Dr. Sushil Kumar

Curriculum Vitae

Plot No.: 1304 (27/28),
Barasirohi, IIT Kanpur (U.P.), INDIA 208016
Mob: +91 9026735085, +91 8840202443
Email: drsushil.it@svpuat.edu.in
drsushil.cs@gmail.com

Google Scholar Link:
https://scholar.google.com/citations?user=j6EVt4YAAAAJ&hl=en

Objective

To work in an organization where professionalism and enthusiasm is recognized and to work continuously towards excellence while increasing my technical skills and professional expertise.

Research Interests

Neural Network	High Dimensional Information Processing, Quaternion-Valued Neural Networks, Artificial Neuron Construction
Applications	Image Processing, Satellite Image Segmentation, Sign Language Recognition, Medical Imaging, Air Pollution, Agriculture

Education

2014 - 2017	**Doctor of Philosophy (Ph.D.)**, Computer Science & Engineering, Harcourt Butler Technological Institute (HBTI), Kanpur affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow under TEQIP-II Scheme Thesis Title: "*On the quaternionic domain neuron models with fast learning algorithm".* Supervisors: ***Prof. (Dr.) Bipin Kumar Tripathi,*** HBTI, Kanpur.
2010 - 2012	**Master of Technology (M. Tech.)**, Defence Institute of Advanced Technology (DIAT), Defence Research & Development Organization (DRDO), Pune, India. *Overall %age:* 71.4
2005 - 2009	**Bachelor of Technology (B. Tech.)**, *Computer Science & Engineering*, University Institute of Engineering and Technology (UIET), CSJM University, Kanpur, India. *Overall %age:* 76.9

Work Experience (13 yrs.)

Teaching Experience (10 yrs.)

April 2025 Onwards	**Assistant Professor**, *Department of Information Technology, College of Technology, SVPUA&T Meerut*, India.
Dec 2022 - Mar 2025	Worked as Associate Professor in Computer Science & Engineering Department, KIET Ghaziabad, affiliated with AKTU, Lucknow.
Sep 2021 - Nov 2022	Worked as Assistant Professor in Computer Science & Engineering Department, KIET Ghaziabad, affiliated with AKTU, Lucknow.
Jun 2018 - Aug 2021	Worked as Assistant Professor in Information Technology Department, AKGEC Ghaziabad, affiliated with AKTU, Lucknow.
Jul 2017 - May 2018	Guest Lecturer in the Department of Computer Science & Engineering, Harcourt Butler Technical University Kanpur

Aug 2012 - Apr 2014 Guest Lecturer in the Department of Computer Science & Engineering, Harcourt Butler Technological Institute (HBTI), Kanpur

Research Experience (3.0 yrs.)

Apr. 2014 - Jul 2017 **Teacher Fellow (Research Scholar)**, Department of Computer Science & Engineering, Harcourt Butler Technological Institute (HBTI), Kanpur

Publications

International Journals (SCI/SCIE)

1. U Rastogi, RP Mahapatra & **S Kumar** "Advancements in Machine Learning Techniques for Hand Gesture-Based Sign Language Recognition: A Comprehensive Review" *Archives of Computational Methods in Engineering* (2025): 1-38.

   Springer, Impact Factor: 9.7

2. S Singh, **S Kumar** & BK Tripathi "A comprehensive analysis of quaternion deep neural networks: architectures, applications, challenges, and future scope" *Archives of Computational Methods in Engineering* (2024): 1-28.

   Springer, Impact Factor: 9.7

3. N Bagwari, VS Verma & **S Kumar** "Residual quadratic encoder–decoder architecture for semantic segmentation of satellite images" *Signal, Image and Video Processing* 19(1): 1-9 (2025).

   Springer, Impact Factor: 2.0

4. A Verma, AK Gupta, V Kumar, A Rajak, **S Kumar** & RN Panda. "A Secure Healthcare Monitoring System for Disease Diagnosis in the IoT Environment" *Multimedia Tools and Applications* (2024): 1-26.

   Springer, Impact Factor: 3.6

5. P Singh, M Kansal, R Singh, **S Kumar** & C Sen "A Hybrid Approach based on Haar Cascade, Softmax, and CNN for Human Face Recognition" *Journal of Scientific & Industrial Research* 83(4):414-423 (2024).

   CSIR, Impact Factor: 0.6

6. N Bagwari, **S Kumar** & VS Verma "A Comprehensive Review on Segmentation Techniques for Satellite Images" *Archives of Computational Methods in Engineering* 30(07): 4325–4358 (2023).

