



# Atam Kumar Menghwar

**BE & ME Industrial and Management Engineer**

Address: Via Alberto Sivinio, Maisonettes, 87036, Rende, Italy

Phone No.: (+39) - 345 - 8416230

E-mail: atamkumar2018@gmail.com

**in** LinkedIn

**G** GitHub

Google Scholar

ResearchGate

## PROFILE

- I am an Industrial and Management Engineer with a strong foundation in manufacturing systems, quality management, and digital transformation. Currently completing dual Master's degrees in Engineering Management and Innovation & Product Management, I bring a blend of academic depth and applied experience. I aim to contribute to advanced research in smart manufacturing and future-ready industrial systems.

## EDUCATION

- M.S. Engineering Sciences**  
 Management Engineering 10/2023 - Present  
 Università della Calabria Rende (CS), Italy  
<https://www.unical.it/> Grade: 99/110
- M.S. Engineering Sciences**  
 Innovation and Product Management (Dual Master's) 09/2024 - 09/2025  
 University of Applied Sciences Upper Austria Wels, Austria  
<https://fh-ooe.at/en> Grade: 1.81 (Austrian Grading System)
- B.S. Engineering Sciences**  
 Industrial Engineering and Management 10/2018 - 11/2022  
 Mehran University of Engineering & Technology (MUET) Jamshoro, Pakistan  
<https://www.muett.edu.pk/> CGPA: 3.76/4.00

## TECHNICAL SKILLS

- Programming and Scripting Languages**  
 C++, Python (Basic) | MATLAB/SIMULINK (Basic) | JavaScript (Node-RED) [Basics]
- Tools and Libraries**  
 Minitab (Statistical Analysis) | Data Science Tools | Data Collection | Data Processing | Data Visualisation | Research Tools
- OS and Software**  
 MS Office (Word, Excel, PowerPoint, Outlook, Teams, Project, SharePoint) | Tecnomatix Plant Simulation (Basics), Technical Writing

## RESEARCH INTEREST

Smart/Digital Manufacturing | Sustainable Manufacturing | Digital Twin | Cyber-Physical Systems | Artificial Intelligence | Machine Learning | Smart Healthcare | Digital Transformation | Industry 4.0/5.0 | Digital Supply Chain Management

## SHORT COURSES

21/03/2022 – 20/09/2022	<b>Inspection &amp; Quality Control (Job-Oriented Training, 6 Months)</b> <i>Mehran University of Engineering &amp; Technology (MUET), BBSHRRDB</i>	Jamshoro, Pakistan
06/2021 – 09/2021	<b>Project Management (NAV TTC – PM Hunarmand Pakistan Program, 3 Months)</b> <i>The Institute of Management &amp; Entrepreneurship (TIME), Hyderabad</i>	Hyderabad, Pakistan
02/2021 – 05/2021	<b>E-Commerce Management (DigiSkills.pk), 3 Months</b> <i>Virtual University of Pakistan (V-U)</i>	Online, Pakistan

02/2021 – 05/2021	<b>Creative Writing (DigiSkills.pk), 3 Months</b> <i>Virtual University of Pakistan (V-U)</i>	Online, Pakistan
11/2019 – 01/2020	<b>AutoCAD (DigiSkills.pk), 3 Months</b> <i>Virtual University of Pakistan (V-U)</i>	Online, Pakistan
11/2019 – 01/2020	<b>Freelancing (DigiSkills.pk), 3 Months</b> <i>Virtual University of Pakistan (V-U)</i>	Online, Pakistan

## PROJECTS

01/2022 – 10/2022	<b>Analysis of Risk Factors for Work-related Musculoskeletal Disorders: A Survey Research</b> <i>Bachelor's Degree Thesis</i> <ul style="list-style-type: none"> <li>Conducted a quantitative study to analyze the prevalence and risk factors of work-related musculoskeletal disorders (WMSDs) across industrial, educational, and healthcare settings.</li> <li>Collected data through a structured online survey and performed statistical analyses including correlations and ANOVA.</li> <li>Developed a regression-based model and proposed ergonomic recommendations to reduce WMSD risks.</li> </ul>
01/2025 – 09/2025	<b>A Causal Digital Twin Framework for Sustainable Decision Making in Smart Manufacturing Systems</b> <i>Master's Degree Thesis</i> <ul style="list-style-type: none"> <li>Developed a four-layer Causal Digital Twin Framework integrating real-time data, AI-based predictions, and causal inference to support sustainable decision-making in smart manufacturing.</li> <li>Implemented real-time energy monitoring using TimescaleDB and Grafana, and applied XGBoost for Remaining Useful Life (RUL) prediction alongside causal inference to identify key drivers of energy optimization.</li> <li>Performed rigorous statistical validation including OLS regression, residual diagnostics, VIF analysis, Durbin-Watson testing, and HAC corrections, proposing a scalable sustainability-aligned framework supporting Industry 4.0 and SDG 9.</li> </ul>

