 2023 - Dec 2023
- Compared steel and aluminum for pressure cooker lid, highlighting steel's economic and environmental advantages.50%

Additional Skills

- IELTS C1 proficiency in English, B1 proficiency in Deutsch.
- Hands on experience with fabrication, test equipment, test and validation processes and data analysis (TU Chemnitz).