

Dr. Navdeep Kanwal

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Working as Assistant Professor in Department of Computer Science & Engineering, Punjabi University, Patiala, since November 2011.

EXPERIENCE (19 Years)

- Assistant Professor in Department of Computer Science & Engineering, Punjabi University, Patiala since Nov. 2011
- Assistant Professor in Department of Computer Science & Engineering at 'Guru Teg Bahadur Khalsa Institute of Engineering & Technology', Chhapianwali from May, 2011 to Nov, 2011.
- Lecturer in Department of Computer Science & Engineering at 'Guru Teg Bahadur Khalsa Institute of Engineering & Technology', Chhapianwali from June, 2005 to May, 2011.
- Lecturer in Department of Computer Science & Engineering at 'Bhai Gurdas Institute of Engineering & Technology', Sangrur from January, 2005 to June, 2005.
- Software Developer in 'Computer Hawks', Chandigarh from June, 2004 to January, 2005.

PROFESSIONAL QUALIFICATIONS

- **Ph. D.** from IKG PTU, Kapurthala
- **M. Tech.**, CSE from Guru Nanak Dev Engineering College, Ludhiana
- **B. Tech.**, CSE from Guru Teg Bahadur Khalsa Institute of Engineering & Technology, Chhapianwali
- **Diploma** in CSE from Guru Teg Bahadur Khalsa Polytechnic College, Chhapianwali

SUBJECTS TEACHING (PG / UG)

Computer Graphics, Data Structures, Object Oriented Programming, Digital Image Processing, Software Engineering, Operating System

SOFTWARE SKILLS

Programming (C / C++, Visual Basic, Python), Web (PHP, Joomla/Wordpress, Dreamweaver, WAMP), DTP/Designing (Corel Draw, Adobe Photoshop), Tools/Libraries (Matlab, Latex, Image Forensic Tools), Operating System (Windows, debian distributions of Linux)

RESEARCH AREA

Digital Image Forensics, Multimedia Processing, Machine Learning

PUBLICATIONS / CONFERENCES

International Journal (22), International Conference (15), National Conference (5)

RESEARCH INDICES

Scopus: Citation Index: 115 h-index: 7
Google Scholar: Citation Index: 217 h-index: 8
M. Tech. Thesis Supervised: 28

EXPERT TALKS IN FDP/STC

- Expert Talk on “Detection of Forgery in Multimedia Information in Cyber Space” at Chandigarh Engineering College, Ladran on 22 June 2022
- Webinar on “Forensic Analysis of Images using Web Tools” at Desh Bhagat College, Dhuri on 11 June, 2020
- Expert Talk in AICTE sponsored STC at Guru Nanak Dev Engineering College, Ludhiana for the topic “Digital Image Forensics and Tools” on 1 January, 2020
- Resource Person in NITTTR, Chandigarh sponsored STC for the topic “Computer Forensics”, at Punjabi University, Patiala on 12 December, 2019
- Delivered a Talk on “Digital Image Forensics and its Applications”, at Guru Nanak Dev Engineering College, Ludhiana on 1 Nov. 2017
- Delivered an Expert Talk on “Image Processing and its Applications (Image Forensics)”, at LLRIET, Moga on 10 June 2015
- Expert talk on “Computing Pattern Recognition” at MIMIT, Malout on 22 June, 2012
- Expert talk on “Emerging Trends in Computer Science & IT” at MIMIT, Malout on 21 June, 2012

REVIEWER / PC MEMBER

- CMC-Computers, Materials & Continua (SCI), ISSN:1546-2226, Tech Science Press, Nevada, USA
- Neural Computing & Applications (SCIE), ISSN: 0941-0643, Springer Nature, London, United Kingdom
- Journal of Intelligent & Fuzzy Systems (SCIE), ISSN: 1875-8967, IOS Press, Amsterdam, Netherlands
- American Journal of Computer Science and Technology (peer reviewed), ISSN: 2640-0111, New York, USA
- ICAML-2021, International Conference on Applications of AI & Machine Learning by Punjabi University, Patiala, India
- ICCAI-2020, International Conference on Communication and Artificial Intelligence by Springer & GLA University, Mathura, India
- ICAML-2020, International Conference on Applications of AI & Machine Learning by Punjabi University, Patiala, India
- CCIS-2020, Communication Control and Intelligent Systems, by GLA University, Mathura by GLA University, Mathura, India

- CICT-2016, 2nd International Conference on Computational Intelligence & Communication Technology by IEEE and ABES Engineering College, Ghaziabad, India
- CICT-2015, International Conference on “Computational Intelligence & Communication Technology by IEEE and ABES Engineering College, Ghaziabad, India

