



**Ajay Mittal**  
**Professor, UIET, Panjab University,**  
**Chandigarh-160014, INDIA**

## Curriculum Vitae

### A. General

**Name:** Ajay Mittal  
**Affiliation:** Computer Science and Engineering, University Institute of Engineering and Technology, Panjab University, Chandigarh  
**Correspondence Address:** UIET, Panjab University South Campus, Sector-25, Chandigarh-160014, INDIA  
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### B. Academic Qualification

Examination Passed	University/ Board	Year of Passing	Division
Ph.D.	PEC University of Technology	2013	-
M.E. (Computer Sc.& Engg. (IT))	PEC University of Technology	2006	1 <sup>st</sup> with Distinction
B.E. (Computer Engg.)	Maharshi Dayanand University	2001	1 <sup>st</sup> with Honors

**C. Research Interests:** Image Processing, Machine Learning, Medical Image Analysis

### D. Teaching and Research Experience

- Professor (Computer Science and Engineering), University Institute of Engineering and Technology, Panjab University from 23 November 2018 – till date (*Experience- 2 Years 3 Months*)
- Associate Professor (Computer Science and Engineering), University Institute of Engineering and Technology, Panjab University from 23 November 2015 – 22 November 2018 (*Experience- 3 Years*)
- Assistant Professor (Computer Science and Engineering), Punjab Engineering College, Deemed University, Chandigarh from 18 January 2002 to 22 November 2015 (*Experience- 13 Years 10 Months*).

### E. Selected Publications

#### (a) Publications in International Journals

- Monika Bansal, Munish Kumar, Monika Sachdeva, Ajay Mittal, "Transfer learning for image classification using VGG19: Caltech-101 image dataset", Journal of Ambient Intelligence and Humanized Computing, <https://doi.org/10.1007/s12652-021-03488-z>, 17 September 2021, **SCIE IF 7.014**
- Navdeep Kaur, Ajay Mittal, Gurpreem Singh, "Methods for automatic generation of radiological reports of chest radiographs: a comprehensive survey", Multimedia Tools and

Applications, <https://doi.org/10.1007/s11042-021-11272-6>, 9 September 2021, **SCIE IF 2.757**

3. Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "A novel ensemble method for PTB Classification in CXRs", *Wireless Personal Communications*, Vol. 112, pp. 809-826, 2020, doi: <https://doi.org/10.1007/s11277-020-07075-x>, **SCIE, IF: 1.061**
4. Gurpreem Singh, Ajay Mittal, Naveen Aggarwal, "ResDNN: Deep Residual Learning for Natural Image Denoising", *IET Image Processing*, Vol. 14, Issue 11, pp. 2425-2434, 2020, **SCI, IF:1.995**
5. Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "Automated TB classification using ensemble of deep architectures", *Multimedia Tools and Applications*, Vol. 78, Issue 22, pp. 31515-31522, 01 Nov 2019, **SCIE, IF 2.313**
6. Rahul Dev Singh, Ajay Mittal, Rajesh Bhatia, "3D convolutional neural network for object organization: A review", *Multimedia Tools and Applications*, Springer, Vol. 78, pp. 15951-15995, 30 June 2019, **SCIE, IF 2.313**
7. Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "Lung segmentation in Chest radiographs using fully convolutional networks", *Turkish Journal of Electrical Engineering and Computer Sciences*, Vol. 27, Issue 2, pp. 710-722, 2019, **SCIE, WoS, IF: 0.682**
8. Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "Segmentation of lung fields from chest radiographs-a radiomic feature-based approach", *BioMedical Engineering Letters*, Vol 9, Issue 1, pp. 109-117, 2 August 2019, **Scopus Indexed**.
9. Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "An efficient variant of fully-convolutional network for segmenting lung fields from Chest Radiographs", *Wireless Personal Communications (Springer IF 1.20)*, Vol. 101, Issue 3, pp. 1559-1579, August 2018, **SCIE, IF: 1.061**
10. Ajay Mittal, Rahul Hooda, Sanjeev Sofat, "LF-SegNet: A fully convolutional encoder-decoder network for segmenting lung fields from Chest Radiographs", *Wireless Personal Communications*, Vol. 101, Issue 1, pp. 511-529, July 2018, **SCIE, IF: 1.061**
11. Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "Tuberculosis detection from Chest Radiographs: A comprehensive survey on Computer-aided diagnosis techniques", *Current Medical Image Reviews*, Vol. 14, pp. 506-520, 2018, **SCIE, IF 0.812**
12. Ajay Mittal, Rahul Hooda, Sanjeev Sofat, "Lung field segmentation from chest radiographs: a historical review, current status and expectations from deep learning", *IET Image Processing*, Vol. 11, Issue 11, pp. 937-952, November 2017, **SCI, IF:1.995**
13. Ajay Mittal, "Generating Visually appealing QR codes using colour image embedding", *The Imaging Science Journal*, Vol. 65, Issue 1, pp. 1-13, 2017, **SCI, 1.023**
14. Sonam Bansal, Ajay Mittal, "Computer-aided bone tumor segmentation using X-ray Images", *International Journal of Advanced Research in Computer Science and Software Engineering*, pp. 619-625, Vol 3(6), 2013.
15. Kirti, Ajay Mittal, "Automatic Noise identification using GLCM Properties", *International Journal of Advanced Research in Computer Science and Software Engineering*, pp. 943-947, Vol 3(6), 2013.
16. Dheeraj Sinhar, Ajay Mittal, "Vehicle License Plate recognition using Gaussian Hermite Moments and Wavelets", *International Journal of Advanced Research in Computer Science and Software Engineering*, pp. 404-409, Vol 3(7), 2013.
17. Yadraj Meena, Ajay Mittal, "Blobs and Cracks detection on plain ceramic tile surface", *International Journal of Advanced Research in Computer Science and Software Engineering*, pp. 647-652, Vol 3(7), 2013.
18. Surya Kant Singh, Ajay Mittal, "Feature based Obstacle Detection using Phase - based Correspondence Matching and Image Declivity", *CiiT International Journal on Digital Image Processing*, pp. 173-177, Vol. 4(4), 2012.