   Springer, Impact Factor: 9.7

7. **S Kumar** & U Rastogi "A Comprehensive Review on the Advancement of High-Dimensional Neural Networks in Quaternionic Domain with Relevant Applications" *Archives of Computational Methods in Engineering* 30(06): 3941–3968 (2023)

   Springer, Impact Factor: 9.7

8. **S Kumar**, RK Singh & A Chaudhary "A novel non-linear neuron model based on multiplicative aggregation in quaternionic domain" *Complex & Intelligent Systems* 9(3): 3161–3183 (2022).

   Springer, Impact Factor: 6.7

9. **S Kumar**, RK Singh & A Chaudhary "On the Learning Machine with Amplificatory Neuron in Complex Domain" *Arabian Journal for Science and Engineering*, 45(12): 10287–10309 (2020).

   Springer, Impact Factor: 2.9

10. **S Kumar** & BK Tripathi "On the Learning Machine with Compensatory Aggregation Based Neurons in Quaternionic Domain" *Journal of Computational Design and Engineering*, 06(01), 33-48 (2019).

    Elsevier, Impact Factor: 6.167

11. **S Kumar** & BK Tripathi "On the learning machine with quaternionic domain neural network and its high-dimensional applications" *Journal of Intelligent and*

Fuzzy Systems, 36(6), 5189-5202 (2019).

IOS Press, Impact factor: 2

12. **S Kumar** & BK Tripathi "High-dimensional Information Processing through Resilient Propagation in Quaternionic Domain" *Journal of Industrial Information Integration*, 11, 41-49 (2018).

Elsevier, Impact factor: 15.7

13. **S Kumar** & BK Tripathi "Root-Power Mean Aggregation-Based Neuron in Quaternionic Domain" *IETE Journal of Research*, 65(4), 557-575 (2018).

Taylor and Francis, Impact factor: 2.333

International Journals

(Scopus Indexed)

1. S Singh, M Kumar, BK Verma & **S Kumar** "Optimizing Air Pollution Prediction with Random Forest Algorithm" *Aerosol Science and Engineering* (2025): 1-14.

Springer, Impact factor: 1.6

2. S Verma, A Gupta, **S Kumar**, V Srivastava & BK Tripathi "Resource allocation for efficient IOT application in fog computing". *International Journal of Mathematical, Engineering and Management Sciences*, 5(6): 1312 (2020).

Impact factor: 1.6

3. **S Kumar** & BK Tripathi "On the High Dimensional Information Processing in Quaternionic Domain and its Applications" *International Journal of Advances in Applied Sciences* 7(2): 177-190 (2018).
4. IK Gupta, V Yadav & **S Kumar** "Medical Data Clustering Based on Particle Swarm Optimization and Genetic Algorithm" *International Journal of Advanced Intelligence Paradigms* 14(3/4): 345-358 (2019).
5. **S Kumar** & BK Tripathi "On the Learning Machine in Quaternionic Domain and Its Application" *International Journal of Advanced Intelligence Paradigms* 25(1/2): 107-128 (2023).
6. **S Kumar** & BK Tripathi "3D Face Recognition Based on Neural Network in Quaternionic Domain" *International Journal of Soft Computing (IJSC)* 13(1): 6-17 (2018).
7. **S Kumar** & BK Tripathi "Machine Learning with Resilient Propagation in Quaternionic Domain" *International Journal of Intelligent Engineering and Systems* 10(4): 205-216 (2017).
8. **S Kumar** & BK Tripathi "Learning of The Neural System Based on Nonlinear Aggregation Operations of Quaternionic-Valued Signals in Neuron Cell" *International Journal of Mathematics and Computers in Simulation* 11: 125-134 (2017).
9. **S Kumar** & BK Tripathi "On the Root-Power Mean Aggregation Based Neuron in Quaternionic Domain" *International Journal of Intelligent Systems and Applications* 10(7): 11-26 (2018).

International Conferences

1. V Yadav, **S Kumar** & U Rastogi "Progressing Alzheimer's Diagnosis with Ensemble CNN Model" In *2025 3rd International Conference on Disruptive Technologies (ICDT)*, pp. 1134-1138. IEEE, 2025.
2. U Gupta, T Singh, V Singh, U Rastogi & **S Kumar** "Book Recommendation

System Using Hybrid Content and Collaborative Filtering Techniques" In *2025 3rd International Conference on Disruptive Technologies (ICDT)*, pp. 1233-1238. IEEE, 2025.