## OTHER CERTIFICATIONS, WORKSHOPS & WEBINARS

01/11/2021	<b>Six Sigma Yellow Belt Certification</b> <i>6SigmaStudy / VMEdU Inc.</i>	United States (Online)
09/02/2020	<b>Workshop on Peace, Tolerance &amp; Emotional Intelligence</b> <i>Rotaract Club of Jamshoro Optimists</i>	Jamshoro, Pakistan
12/02/2021 – 14/02/2021	<b>Online Workshop on Industrial Automation &amp; Industrial IoT</b> <i>NCRA CMS Lab, MUET</i>	Jamshoro, Pakistan (Virtual)
06/07/2021	<b>Data Science with Machine Learning – A Journey from Data to Decision</b> <i>IEEE KIET Student Branch</i>	Karachi, Pakistan (Virtual)
26/11/2021	<b>Industry–Academia Dialogue Forum on Industry 4.0</b> <i>IEEE MUET &amp; IEEE Karachi Section</i>	Jamshoro, Pakistan
12/06/2021	<b>Toyota 5S Methodology</b> <i>Toyota Indus Motor Co. Ltd. &amp; United Nations Association of Pakistan</i>	Karachi, Pakistan (Virtual)
11/07/2021	<b>Leading My Student Branch to Success</b> <i>IEEE UCET IUB &amp; IEEE MNSUAM, supported by IEEE R10</i>	Pakistan (Virtual Panel Discussion)
19/06/2021	<b>Industrial Automation Webinar</b> <i>IEEE KIET Student Branch</i>	Karachi, Pakistan (Virtual)
23/06/2020	<b>Frontend Fundamentals</b> <i>Purple.com</i>	United States (Online Course)

13/11/2021	<b>How 5G Is Much More Than the Next G</b> <i>Engineer Talks</i>	Pakistan (Virtual)
07/2021	<b>Behavioural Interview Questions</b> <i>Great Learning Academy</i>	Online Course
2021	<b>The Field of Supply Chain Calling Engineers</b> <i>The Incredibles &amp; ZIMCO International Corporation</i>	Pakistan (Virtual Webinar)
13/12/2021	<b>Career Counselling and Future Scope for Engineering</b> <i>The Incredibles &amp; HITEC University</i>	Pakistan (Virtual)
18/12/2021	<b>Introduction to Scientific Research and Publication Process</b> <i>Engineer Talks</i>	Pakistan (Virtual)
2021	<b>How to Bridge the Gap Between Industry &amp; Academia</b> <i>The Incredibles &amp; ZIMCO International Corporation</i>	Pakistan (Virtual Webinar)
21/09/2022	<b>Spark Up Your Career (Career Event)</b> <i>ISO &amp; EC Societies, Mehran UET Jamshoro</i>	Jamshoro, Pakistan

## JOBS AND INTERNSHIPS

29/12/2021 – 20/01/2022	<b>Artistic Milliners Pvt. Ltd.</b> <i>Intern – Industrial Engineering Department</i>	Karachi, Pakistan
	<ul style="list-style-type: none"> <li>Assisted in production line optimization through line balancing, capacity analysis, SAM evaluation, and ergonomics improvements.</li> <li>Applied lean manufacturing tools (KPIs, Kanban, 5S) and waste-reduction techniques to enhance operational efficiency.</li> </ul>	
08/06/2022 – 07/07/2022	<b>Yunus Textile Mills Ltd.</b> <i>Intern – Industrial Engineering Department</i>	Karachi, Pakistan
	<ul style="list-style-type: none"> <li>Assisted in production line optimization through line balancing, capacity analysis, SAM evaluation, and ergonomics improvements.</li> <li>Applied lean manufacturing tools (KPIs, Kanban, 5S) and waste-reduction techniques to enhance operational efficiency.</li> </ul>	
07/2021 - 08/2021	<b>District Administration Hyderabad &amp; TIME Institute</b> <i>Data Entry Operator</i>	Hyderabad, Pakistan
	<ul style="list-style-type: none"> <li>Worked at the COVID-19 Data Management Centre.</li> <li>Performed data entry and record management tasks.</li> </ul>	
09/2022 – 10/2022	<b>Quality Enhancement Cell (QEC), MUET</b> <i>Intern</i>	Jamshoro, Pakistan
	<ul style="list-style-type: none"> <li>Contributed to quality assurance activities, assisted in ensuring institutional quality compliance by reviewing academic and administrative departments while gaining thorough knowledge of university policies and operations.</li> </ul>	
02/2023 – 08/2023	<b>Army Public School &amp; College (APSAC), Badin Cantt</b> <i>Instructor – Mathematics (Middle Section)</i>	Badin, Pakistan
	<ul style="list-style-type: none"> <li>Taught Mathematics to middle-grade students.</li> <li>Performed assigned academic duties efficiently.</li> <li>Demonstrated strong engagement and effective knowledge delivery.</li> </ul>	

