

# PRAJJWAL PRADEEP GARAG, MS

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## Education

<b>Master of Science in Advanced Manufacturing:</b> Work Design and Sustainability Engineering	Oct 2025
<ul style="list-style-type: none"><li>Technische Universität Chemnitz, Sachsen, Deutschland</li><li>Relevant Coursework: Life Cycle Impact and Assessment, Sustainability, Material Process flow, Management Accounting Instrumentation, Joining Technologies, Deep passion in Python Programming and Database Mgmt.</li></ul>	<b>GPA: 1,82</b>
<b>Bachelor of Technology Mechanical Engineering:</b> Materials Science minor	Aug 2021
<ul style="list-style-type: none"><li>Manipal Institute of Technology, Manipal, Karnataka, India.</li></ul>	<b>GPA: 1,92</b>

## Skills

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

## Professional Experience

<b>Research Assistant, Fraunhofer IWU, Chemnitz DE</b>	July 2024 – Present
<ul style="list-style-type: none"><li>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%</li><li>Designed a time-domain model using moving averages, standard deviation differences, and KNN to predict tool wear progression from cutting forces.100%</li><li>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%</li></ul>	
<b>Student Assistant, iKAT TU Chemnitz, Chemnitz DE</b>	Jan 2025 – Present
<ul style="list-style-type: none"><li>Collaborated on life cycle assessment for hybrid H2 fuel cell drives, integrating environmental and techno-economic factors, 50%.</li><li>Developed a MATLAB socket script to process and analyze JSON-based Umberto raw data for system modeling, 100%.</li><li>Documented MBSE process with SysML modeling and test protocols, supporting TRL advancement from 6 to 7.</li></ul>	
<b>Technical Consultant, Vaude GmbH, Baden-Wuerttemberg DE</b>	Dec 2024 - Present
<ul style="list-style-type: none"><li>Working in a team of 5 to optimize manual die placement in manufacturing using projection mapping.</li><li>Implemented projector-guided die alignment, improving accuracy by 20% and reducing material waste by 15%.25%</li><li>Integrated real-time feedback with computer vision, shortening setup times by 25% and boosting productivity.25%</li></ul>	
<b>Assistant Manager, JSW Steel LTD, Bellary IN</b>	Aug 2021 - Oct 2023
<ul style="list-style-type: none"><li>Oversaw processing of 450 tons of Galvanized steel coils daily while leading a team of 25 subordinates.100%</li><li>Collaborated to commission Continuous Galvanizing Lines 2 &amp; 3, optimizing CAPEX/OPEX budgets and automation readiness working alongside the Danieli Group.</li><li>Reduced rejection rates by 20% and increased OEE by 4.5% through process optimization.100%</li><li>Trained Graduate Engineer Trainees and established CAPA with statistical tools, ensuring ISO compliance and quality.</li></ul>	

## Projects

<b>Smart Posture Monitoring and Feedback System(Python, Micro:bit, Blender)</b>	Nov 2024 – Jan 2025
<b>Mechanical Engineer, Technische Universität Chemnitz</b>	
<ul style="list-style-type: none"><li>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%</li><li>Designed a GUI processing 33 Hz sensor data to classify posture into 3 risk zones, enhancing safety.100%</li><li>Implemented 81 posture scenarios with feedback mechanisms, reducing high-risk occurrences by over 40%. This lead to “Best Project ” award in the course Instrumentation.100%.</li></ul>	
<b>Nischelangelo GmbH – Modelling with Umberto®</b>	Jan 2024 - May 2024
<ul style="list-style-type: none"><li>Evaluated 3 manufacturing processes (CNC Milling, Waterjet Cutting, 3D Printing) for Nischelangelo GmbH’s souvenir busts using Umberto® Software.20%</li><li>Conducted Life Cycle Impact Assessment (LCA), Material Cost Flow Accounting, Functional Assessment achieving 96% functional efficiency for CNC Milling using Eco-Indicator 99.100%.</li></ul>	
<b>SAS Employee Leave Management System</b>	Jan 2024 - May 2024
<ul style="list-style-type: none"><li>Designed a Employee Leave Management windows app for Seeh Al Surya Engineering LLC, Oman streamlining workforce scheduling for middle level management increasing productivity and saving time by 20% (reviewed).100%</li></ul>	
<b>Sink-Roll Defect &amp; Failure Analysis</b>	Jan 2023 - Aug 2023
<ul style="list-style-type: none"><li>At JSW steel reduced rejection rates by 20% and improved OEE by 4.5% through sink roll optimization efforts. 100%.</li></ul>	
<b>Life Cycle Analysis of Pressure Cooker Lid</b>	Aug 2024 - Dec 2024
<ul style="list-style-type: none"><li>Compared steel and aluminum for pressure cooker lid, highlighting steel's economic and environmental advantages.50%</li></ul>	

## 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).