CURRICULUM VITAE

1. Name **: Akashdeep**
2. Designation : Associate Professor
3. Department : Computer Science and Engineering
4. Address : Room # 212, Academic Block # 1,
UIET, Panjab University, Sector-25, Chandigarh (UT) -India
E-mail: akashdeep@pu.ac.in
akash.akashdeepsharma@gmail.com
Phone: 91-9814925790,

Residential: H.No T-II, #40, PU Residential Complex,

Sector25,Chandigarh (U.T.)

5. Educational Background:

Examination	University/Board	Year
Ph.D. (Computer Science & Engineering)	Guru Nanak Dev University, Amritsar	2015
M. Tech. (Computer Science & Engineering)	Punjabi University Patiala	2005
B.Tech (Computer Science & Engineering)	Punjab Technical University, Jalandhar, India	2002

6. Research Areas : Machine Learning, Deep Learning, Video Analytics, Soft Computing,
7. Experience : 14 + Years Teaching and Research
8. Teaching Subjects : Machine Learning, Compiler Design, Data Structure & Algorithms, Object Oriented Programming, Soft Computing, Programming C/C++.

9. Sponsored Projects/Consultancy Work:

- Principal Investigator for project entitled "Generative Adversarial Network(GANs) for unmasking blurred and covered faces" funded by AICTE(All India Council of Technical Education) New Delhi under RPS scheme 2020-21- **Budget Allocation: 10.62 Lakhs (~USD 15K)**

- Principal Investigator for project entitled "Design of Monitoring and Surveillance System for Active Fire Locations in the state of Haryana" funded by 5.50 Lakhs, Department of Agriculture and Family Welfare, Haryana- **Budget Allocation 5.50 Lakhs(~USD 7K), 2019-20**

- Co-Principal Investigator in project entitled "Multi-Modal Framework for Monitoring Active Fire Locations (AFL) and Precision in Allied Agricultural Activities using Communication Technologies" by CC&BT, Ministry of Electronics and IT, New Delhi Government of India **Budget Allocation: Rs 81.25 Lakhs(~USD 100K), 2020-2024**

- Co-Principal Investigator in project entitled Development of 4G/5G based UAV Augmented Intelligent Monitoring and Surveillance System funded by CC&BT, Ministry of Electronics and IT, New Delhi, Government of India and Coral Telecom Ltd, **Budget Allocation: Rs 186 Lakhs (~USD 224K) 2019-2023**

- Co-Principal Investigator for project entitled Machine Learning based Sentiment Analysis System for Multiple Domains funded by Kingdom Of Saudi Arabia Ministry Of Education, King Abdulaziz University- **Budget allocation- USD 7000**

- Co-Principal Investigator for project entitled "A Hybrid Word Embedding driven Deep Learning Based Sentiment Analysis System" funded by Kingdom Of Saudi Arabia Ministry Of Education, King Abdulaziz University- **Budget allocation- USD 3500** June 2022

- Co-Principal Investigator in Traffic Sensing and Information Technologies Theme under Design and Innovation Center, funded by MHRD- **Budget Allocation 695 lakhs (~USD 850K)**

- Research grant for GPU support to the tune of **Rs 1.50 lakhs from NVIDIA Corp Ltd (~USD 2000)**

10. Patents

- "A system to unmask identities behind face masks" with Application No. 202111059227A, The Patent Office Journal No. 52/2021 **Published**

11. Extension and Research Interaction:

- Chaired number of sessions in various National and International conferences
- Invited talks (15+) on different occasions at various institutes of India.
- Attended a number of training programmes at various institutes.
- Coordinating Faculty development programme on Machine Learning and Pattern Recognition
- Conducted FDPs on Machine and Deep Learning, Python Programming.