3. **S Kumar**, A Yadav, A Varshney, A Sharma & Shivani "Comparative Analysis of U-Net Models Using ResNet34, InceptionV3, and VGG16 for the Processing of Satellite Images" *2024 IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI)* 2: 6 (2024).
4. U Rastogi, P Pal, K Gupta, K Arora & **S Kumar** "Congestion Control Using Software Defined Network" *7th International Joint Conference on Computing Sciences* 100: 8 (2024)
5. A Bisaria, D Chauhan, H Varshney, **S Kumar**, U Rastogi & V Sharma "Human Detection to Mitigate Excessive Electrical Energy Usage in Communal Spaces" IEEE *2024 International Conference on Intelligent Systems for Cybersecurity (ISCS)*, (2024).
6. U Rastogi, D Jain, D Gaur, **S Kumar** "Decentralized System for Counterfeit Product Detection using Blockchain Technology" *IEEE 2024 International Conference on Intelligent Systems for Cybersecurity (ISCS)*, (2024).
7. A Singh, A Agarwal, A Kumar, U Rastogi & **S Kumar** "A Comprehensive Approach to Stress Detection and Management Using Machine Learning, Deep Learning, and Chatbot Integration" *IEEE 2024 15th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, (2024).
8. M Ranjan & **S Kumar**, "Modeling of progressive Alzheimer's disease using machine learning algorithms" *Artificial Intelligence, Blockchain, Computing and Security*,1: 879-885, (2023). CRC Press.
9. M Ranjan & **S Kumar**, "Modeling and Early Diagnosis of Alzheimer's Disease Using Recurrent Neural Network" *International Conference on Intelligent Computing Systems and Applications*, 535-546, (2023). Springer.
10. GS Rawat, **S Kumar** & U Rastogi "Utilizing QUALNET for Analyzing MANET Protocols" IEEE *2022 3rd International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT)*, (2022).
11. U Rastogi, **S Kumar** & G Rawat "Feature Extraction in Arabic Sign Language using Hand and Wrist Localization Techniques" *IEEE 2022 Seventh International Conference on Parallel, Distributed and Grid Computing (PDGC)*, 721-726, (2022).
12. N Bagwari, **S Kumar** & VS Verma "Comparative analysis of differential evolution algorithm using shannon, fuzzy, and cosine similarity entropy functions for satellite image segmentation" *IEEE 2022 3rd International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT)*, (2022).
13. **S Kumar** & BK Tripathi "Modelling of threat evaluation for dynamic targets using Bayesian network approach" *Procedia Technology*, 24: 1268-1275, (2016)
14. **S Kumar** & AM Dixit "Threat evaluation modelling for dynamic targets using fuzzy logic approach" 143-149, (2012).

Book Chapters

1. M Ranjan & **S Kumar**, "Modeling of progressive Alzheimer's disease using machine learning algorithms" *Artificial Intelligence, Blockchain, Computing and Security*,1: 879-885, (2023). CRC Press.
2. M Ranjan & **S Kumar** "Modeling and Early Diagnosis of Alzheimer's Disease Using Recurrent Neural Network" *Intelligent Computing Systems and Applications*. Lecture Notes in Networks and Systems, vol 1010. Springer, Singapore. (2024)

Patents

1. **S Kumar et al.** "Machine Learning and Arduino-Powered Automated Recycling System" App. No. 202511002752. (2025)
2. **S Kumar et al.** "Early Forest Fire Prediction using IoT and AI Technologies" App. No.: 202411095469, (2024)
3. **S Kumar et al.** "Method and System for Enhanced Satellite Image Processing and Analysis" App. No.: 202411017148, (2024)
4. **S Kumar et al.** "A Novel System for Loan Eligibility Based on Informal Financial Transactions Information without User Credit Score" App. No.: 202311028851, (2023)
5. **S Kumar et al.** "Automated Expense Tracking System and Method for Web-Based Applications using Artificial Intelligence" App. No.: 202311025847, (2023)
6. **S Kumar et al.** "Feature Engineering to Heterogeneous Cross Software Projects Defect Prediction" App. No.: 202211075748, (2023)
7. **S Kumar et al.** "AI Based Wrist Band for Women Safety" App. No.: 376261-001, (2022)

Professional Activities

Jan-Apr, 2023	Successfully completed NPTEL course on "**Compiler Design**" and awarded Silver Medal.
Jan-Apr, 2023	Successfully completed NPTEL course on "**Deep Learning**"
Feb 15-19, 2023	One Week FDP on "**ML/DL for Data Science and Analytics using Python**" organized by Department of Information Technology, NIT Jalandhar.
Apr 24-29, 2023	One week FDP on "Machine Learning in Big Data Applications and Security Challenges" organized by CSE Dept., MLR Institute of Technology, Hyderabad
Jun 06-10, 2023	One week FDP on "Artificial Intelligence in Signal & Image Processing" conducted by VIT Chennai
Jun 27-29, 2023	FDP on "Recommendation System: Opportunities, Challenges and Future Scope" organized by VIT Chennai
Jul 03-14, 2023	Two weeks FDP on "**Data Analytics using Microsoft Power BI and Qlik Sense Platform**" Organized by SDFS Dept. KIET Ghaziabad and executed by Data Engineers from Lagozon Technologies.
Aug 21-25, 2023	One week FDP on "**Cloud Infrastructure (AWS)**" by MLR Institute of Technology, Telangana in collaboration with Brainovision Solutions India Pvt Ltd and AICTE.
Dec 05-09, 2023	One week FDP on "Future Trends & Advances in Emerging Technologies" organized by School of Computer Applications, NIET Gr. Noida.