01/08/2022 – 02/2023	<b>Brimful Talented Academy, Hyderabad</b> <i>Instructor – Science (Senior Section, Grade 9 and 10th)</i>	Hyderabad, Pakistan
	<ul style="list-style-type: none"> <li>• Taught chemistry and physics subjects.</li> <li>• Maintained professionalism and positive student engagement.</li> </ul>	
28/02/2022 – 10/03/2022	<b>Jamshoro Power Company Ltd. (GENCO-II)</b> <i>Industrial and Management Engineer – Intern</i>	Jamshoro, Pakistan
	<ul style="list-style-type: none"> <li>• Observed power plant operations and studied key mechanical, electrical, and control systems, gaining comprehensive insight into generation, transmission, and energy utilization processes.</li> </ul>	
19/12/2021 – 20/01/2022	<b>Mindstorm Engineering – IIoT / Industry 4.0 Virtual Internship</b> <i>Intern – IIoT &amp; Industry 4.0</i>	Karachi, Pakistan
	<ul style="list-style-type: none"> <li>• Virtually work with PLC, HMI, SCADA and IIoT-enabled PLCs.</li> <li>• Worked with MQTT Brokers, Node-Red, M2M, and Python programming.</li> <li>• Gained experience using cloud platforms and basics of AI.</li> <li>• Completed practical activities and assessments with strong performance.</li> </ul>	

#### EXTRACURRICULAR ACTIVITIES

09/2020 – 01/2023	<b>Founder and Vice President [Engineers Corner — Local Society]</b> MUET Jamshoro, Sindh, Pakistan
09/2020 – 04/2022	<b>Coordinator of Volunteers (Student Organization)</b> MUET Jamshoro, Sindh, Pakistan
2017 – 2023	<b>Volunteer and Supervisor (Local Youth Forum)</b> Village (Tharparkar, Sindh, Pakistan)
08/2021 – 12/2022	<b>Supervisor (Engineering Testing Service)</b> Hyderabad, Sindh, Pakistan

#### LANGUAGE SKILLS

	Listening	Reading	Writing	Spoken Production	Spoken Interaction
<b>English (Professional Proficiency)</b>	C1	B2	C1	C1	C1
<b>Italian (Basic User)</b>	A2	A2	A2	A1–A2	A1–A2

Levels based on the CEFR: A1/A2 = Basic user · B1/B2 = Independent user · C1/C2 = Proficient user

#### RESEARCH PUBLICATIONS

2026	Francesco Longo, <b>Atam Kumar Menghwar</b> , Vittorio Solina, "CAL-HUBRIA: A Centralized ICT Platform for Healthcare Data Sharing with AI-Assisted Diagnostic Support" <b>[In process]</b>
2026	Lucia Gazzaneo, Francesco Longo, <b>Atam Kumar Menghwar</b> , Giovanni Mirabelli, Vittorio Solina, "Human-Digital Twins for Smart and Sustainable Hospital Operations: Trends Analysis and a Value-Sensitive Framework." <i>Technology in Society, Elsevier</i> [Submitted]
2026	<b>Atam kumar Menghwar</b> , Miskeen Ali Gopang, & Ramesh Kumar "Modern Technologies and Their Impact on Supply Chain Efficiency and Transparency" <i>Supply Chain Forum: an International Journal, Taylor and Francis</i> [Submitted]
2026	<b>Menghwar, A. K., &amp; Ali, M.</b> "How Industry 4.0 Affected Prostheses Manufacturing." <i>Journal of Innovations in Business and Industry</i> , 4(1), 55–68.
2024	<b>Kumar, A., Kumar, R., &amp; Gul, A.</b> "Reduction of Lean Wastes by Using Value Stream Mapping: A Case Study of Textile Company in Pakistan." <i>International Journal of Supply Chain Management</i> , 9(2), 37–61.
2024	<b>Kumar, A., &amp; Kumar, R.</b> "Productivity Improvement of Assembly Line-by-Line Balancing Technique: Case Study Textile Manufacturing Company Karachi Pakistan." <i>South Asian Journal of Social Studies and Economics</i> , 21(5), 54–72.

- 2024 Meghwar, D. K., & **Kumar, A.** "Design Modification and Fabrication of an Active Solar Dryer." *International Journal of Engineering and Manufacturing*, 14(2), 57–73.
- 2024 **Kumar, A.**, Indher, H. K. B., & Nawaz, R. "Identify Main Challenges in Human Resource Departments and Suggest the Remedial Actions: Case Study." *International Journal of Industrial Engineering and Operational Research*, 6(1), 79–95.
- 2024 **Kumar, A.**, & Danish, M. "Evaluating the Role of IT Innovations in Enhancing Logistics and Supply Chain Management Effectiveness: A Review Paper." *Saudi Journal of Engineering and Technology*, 9(7), 344–357.
- 2022 **Kumar, A.**, Indher, H. K. B., Gul, A., & Nawaz, R. "Analysis of Risk Factors for Work-related Musculoskeletal Disorders: A Survey Research." *International Journal of Engineering and Manufacturing*, 12(6), 1–13.
- 2022 **Kumar, A.**, & Lal, B. "Students' Musculoskeletal Disorders Assessment Using RULA." *International Journal of Education and Management Engineering*, 12(6), 1–13.
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