12. Selected List of Publications:-

International Journals

i. Surbhi Kapoor, Akashdeep, Amandeep Verma, Diving deep into human action recognition in aerial videos: A survey", Journal of Visual Communication and Image Representation, IF 2.6, https://www.sciencedirect.com/science/article/pii/S1047320324002542?via% 3Dihub, 2024.

ii. Tarun Vats, Shrey Mehra, Uday Madan, Amit Chhabra, Akashdeep Sharma, Kunal Chhabra,Sarabjeet Singh, Utkarsh Chauhan, "NeuroRF FarmSense: IoT-fueled precision agriculture transformed for superior crop care" International Journal of Cognitive Computing in Engineering, Volume 5, 2024, Pages 425-435, Scopus.

iii. Osho Sharma, Arvind Kalia, Akashdeep, "MIGAN: GAN for facilitating malware image synthesis with improved malware classification on novel dataset" Expert Systems with Applications, Elsevier, **IF 8.665, SCI Indexed,** Vol 241, May 2024. https://www.sciencedirect.com/science/article/pii/S0957417423031809

iv. A. K. Sangaiah, F. N. Yu, Y. B. Lin, W. C. Shen and Akashdeep Sharma, "UAV T-YOLO-Rice: An Enhanced Tiny Yolo Networks for Rice Leaves Diseases Detection in Paddy Agronomy," IEEE Transactions on Network Science and Engineering, doi: 10.1109/TNSE.2024.3350640 **SCI IF 6.7. https://ieeexplore.ieee.org/document/10387738/**

v. Khaled Hamed Alyoubi and Fahd Saleh Alotaibi, Akhil Kumar, Vishal Gupta and Akashdeep Sharma, A novel multi-layer feature fusion-based BERT-CNN for sentence representation learning and classification, Robotic Intelligence and Automations, vol 43 (6), 17 November 2023, SCI **IF 2.1**

vi. Deeksha Gupta, Akashdeep, "A two-stage attention augmented fully convolutional network-based dynamic video summarization. " Multimedia Systems , Springer **SCI IF 3.9, August 2023**

vii. Payal, Akashdeep, Raman Singh, "Deep Learning-Based High Performance Classification Architecture For Low-Altitude Aerial Images" Multimedia Tools and Applications, Springer **SCI IF 2.757, July 2023**

viii. Akhil Kumar, Akashdeep Sharma, Manisha Kaushal,"SAM C-GAN: A Method for Removal of Face Masks from Masked Faces" Signal, Image and Video Processing, Published May 2023, Springer,**IF 1.583 https://link.springer.com/article/10.1007/s11760-023-02602-2**

ix. Abhishek Maurya, Payal Mittal, Akashdeep, "A Modified U-Net-Based Architecture For Segmentation Of Satellite Images On A Novel Dataset" Ecological Informatics, Volume 75, July 2023, 102078 IF 4.498, https://www.sciencedirect.com/science/article/pii/S1574954123001073

x. Surbhi Kapoor, Amandeep Verma, Sarbjeet Singh, Akashdeep, " Aeriform In-Action: A Novel Dataset for Human Action Recognition in Aerial Videos", Pattern Recognition, Elsevier, IF 8.518 August 2023. https://www.sciencedirect.com/science/article/pii/S0031320323002054

xi. Khaled Hamed Alyoubi, Akashdeep,"Deep Recurrent Neural Model for Multi Domain Sentiment Analysis with Attention Mechanism" Wireless Personal Communication, Springer, IF 2.017, March 2023. https://link.springer.com/article/10.1007/s11277-023-10274-x

xii. Khaled Hamed Alyoubi, Akashdeep, "A deep CRNN based sentiment analysis system with hybrid BERT embedding, International Journal of Pattern Recognition and Artificial Intelligence, World Scientific, **IF:2.89 (Accepted) 2023.**

https://www.worldscientific.com/doi/10.1142/S0218001423520067

xiii. Deeksha Gupta, Akashdeep, "A Comprehensive Study of Automatic Video Summarization Techniques" Artificial Intelligence Review, Springer, **IF 9.588 (Online) March 2023. https://link.springer.com/article/10.1007/s10462-023-10429-z**

xiv. Surbhi Kapoor, Amandeep Verma, Akashdeep, "A Comparative Study on Deep learning and Machine Learning Models for Human Action Recognition In Aerial Videos", International Arab Journal of Information Technology (IAJIT), **Vol 20, No. 4, July 2023, IF 0.967;**

xv. Osho Sharma, Arvind Kalia, Akashdeep, "Windows and IoT malware visualization and classification with deep CNN and Xception CNN using Markov images" Journal of Intelligent Information Systems, Springer IF 3.56, 349–375 (09, august 2023). https://doi.org/10.1007/s10844-022-00734-4

