

# Ashish Kumar

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Language: English, Hindi, French



## CAREER OBJECTIVE

An enthusiastic individual with five years of artificial intelligence-based research experience in the fields of operations and supply chain management is looking for a position at a growth-oriented organization or institution where they can use my skills to further their vision and goals.

## TECHNICAL EDUCATION

### **Doctor of Philosophy (Ph.D.) in Industrial Engineering (2024)**

PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur

CPI: 9.2/10

### **Master of Technology (M. Tech) in Manufacturing Engineering (2018)**

PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur

CPI: 8.0/10

### **Bachelor of Engineering (BE) in Mechanical Engineering (2015)**

Birla Institute of Technology, Ranchi

CPI: 7.39/10

## RESEARCH INTERESTS

- **Operations & Supply chain management:** Agri-fresh management, Sustainability, Multi-criteria decision making, Mathematical modelling, Optimization etc.
- **AI & ML:** Neural networks, Computer vision, Hyperparameters optimization, Machine and Deep learning etc.
- **Mechanical:** Condition monitoring, Additive manufacturing, Statistical analysis etc.

## RESEARCH EXPERIENCE

### **Ph.D. Thesis Work**

Working on research area entitled “**Design and Optimization of Indian Agri-Fresh Supply Chains Towards Sustainability: Integrating Image Processing for Quality Assurance in Industry 4.0**” under the supervision of Dr. Sunil Agrawal. The project work involves:

- Identification of challenges and opportunities for management of Agri-fresh food supply chain in India.
- Identification of adoption barriers related to image processing using Multi-criteria decision making (MCDM).

- Development of a quality-based sustainable supply chain architecture using image processing for Industry 4.0.
- Development and optimization of mathematical model that includes quality and shelf life of the product for Agri-fresh food supply chain management.

### **TECHNICAL EXPERTISE**

- Designing: CATIA
- Simulation: ANSYS
- Mathematical modelling: Lingo, Cplex
- Programming languages: Python, R
- Data visualization: Tableau
- Statistical analysis: Minitab
- Server software: Microsoft office

### **TECHNICAL EXPERIENCE**

- Working as a **Guest faculty** at **Blackboard Education Research & Foundation** since **October 2022 (1.5 years of Teaching experience)**. Teaching subjects like Manufacturing Technology, Rapid prototyping and reverse engineering etc. to B.Tech. and M. Tech students of mechanical engineering.
- Assisting B.Tech. and M.Tech. students as Technical assistant (TA) in subjects like Data science and machine learning, Introduction to Python programming etc. at PDPM Indian Institute of Information Technology Design and Manufacturing Jabalpur.

### **ACHIEVEMENTS**

- Completed **one year project** in designing and fabricating an ATV vehicle for the competition **BAJA SAE INDIA 2014**.
- Qualified GATE exam in **2016** (Registration id **ME16S14015131**): Percentile 98.29/ AIR 3366/ Score 663
- Received Best Paper Presenter award for my research work “Optimization of Parameters of Dissimilar Gas Tungsten Arc Welding using Grey Relational Analysis” at International Conference on Recent Developments in Mechanical Engineering (ICRDME 2019).

### **PROFESSIONAL COURSES & CERTIFICATIONS**

- Awarded an Elite in NPTEL online certificate for "Effective engineering teaching in practice"
- Awarded an Elite in NPTEL online certificate for “Teaching and Learning in General Program: TALG”
- Completed online certificate courses on Machine learning, Neural Networks, Multi-criteria Decision Making, Time series analysis and Tableau.
- Completed certificate program on “Business and Operations Analytics” from IIM, Mumbai.
- Completed certificate program on “Supply Chain Digitization and Management” from IIM, Mumbai.
- Completed certificate program on software “CATIA V5R19” from Central Tool Room & Training Centre.

### **RESEARCH OUTCOMES**

#### **International Journals:**

1. Kumar, A., Agrawal, S. Enhancing quality-based classification of perishable products: a convolutional neural network approach with statistical hyperparameter optimization. *Multimed Tools Appl* (2024). <https://doi.org/10.1007/s11042-024-19700-z> (SCIE, Q1, IF 3.6).
2. Kumar, A., & Agrawal, S. (2024). A quality-based sustainable supply chain architecture for perishable products using image processing in the era of industry 4.0. *Journal of Cleaner Production*, 450, 141910. <https://doi.org/10.1016/j.jclepro.2024.14191> (SCIE, Q1, A, IF 11.1).
3. Bhandarkar, V. V., Kumar, A., & Tandon, P. (2024). Warpage detection in 3D printing of polymer parts: a deep learning approach. *Journal of Intelligent Manufacturing*, 1-13., <https://doi.org/10.1007/s10845-024-02414-2>. <https://doi.org/10.1007/s10845-024-02414-2> (SCIE, Q1, IF 5.9).
4. Kumar, A., & Agrawal, S. (2023). Challenges and opportunities for agri-fresh food supply chain management in India. *Computers and Electronics in Agriculture*, 212, 108161. <https://doi.org/10.1016/j.compag.2023.108161> (SCIE, Q1, IF 8.3).
5. Kumar, A., Mukherjee, S., & Agrawal, S. (2020). Optimization of Parameters of Dissimilar Gas Tungsten Arc Welding using Grey Relational Analysis. *International Journal of Vehicle Structures & Systems*, 12(2), 157-161. doi:10.4273/ijvss.12.2.09 (Journal, Scopus Indexed).
6. Agri-Fresh 4.0: Leveraging Image Processing and Mathematical Modelling for Enhanced Quality in the Agri-Fresh Supply Chain for Industry 4.0. (Journal, SCI, Under review).
7. Adoption Barriers of Image Processing for Quality-Based Decision Making in Agri-Fresh Supply Chains An Integrated ISM-MICMAC Approach for Industry 4.0 (Journal, SCI, Under review)

### **Book Chapters & Conference Proceedings**

1. Quality-based Decision-Making using Image Processing for Supply Chain Management (**Accepted for Publication**, Springer Nature Proceedings on "Communication in Computers and Information Science". Scopus Indexed).
2. Quality estimation for dynamic pricing of perishable products: A Deep Learning Approach (**Accepted for Publication**, Springer Nature Proceedings on "Data Engineering and Communications Technologies", Scopus Indexed)
3. Kumar, A., Tiwari, S., & Agrawal, S. (2023, March). Convolutional Neural Network Based Image Processing Model for Supply Chain Management. In International Conference on Production and Industrial Engineering (pp. 113-123). Singapore: Springer Nature Singapore. [https://doi.org/10.1007/978-981-99-7445-0\\_11](https://doi.org/10.1007/978-981-99-7445-0_11)
4. Tiwari, S., Kumar, A., & Amarnath, M. (2023, March). Vibro-Acoustics Analysis for Tool Wear Monitoring During the Turning Operation. In International Conference on Production and Industrial Engineering (pp. 159-168). Singapore: Springer Nature Singapore. [https://doi.org/10.1007/978-981-99-6601-1\\_15](https://doi.org/10.1007/978-981-99-6601-1_15)

### **REFERENCES**

1. Dr. Sunil Agrawal, Associate Professor, PDPM IITDMJ, e-mail: [sa@iiitdmj.ac.in](mailto:sa@iiitdmj.ac.in)
2. Dr. Shashank Kumar, Assistant Professor, IIM Bodh Gaya, e-mail: [shashank.k@iimb.ac.in](mailto:shashank.k@iimb.ac.in)

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I hereby declare that the above particulars of facts and information stated are true, correct, and complete to the best of my belief and knowledge.

Date: 1/07/2024

Ashish Kumar