Dec 19-23, 2023	One week FDP on “Teaching Pedagogy for Effective Teaching Learning Process ” Organized by KIET Ghaziabad
Feb 13-17, 2024	One week FDP on “Intellectual Property Rights, Product Development & Entrepreneurship” organized by Poornima Innovation & Incubation Cell, PCE, Jaipur, Rajasthan, India and IPR, R&D Cell, Poornima College of Engineering, Jaipur, Rajasthan
Mar 18-22, 2024	One week FDP on “Cognitive Computing for Smart Applications” organized by Department of Artificial Intelligence & Data Science, Vishwakarma Institute of Information Technology, Pune.
May 13-17, 2024	One week FDP on “Advances of Computing Technology” organized by Department of Computer Science & engineering, Amity University, Noida.
Jan 8-13, 2024	One week FDP on “Deep Learning for Visual Computing” organized by KIET Ghaziabad and sponsored by ATAL AICTE.
Nov 25-30, 2024	One week FDP on “Innovative Applications and Ethical Considerations of Artificial Intelligence in Modern Research” organized by Bhagwan Parshuram Institute of Technology and sponsored by ATAL AICTE.
Dec 2-7, 2024	One week FDP on “Blockchain and Cyber Security: A Technological Transformation for Smart City Infrastructure” organized by Priyadarshini College of Engineering and sponsored by ATAL AICTE.
Dec 9-12, 2024	One week FDP on “Applications of AI for a Better Tomorrow” organized by Vellore Institute of Technology, Vellore and sponsored by ATAL AICTE.
Feb 3-8, 2025	One week FDP on “Artificial Intelligence and Machine Learning” organized by E&ICT, Academy IIT Guwahati.
Feb 10-14, 2025	One week FDP on “Computer Vision & Generative AI with NVIDIA DGX-A100” organized by Department of CSE (AI) and CSE (AI&ML) at KIET Ghaziabad.
Feb 22-28, 2025	One week FDP on “Unleashing Generative AI: Techniques and Applications” organized by KIET Ghaziabad and sponsored by ATAL AICTE.

Administrative Responsibilities

2018-21 at AKGEC, Ghaziabad

- Head of Big Data Centre of Excellence at Information Technology
- Member in NBA Committee
- Establishment of Research Cell in IT Department
- Class Coordinator
- Faculty Incharge of Data Science & Deep Learning Lab, CSE Department

2021-25 at KIET Ghaziabad

- Head of School of AI, ML & Data science, Innovation Center
- Faculty Coordinator of NBA Criterion
- Member of NAAC Team
- Result Analysis Coordinator
- Class Coordinator
- Subject Coordinator
- BOS Member
- Research Faculty

Awards & Honors

2022-23	CV Raman Award for best researcher at KIET Ghaziabad on Teacher’s Day
2022-23	Expert Lecture on “Federated Learning” in FDP at KIET, Ghaziabad
2021-22	Outstanding Contribution Award for the establishment of MYCIN Club, Innovation Centre, KIET Ghaziabad

2021-23	Cash Prize of Rs. 90,000 for paper publications
2019-20	Best paper and best presentation award in National Conference at AKGEC Ghaziabad
2014-17	Received Institute Scholarship from TEQIP-II Scheme for PhD
2010-12	Received Institute Scholarship from Ministry of Human Resource Development (MHRD), India for Postgraduate Studies (M. Tech)

Research & Guidance

Reviewer (Peer Reviewed Journals)

- Complex & Intelligent System, Springer
- Multimedia Tools & Application, Springer
- Scientific Reports, Nature
- Nonlinear System, Springer
- IEEE Transactions on Neural Networks and Learning Systems, etc.

Guidance/Supervision

PhD Scholar

- Neha Bagwari (Pursuing) enrolled with AKTU, Lucknow
- Umang Rastogi (Pursuing) enrolled with SRM University, Modinagar

M. Tech. Scholar

- Mitu Ranjan (Awarded)
- Guided various students of UG level

Computer skills

Prog. Languages	C, Python, MATLAB
Familiar With Type Setting	LaTeX, Microsoft Office, Open Office

Personal Information

Father's Name	Sri Rajdeo Singh
Mother's Name	Late Smt. Vimla Devi
Date of Birth	18 Aug 1985
Gender	Male
Marital Status	Married
Nationality	Indian

I, Sushil Kumar do hereby confirm that the information given above is true to the best of my knowledge.

Dr. Sushil Kumar