xvi. Payal Mittal, Raman Singh, Akashdeep Sharma, "Deformable Patch based MLP Mixer Model for Forest Fire Aerial Image Classification" Journal of Applied Remote Sensing, **IF 1.57, SCI Indexed**, 17(2) 022203, https://doi.org/10.1117/1.JRS.17.022203

xvii. Payal Mittal, Raman Singh, Akashdeep Sharma, "A Simulated Dataset in Aerial Images using Simulink for Object Detection and Recognition" International Journal of Cognitive Computing in Engineering (Scopus), https://www.sciencedirect.com/science/article/pii/S2666307422000146

xviii. Payal Mittal, Vishal Dhull, Raman Singh, **Akashdeep Sharma**, Dilated Convolution based RCNN using Feature Fusion for Low-Altitude Aerial Objects, Expert Systems with Applications, Elsevier, **IF 8.665, SCI Indexed**, (Accepted), 2022

xix. Deeksha Gupta, Pavit Kaur, Reetika Gupta, Akashdeep, "Experimental Analysis of Clustering based models and Proposal of a novel Evaluation metric for static video summarization" Multimedia Tools and Applications, Springer **SCI IF 2.757, November 2022;** https://link.springer.com/article/10.1007/s11042-022-14081-7

xx. Akhil Kumar, Arvind Kalia, Kinshuk Verma, Akashdeep Sharma, Manisha Kaushal, Aayushi Kalia, "Scaling Up Face Masks Classification Using a Deep Neural Network and Classical Method Inspired Hybrid Technique", KSII Transactions on Internet and Information Systems. (SCI-E Indexed IF: 0.857) **Accepted, 2022**

xxi. Payal Mittal, **Akashdeep Sharma,** Raman Singh, Arun Sangaiah, On the Performance Evaluation of Object Classification Models in Low Altitude Aerial Data, The Journal of Super Computing, **IF 2.474, SCI Indexed,** March 2022, (Accepted)

xxii. Payal Mittal, **Akashdeep Sharma**, Raman Singh, A Feature Pyramid based Multi-Stage Framework for Object Detection in Low-Altitude UAV Images, International Journal on Artificial Intelligence Tools, Vol. 31, No. 2 (2022) 2250028, SCI-IF 1.208

xxiii. Akhil Kumar, Arvind Kalia, **Akashdeep Sharma**, Manisha Kaushal, A Hybrid Tiny YOLO v4 SPP Module based Improved Face Mask Detection Vision System, Journal of Ambient Intelligence and Humanized Computing, Springer. **(Accepted) (SCI- IF: 7.104) October, 2021, https://doi.org/10.1007/s12652-021-03541-x**

xxiv. Mohit Nagpal, **Akashdeep Sharma**, Manisha Kaushal, A Feature Reduced Intrusion Detection System with Optimized SVM Using Big Bang Big Crunch Optimization, Wireless Personal Communications, 122, pages 1939–1965 (2022) **SCI IF : 1.671.** https://link.springer.com/article/10.1007/s11277-021-08975-2

xxv. **Akashdeep Sharma,** Harish Kumar, Kapish Mittal, Sakshi Kauhsal, Manisha Kaushal, Divyam Gupta, Abheer Narula, IoT and deep learning-inspired multi-model framework for monitoring Active Fire Locations in Agricultural Activities, Computers & Electrical Engineering Volume 93, July 2021, 107216, **IF 3.818. SCI indexed.**

xxvi. Akhil Kumar, Arvind Kalia, Kinshuk Verma, **Akashdeep Sharma,** Manisha Kaushal, Scaling up face masks detection with YOLO on a novel dataset, Optik Volume 239, August 2021, 166744. **IF 2.443 SCI-Indexed.**

xxvii. Payal Mittal, **Akashdeep**, Raman Singh, Deep learning-based object detection in low-altitude UAV datasets: A survey, Image and Vision Computing, vol 104, December 2020. **SCI IF :3.103.**

xxviii. Manisha Kaushal, Baljit Singh, **Akashdeep,** Soft Computing based object detection and tracking approaches: State-of-the-Art survey, **IF 5.472,** SCI, Applied Soft Computing 70 (2018) 423–464. https://www.sciencedirect.com/science/article/pii/S1568494618302965

xxix. **Akashdeep,** Ishfaq Manzoor, Neeraj, " A feature-reduced intrusion detection system using ANN classifier" Expert Systems with Applications, Elsevier, **IF 6.954, SCI Indexed**,