19. Shivali Saxena, Ajay Mittal, "Ground Plane Estimation for Robot Navigation Using Homography", CiiT International Journal on Digital Image Processing, pp. 611-614, Vol. 3(10), 2011.
20. Arvind Kakria, Ajay Mittal, Prakaram Joshi, "Error Reduction by Artificial Intelligence based Search and Bidirectional Scan in Dynamic Programming in Stereo Vision", CiiT International Journal of Artificial Intelligent Systems and Machine Learning, pp. 138-142, Vol. 1(4), 2009.
21. Ajay Mittal, Sanjeev Sofat, "Open Problems Identified for NETRA: a Vision Rehabilitation Research Project", International Journal of Computer theory and engineering, Vol 5(1), 2013.
22. Ajay Mittal, Sanjeev Sofat, "A novel color coherence vector based obstacle detection algorithm for textured environments", International Journal of Computer theory and engineering, Vol 5(1), 2013.
23. Padmavati, Ajay Mittal, Navdeep Kaur, "Performance Evaluation of Scale Invariant Feature Transform", International Journal of Recent Trends in Engineering, pp. 236-240, Vol. 1, No. 2, May 2009
24. Ajay Mittal, Sanjeev Sofat, "A robust and efficient homography based approach for Ground Plane Detection", BVICAM International Journal of Information Technology, Vol. 4, No. 2, July 2012.
25. Abhay Sharma, Ajay Mittal, "A navigation aid for blinds using stereo vision and vibro-tactile interface", CiiT International Journal of Biometrics and Bioinformatics, Vol. 4(9), 2012.
26. Mamta Sharma, Ajay Mittal, "Stereo Matching Algorithm Based on Region Construction using Colour Segmentation", CiiT International Journal of Digital Image Processing, Vol. 4(14), 2012.

**(b) Publications in Conferences**

1. Ajay Mittal, Sanjeev Sofat, Edwin Hancock, "A statistical operator for detecting weak edges in low contrast images", International Conference on Image Analysis and Recognition, 2012. *[Collaborative Work with University of York, UK]*
2. Ajay Mittal, Sanjeev Sofat, Edwin Hancock, "An efficient scheme for color edge detection in uniform color space", International Conference on Autonomous and Intelligent Systems, 2012. *[Collaborative Work with University of York, UK]*
3. Ajay Mittal, Sanjeev Sofat, Edwin Hancock, "Detection of edges in color images: A review and evaluative comparison of state-of-the art techniques", International Conference on Autonomous and Intelligent Systems, 2012. *[Collaborative Work with University of York, UK]*
4. Ajay Mittal, Abdelaziz Bensrhair, Edwin Hancock, "Obstacle detection by means of stereo feature matching", IEEE International Conference on Image Processing, 2014. *[Collaborative Work with University of York and Insa de Rouen, France]*
5. Ajay Mittal, Kanika Kumar, Sarina Dhamija, Manvjeet Kaur, "Head movement based driver drowsiness detection: A review of state-of-art techniques", 2016 IEEE International Conference on Engineering and Technology, March 2016.
6. Sareena, Ajay Mittal, Manvjeet Kaur, "Computer-aided diagnosis in colorectal cancer: A survey of state of art techniques", 2016 IEEE International Conference on Inventive Computation Technologies, August 2016.
7. Rahul Hooda, Sanjeev Sofat, Simranpreet Kaur, Ajay Mittal, Fabrice Meriaudeau, "Deep-learning: A potential method for tuberculosis detection using chest radiography", 2017 IEEE International Conference on Signal and Image Processing Applications, Sept. 2017. *[Collaborative Work with University of Burgundy, France]*

