



Atam Kumar Menghwar

BE & ME Industrial and Management Engineer

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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
Università della Calabria
<https://www.unical.it/>

10/2023 - Present
Rende (CS), Italy
Grade: XX/110

- M.S. Engineering Sciences**

Innovation and Product Management (Dual Master's)
University of Applied Sciences Upper Austria
<https://fh-ooe.at/en>

09/2024 - 09/2025
Wels, Austria
Grade: 1.81 (Austrian Grading System)

- B.S. Engineering Sciences**

Industrial Engineering and Management
Mehran University of Engineering & Technology (MUET)
<https://www.muet.edu.pk/>

10/2018 - 11/2022
Jamshoro, Pakistan
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 **Inspection & Quality Control (Job-Oriented Training, 6 Months)**
Mehran University of Engineering & Technology (MUET), BBSHRRDB

Jamshoro, Pakistan

06/2021 – 09/2021 **Project Management (NAVTTC – PM Hunarmand Pakistan Program, 3 Months)**
The Institute of Management & Entrepreneurship (TIME), Hyderabad

Hyderabad, Pakistan

02/2021 – 05/2021 **E-Commerce Management (DigiSkills.pk), 3 Months**
Virtual University of Pakistan (V-U)

Online, Pakistan

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

PROJECTS

01/2022 – 10/2022	Analysis of Risk Factors for Work-related Musculoskeletal Disorders: A Survey Research <i>Bachelor's Degree Thesis</i>	<ul style="list-style-type: none"> Conducted a quantitative study to analyze the prevalence and risk factors of work-related musculoskeletal disorders (WMSDs) across industrial, educational, and healthcare settings. Collected data through a structured online survey and performed statistical analyses including correlations and ANOVA. Developed a regression-based model and proposed ergonomic recommendations to reduce WMSD risks.
01/2025 – 09/2025	A Causal Digital Twin Framework for Sustainable Decision Making in Smart Manufacturing Systems <i>Master's Degree Thesis</i>	<ul style="list-style-type: none"> 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. 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. 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.

OTHER CERTIFICATIONS, WORKSHOPS & WEBINARS

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

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

JOBS AND INTERNSHIPS

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

01/08/2022 – 02/2023

Brimful Talented Academy, Hyderabad

Instructor – Science (Senior Section, Grade 9 and 10th)

Hyderabad, Pakistan

- Taught chemistry and physics subjects.

- Maintained professionalism and positive student engagement.

28/02/2022 – 10/03/2022

Jamshoro Power Company Ltd. (GENCO-II)

Industrial and Management Engineer – Intern

Jamshoro, Pakistan

- Observed power plant operations and studied key mechanical, electrical, and control systems, gaining comprehensive insight into generation, transmission, and energy utilization processes.

19/12/2021 – 20/01/2022

Mindstorm Engineering – IIoT / Industry 4.0 Virtual Internship

Intern – IIoT & Industry 4.0

Karachi, Pakistan

- Virtually work with PLC, HMI, SCADA and IIoT-enabled PLCs.
- Worked with MQTT Brokers, Node-Red, M2M, and Python programming.
- Gained experience using cloud platforms and basics of AI.
- Completed practical activities and assessments with strong performance.

EXTRACURRICULAR ACTIVITIES

09/2020 – 01/2023

Founder and Vice President [Engineers Corner — Local Society]

MUET Jamshoro, Sindh, Pakistan

09/2020 – 04/2022

Coordinator of Volunteers (Student Organization)

MUET Jamshoro, Sindh, Pakistan

2017 – 2023

Volunteer and Supervisor (Local Youth Forum)

Village (Tharparkar, Sindh, Pakistan)

08/2021 – 12/2022

Supervisor (Engineering Testing Service)

Hyderabad, Sindh, Pakistan

LANGUAGE SKILLS

	Listening	Reading	Writing	Spoken Production	Spoken Interaction
English (Professional Proficiency)	C1	B2	C1	C1	C1
Italian (Basic User)	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, **Atam Kumar Menghwar**, Vittorio Solina, "CAL-HUBRIA: A Centralized ICT Platform for Health-care Data Sharing with AI-Assisted Diagnostic Support" [In process]
- 2026 Lucia Gazzaneo, Francesco Longo, **Atam Kumar Menghwar**, Giovanni Mirabelli, Vittorio Solina, "Human-Digital Twins for Smart and Sustainable Hospital Operations: Trends Analysis and a Value-Sensitive Framework." *Technology in Society, Elsevier* [Submitted]
- 2026 **Atam kumar Menghwar**, Miskeen Ali Gopang, & Ramesh Kumar "Modern Technologies and Their Impact on Supply Chain Efficiency and Transparency" *Supply Chain Forum: an International Journal, Taylor and Francis* [Submitted]
- 2026 **Menghwar, A. K., & Ali, M.** "How Industry 4.0 Affected Prostheses Manufacturing." *Journal of Innovations in Business and Industry*, 4(1), 55–68.
- 2024 **Kumar, A.**, Kumar, R., & Gul, A. "Reduction of Lean Wastes by Using Value Stream Mapping: A Case Study of Textile Company in Pakistan." *International Journal of Supply Chain Management*, 9(2), 37–61.
- 2024 **Kumar, A., & Kumar, R.** "Productivity Improvement of Assembly Line-by-Line Balancing Technique: Case Study Textile Manufacturing Company Karachi Pakistan." *South Asian Journal of Social Studies and Economics*, 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.