Vol 88, 2017, 249-257. https://www.sciencedirect.com/science/article/pii/S0957417417304748

xxx. Manisha Kaushal, Baljit Singh, **Akashdeep,** "Performance evaluation of fuzzy 2-partition entropy and big bang big crunch optimization based object detection and tracking approach" Multidimensional Systems and Signal Processing, Springer, 29, 1579–1611(2018) **IF: 2.030, SCI Indexed**. Available at :- https://link.springer.com/content/pdf/10.1007%2Fs11045-017-0515-7.pdf

xxxi. **Akashdeep,** Manisha Kaushal, Baljit Singh, "Proposal and Evaluation of a Fuzzy Logic-Driven Resource Allocation Mechanism" International Journal of Fuzzy Systems, **IF: 4.673**, **SCI Indexed**, Vol. 19 (2), (2017) Available at : https://link.springer.com/article/10.1007/s40815-016-0185-x.

xxxii. Manisha Kaushal, Baljit Singh, **Akashdeep,** "Water cycle algorithm based multi-objective contrast enhancement approach", Optik - International Journal for Light and Electron Optics, **IF 2.443 SCI-Indexed**. June 2017.

xxxiii. **Akashdeep,** K. S. Kahlon, Manisha Kaushal, "Analysis of a queue length aware and latency guarantee fuzzy-based adaptive resource allocator for WIMAX networks", Optik - International Journal for Light and Electron Optics, Available online 17 October 2015. **IF 2.443 SCI-Indexed** Available at:- http://www.sciencedirect.com/science/article/pii/S0030402615014448

xxxiv. **Akashdeep,** K.S. Kahlon, Harish Kumar, "Survey of scheduling algorithms in IEEE 802.16 PMP networks", Egyptian Informatics Journal, Elsevier Publication, 2014 vol 15, No. 1, pp 25-36. **IF: 3.943**

Available at:- http://www.sciencedirect.com /science/article/pii/S1110866513000509.

xxxv. **Akashdeep,** K.S. Kahlon, "An Embedded Expert System for Adaptive WFQ Scheduling of IEEE 802.16 networks", Elsevier Journal of Expert System with Applications, 2014, vol 41, No. 16. **IF : 6.954,** SCI Indexed.

Available at:- http://www.sciencedirect.com/science/article/pii/ S0957417414003352.

xxxvi. Akashdeep, K. S. Kahlon, *"A Neural Based Proposal for scheduling of IEEE 802.16 networks*", International Journal of Engineering and Technology, 2012, Vol. 4, No 5, pp 328-332.

xxxvii. Akashdeep, K.S. Kahlon, *"An Adaptive Weight Calculation based Bandwidth Allocation Scheme for IEEE 802.16 Networks",* Journal of Emerging Technologies in Web Intelligence, Academy Publisher 2014, Scopus, Vol 6. , No. 1 pp 142-147.

xxxviii. Akashdeep, K. S. Kahlon, "A queue based algorithm for scheduling in IEEE 802.16 networks", *International Journal of Advance Research in Computer Science and Software Engineering*, vol 2, No. 7, July 2013.

xxxix. Akashdeep, G. Singh, "Priority based uplink scheduler for IEEE 802.16 networks" *International Journal of Computer Science and Engineering*, vol 3, issue 6, 2012.

xl. M. Mahajan, Akashdeep,"Steganography in Colored Images Using Information Reflector with 2^k Correction", *International Journal of Computer Applications* ,2012