8. Simranpreet Kaur, Rahul Hooda, Ajay Mittal, Sanjeev Sofat, "Deep CNN-based method for Segmenting Lung fields in digital chest radiographs", International Conference on Communications in Computer and Information Science, July 2017.
9. Gurpreem Singh, Ajay Mittal, Naveen Aggarwal, "Deep Convolutional Neural Network Based Denoiser for Mammographic Images", Advances in Computing and Data Sciences, Springer CCIS 1045, April 2019.
10. Sabrina Dhalla, Ajay Mittal, Savita Gupta, Harleen Singh, "Multi-model Ensemble to classify acute lymphoblastic leukemia in blood smear images", Pattern Recognition proceedings of ICPR International Workshops and Challenges, January 10-15, 2021.
11. Vipasha Abrol, Sabrina Dhalla, Jasleen Saini, Ajay Mittal, Sukhwinder Singh, Savita Gupta, "Automated Segmentation of Leukocytes using Marker-based Watershed Algorithm from Blood Smear Images", in the Proceedings of International Conference on Women Researchers in Electronics and Computing, AIJR Proceedings, 22 Sept. 2021.

## **F. Research Guidance**

### **(a) PhD Guidance: Guided- 1, In Progress- 5**

1. Rahul Hooda, *Design and Development of CAD technique based on multiple pathological indications for PTB from CXRs*, Enrollment No. 15305005, Completed.
2. Kuldeep Kaur, *Design and Development a deep learning approach to segment pulomony nodules from computed tomography*, Enrollment No. 17-18/270/PhD, Synopsis Done.
3. Navdeep Kaur, *A deep learning based approach for automatic radiological report generation from Chest X-ray images*, Synopsis Done
4. Sabrina, *Design and Analysis of Deep Learning Methods to Detect Leukemia from Blood Smear Images*, Synopsis Done
5. Animesh Singh, *Design and Implementation of deep learning-based techniques for interpretation of Indian Sign Language*, Synopsis Done
6. Uma Sharma, Enrolled

### **(b) Master's Thesis Guidance: Guided- 38, Under Supervision- 2**

## **G. Research/Development Projects**

1. Ajay Mittal, *Establishment of Computer Vision Lab*, Punjab Engineering College, 2006-2007, Rs. 3 Lacs
2. Manveet Kaur, Ajay Mittal, Sanjeev Sofat, *Advanced facility in Biometric Sensor Technologies*, Punjab Engineering College, 2012-2015, Rs.18 Lacs
3. Naveen Aggarwal, Ajay Mittal, & others, *Design Innovation Centre, Traffic Sensing and Information Technologies*, Ministry of Human Resource Development, Government of India, 2015-2020, Rs. 695 Lacs
4. Neeru Sahini, G D Puri, Ajay Mittal, *Low-cost handheld pupillometer for widespread use in healthcare settings*, Department of Science and Technology, Government of India, 2018-2020, Rs. 12 Lacs
5. Ajay Mittal, *Deep-learning based solution for TB detection*, Nvidia Corporation, GPU Grant, 2017, Rs. 1.5 Lacs
6. Ajay Mittal, *Design and evaluation of an adaptive feature matching technique for color images*, UKERI India-UK Staff Exchange Programme, 2012, £3000

## **H. Consultancy Projects**

"Social Impact Assessment and Social Impact Management Plan for four-lanning of Jhajjar-Farrukhnagar-Gurugram Road 21.30 Km to 34.80 Km"

PI: Dr Savita Gupta, Co-PIs: Dr Harmesh Kansal, Dr Ajay Mittal, Dr Ramesh Sahini

Duration: 16-10-2019 to 25-Februry-2020

Cost: Rs. 7,14,000/-

## **I. Awards**

1. *Pfizer-IIT IP grant for “AI-based handheld dermoscope for automatic classification of skin diseases in healthcare settings”, March 2020*

## **J. Books Published**

1. Ajay Mittal, “Programming in C: A practical approach”, Pearson Education Inc. (2010)”, ISBN: 9788131729342.
2. Anita Goel, Ajay Mittal, “Computer Fundamentals and Programming in C”, Pearson Education Inc. (2013), ISBN: 9789332519343
3. Ajay Mittal, “Computer Systems and Programming in C”, Pearson Education Inc. (2014), ISBN: 9789332526051
4. Ajay Mittal, Naveen Aggarwal, Santosh Sengar, V Anand, “GATE Mentor 2016: Computer Science and Information Technology”, Cengage Learning (2016).

**(Ajay Mittal)**

**20 October, 2021**