Book Chapters

i. **Akashdeep, "**Quality of Service Analysis of Fuzzy Based Resource Allocator for Wimax Networks", S.C. Satapathy et al. (eds.), Emerging ICT for Bridging the Future – Volume 2, 157 Advances in Intelligent Systems and Computing 338, Springer International Publishing Switzerland 2015, ISBN 978-3-319-13727-8 ISBN 978-3-319-13728-5 (eBook), pp DOI: 10.1007/978-3-319-13731-5_18

ii. **Akashdeep**, "Bandwidth Allocation Scheme in Wimax Using Fuzzy Logic", S.C. Satapathy et al. (eds.), Emerging ICT for Bridging the Future – Volume 1, Advances in Intelligent Systems and Computing 338, Springer International Publishing Switzerland, 2015, ISBN 978-3-319-13730-8 , ISBN 978-3-319-13731-5 (eBook), pp 157-163 DOI: 10.1007/978-3-319-13728-5_40

iii. Akashdeep, "Fuzzy Based Quality of Service Analysis of Scheduler for WiMAX Networks", Information System design and Intelligent Applications, Springer International Publishing Switzerland, 2015, Volume 1, pp 667-674, Editors:- J. K. Mandal, Suresh Chandra Satapathy, Manas Kumar Sanyal, Partha Pratim Sarkar, Anirban Mukhopadhyay, Online ISBN 978-81-322-2250-7, Print ISBN 978-81-322-2249-1

iv. Akashdeep, K.S. Kahlon, *"WiMAX in Education: Designing a wireless networking lab"*, Proceedings of International Conference on Transformations in Engineering Education 2014. Available at:- **http://www.springer.com**/engineering/book/978-81-322-1930-9.

v. Akashdeep, "A Fuzzy Computationally Intelligent System for Resource Allocation in WiMAX", LNCS 8956, Distributed Computing and Internet Technology, Editors: Natarajan, Raja, Barua, Gautam, Patra, Manas Ranjan pp. 257–260, 2015. Springer International Publishing Switzerland 2015, pp 257-261. ISBN 978-3-319-14977-6.

vi. Akashdeep, "Intelligently Modified WFQ Algorithm for IEEE 802.16 Resource Allocations", Proceedings of First International Conference on Information and Communication Technology for Intelligent Systems: Volume 2, Editors: Satapathy, Suresh Chandra, Das, Swagatam (Eds.), Smart Innovations Systems and Technologies, Springer International Publishing, 2016, ISBN 978-3-319-30927-9, pp 115-124

vii. Akashdeep, "Fairness and Performance Evaluation of Fuzzy Based Resource Allocator for IEEE 802.16 Networks" Annual Convention of the Computer Society of India, New Delhi, Accepted 2015.

International Conferences

i. Akashdeep, "A survey of Evolution of IEEE 802.16 certificate and Standardization", 4th International conference on Innovations in Computer Science and Engineering(ICICSE-2016), July 22-23, 2016, Guru Nanak Institute of Technology, Hyderabad, India.

ii. Akashdeep, "Implementation of Fuzzy Logic Scheduler for WiMAX in Qualnet", 4th International conference on Innovations in Computer Science and Engineering(ICICSE-2016), July 22-23, 2016, Guru Nanak Institute of Technology, Hyderabad, India.

iii. Akashdeep, "Fairness analysis of Fuzzy Adaptive Scheduling Architecture", 4th International conference on Innovations in Computer Science and Engineering(ICICSE-2016), July 22-23, 2016, Guru Nanak Institute of Technology, Hyderabad, India.

iv. Neeraj Kumar, Akashdeep, "A comprehensive Analysis of Moving Object Detection Approaches on moving camera", 4th International conference on Innovations in Computer Science and Engineering(ICICSE-2016), July 22-23, 2016, Guru Nanak Institute of Technology, Hyderabad, India.

v. Akashdeep, "An Adaptive scheduling ploy for WiMAX networks" 18th Punjab Science Congress , Desh Bhagat University, Mandi Gobindgarh,2014

vi. Akashdeep, "Advancements in Information Technology", National Symposium on Advancements in IT, Ludhiana, 2015.

vii. Manisha Mahajan, Akashdeep, "Data Hiding in Coloured images using Arbitrary Channel as Information Reflector", 5th International Conference on Downtrend Challenges in IT, PCTE Ludhiana. 2010

viii. Mohit Kumar, Akashdeep, Sushil Kumar,"Testability Factor for Aspect oriented Programs" International Symposium on Computer Engineering and Technology, RIMT-IET Mandigobindgarh. ISBN : 978-81-910304-0-2, 2010,pp:-163-166

ix. Gaurav Garg, Sakshi Kaushal, Akashdeep, " Study on Manets Network Layer Attacks" 4th IEEE International Conference on Computing, Communication and Networking Technologies. 4th -6th July 2013, Vivekananda College of Engineering for Woman , Tamilnadu.

x. Mohit Kumar, Akashdeep, "A study of Aspect Oriented Testing techniques" 5th International Conference on Downtrend Challenges in IT, PCTE Ludhiana, 2009.

Reviewer

- Expert Systems with Applications.
- Journal of Ambient Intelligence and Humanised computing
- Applied Soft Computing
- Computers & Electrical Engineering
- Multimedia Tools and Applications
- IEEE transactions onIntelligent Vehicles
- Sustainable Cities and Society
- Computer Methods and Programs in Biomedicine
- Neural Processing Letters
- International Journal of Computers and Applications.
- Artificial Intelligence Review
- Journal of Marine Science and Engineering by MDPI
- Information Processing in Agriculture
- EURASIP Journal on Wireless Communications and Networking
- Journal of Systems Architecture
- Imaging Science Journal
- IET Image Processing
- Telecommunication Systems.
- Applied Mathematical Modelling

and many more renowned journals

Membership and others:

- Board of Studies in CSE of Panjab University Chandigarh
- Member, Faculty of Engineering, Panjab University Chandigarh
- Member of IE(I)
- Life Member of Computer Society of India
- Life member of International Association of Engineers
- Member of various departmental committees like Academic, Technical Committee, Research Monitoring Committee etc.

13. Language Proficiency: Hindi, Punjabi, English

14. Research Students:

Phd

S. N	Name	Completion Year	Topic(Tentative)
1	Payal	Completed 2022	Deep Learning based object Detection and Tracking in low altitude aerial images
2	Akhil Kumar	Completed 2021	Face Mask Detection and Classification:Neural Network Approach
3	Diksha	2018 (enrolled)	Deep learning based Dynamic Video Summarization
4	Surbhi	2018 (enrolled)	Human Activity Recognition in low altitude aerial videos
5	Paridhi	2022 (enrolled)	Development of Vision guided Navigation Technique for Autonomous Unmanned Aerial Vehicles

M.E/M.Tech

S.N.	Name	Completion Year	Topic
1	Navneet Kaur	2008	A study of various Object oriented metrics
2	Mohit Kumar	2010	Testability Factor for Aspect Oriented Techniques
3	Manish Mahajan	2010	Image Steganography with 2(k) correction
4	Gurpreet Singh	2011	Design and Implementation of a WiMAX Scheduler
5	Gaurav Garg	2013	Survey of wormhole attacks on MANETS
6	Neha Bangar	2013	Image Segmentation in CT images
7	Pallivi Grover	2014	Proposal for scheduling of nrtPS traffic for IEEE 802.16 networks
8	Pankaj Singla	2015	Underwater moving object detection

9	Ishfaq	2015	A neural based feature reduced intrusion detection system
10	Neeraj	2017	Geometry based Moving Object Detection in Moving camera
11	Simranpreet Kaur	2017	A deep learning based Lung segmentation approach
12	Lavisha	2018	A Hybrid Intrusion Detection System
13	Anam Bansal	2019	Event based Acoustics detection
14	Naman	2020	Deep learning based approach for shadow detection
15	Yukti	2019 (ongoing)	Activity Recognition in Drone Videos
16	Sahil	ongoing	Cloud Removal from Satellite Images
17	Abhisek Maurya	2022	Deep learning based agriculture image segmentation from satellite data
18	Avinash Kaur	2023	A yolov8 and deepsort inspired vision based tracker for UAVs
19	Tarun Kumar	2023	Ensemble model for class wise DDOs Attack classification

Current Areas of Research:

Working in the area of Machine Learning, Deep Learning and soft computing for

- Generative AI
- UAVs videos and analytics
- Deep Learning and Machine Learning
- Object detection and tracking in UAV videos
- Traffic sensing and Video Analytics
- Intrusion Detection for Wireless/IoT Networks

(AKASHDEEP)