MAJOR PUBLICATIONS

1. Sharma, H., & Kanwal, N. (2021). Video interframe forgery detection: Classification, technique & new dataset. *Journal of Computer Security(Scopus)*, 29(5), 531-550.
2. Singla, S. K., Singh, M., & Kanwal, N. (2021, March). Biometric system-Challenges and future trends. In 2021 8th International Conference on Computing for Sustainable Global Development (INDIACom) (pp. 647-651). *IEEE*.
3. S. Jain, N., Kanwal, & P. Kaur (2020), Evaluating Robustness for Intensity Based Image Registration Measures Using Mutual Information and Normalized Mutual Information. *Cognitive Computing in Human Cognition (Scopus)*, ISBN: 978-3-030-48118-6, *Springer*, Switexerland.
4. N. Kanwal, A., Girdhar, L., Kaur, J.S., & Bhullar (2020). Digital image splicing detection technique using optimal threshold based local ternary pattern. *Multimedia Tools and Applications (SCIE, IF 2.1)*, 1-18.
5. A. Kaur, N. , Kanwal, & L., Kaur (2020). A Comparative Review of Various Techniques for Image Splicing Detection and Localization. In *Proceedings of First International Conference on Computing, Communications, and Cyber-Security (IC4S 2019)* (pp. 139-156). *Springer*, Singapore.
6. N. Kanwal, A., Girdhar, L., Kaur & J.S., Bhullar (2020), A keypoint based technique to detect & localize copy move forgery in digital images, *International Journal of Scientific and Technology Research (Scopus)*, ISSN 2277-8616, 2273-2279
7. H. Sharma, & N. Kanwal, *Multimedia Forensics: Analysis, Classification And Future Directions. Wireless Communication And Mathematics*, 2019, ISBN 979-93-89673-30-2, 131-137.
8. H. Sharma, N. Kanwal and R. S. Batth, "An Ontology of Digital Video Forensics: Classification, Research Gaps & Datasets," 2019 *IEEE International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)*, Dubai, United Arab Emirates, 2019, pp. 485-491
9. C. Kaur, N. Kanwal, An analysis of Image Forgery Detection Techniques. *Statistics, Optimization & Information Computing (Scopus, IF: 1.4)* 2019 May 19; 7 (2):486-500.
10. N Kanwal, A. Girdhar, JS Bhullar, L. Kaur, Detection of Digital Image Forgery using Fast Fourier Transform and Local Features. In 2019 *IEEE International Conference on Automation, Computational and Technology Management (ICACTM) 2019*, London, United Kingdom, Apr 24 (pp. 262-267).
11. N Kanwal, A. Girdhar, JS Bhullar, L. Kaur, A Taxonomy and Analysis of Digital Image Forgery Detection Techniques. *NITTTR, Bhopal*, vol. 2017;10:35-41.
12. N. Kanwal and Pooja Jain, “Image Steganography in RGB Color Components using Improved LSB

- Technique Image Pattern Compression using Weighted Principal Components Algorithm,” *Indian J. Sci. Technol.*, vol. 9, no. 45, 2016.
13. G. Kaur and N. Kanwal, “A comparative review of various approaches for feature extraction in face recognition,” in *IEEE 2016 3rd International Conference on Computing for Sustainable Global Development (INDIACom)*, 2016, pp. 2705–2710.
 14. D. Singh and N. Kanwal, “Dynamic video steganography using LBP on CIELAB based K-means clustering,” in *IEEE 2016 3rd International Conference on Computing for Sustainable Global Development (INDIACom)*, 2016, pp. 2684–2689.
 15. A. Kaur, A. Girdhar, and N. Kanwal, “Region of Interest Based Contrast Enhancement Techniques for CT Images,” in *IEEE 2016 Second International Conference on Computational Intelligence & Communication Technology (CICT)*, 2016.
 16. D. S. Navdeep Kanwal, “An Approach to Steganography using Local Binary Pattern on CIELAB based K-Means Clustering,” in *IJCA Proceedings on International Conference on Computer Technology*, 2015, vol. 5, pp. 35–40.
 17. G. Nandan and N. Kanwal, “Image Resolution Enhancement Methods for Different Applications,” *Int. J. Inf. Comput. Technol. ISSN*, pp. 974–2239, 2014.
 18. S. Jain and N. Kanwal, “Overview on image registration” in *IEEE International Conference on Medical Imaging, m-Health and Emerging Communication Systems, MedCom 2014*, 2014, pp. 376–381.
 19. K. Kaur, N. Kanwal, and J. S. Bhullar, “A Technique for Enhancement of Gray Image using Local Gamma Correction,” *Int. J. Comput. Appl.*, vol. 105, no. 5, 2014.
 20. A. Singh and N. Kanwal, “Spatial Image Enhancement of Color Images Using Texture Analysis,” *Int. J. Appl. or Innov. Eng. Manag.*, vol. 2, no. 6, 2013.
 21. S. Narang, M. Lal, and N. Kanwal, “A Comparative Survey Of Various Segmentation Techniques,” *Int. J. Innov. Res. Dev. ISSN 2278--0211*, vol. 2, no. 5, 2013.
 22. E. J. Singh and N. Kanwal, “Survey of facial marks detection techniques,” in *International Journal of Engineering Research and Technology*, 2013, vol. 2, no. 5 (May-2013).
 23. A. Singh and N. Kanwal, “Qualitative comparative study of various contrast enhancement techniques,” *Int. J. Comput. Sci. Eng. Inf. Technol. Res.*, vol. 1, no. 3, pp. 19–24, 2013.
 24. N. Kanwal, A. Girdhar, and S. Gupta, “Region based adaptive contrast enhancement of medical X-ray images,” in *IEEE 5th International Conference on Bioinformatics and Biomedical Engineering, Wuhan, China, iCBBE 2011*, 2011.
 25. N. Bhalla, N. Kanwal, A. Girdhar, and P. K. Mann, “An approach for contrast enhancement of color images with the help of adaptive region growing segmentation,” *Int J Comput. Int Manag*, vol. 19, no. 3, pp. 28–33, 2011.

PROJECTS/ GRANTS

Project: Automation of Payroll and Inventory System in Central Govt. undertaking Suraj Textile Mills, Malout, Punjab in year 2004 Technologies: Visual Basic, MS Access

Research Travel Grant(s): International-03, National-07

ACADEMIC / ADMINISTRATIVE ACTIVITIES

1. Coordinator, Time Table Committee, Department of Computer Science & Engineering, Punjabi University, Patiala (2022-2023)
2. Coordinator, Ph. D. Course, Department of Computer Science & Engineering, Punjabi University, Patiala (2022-2023)
3. President, Infrastructure Development Club, Department of Computer Science & Engineering, Punjabi University, Patiala (2020-2023)
4. Member, Core Admission Committee, Department of CSE, Punjabi University, Patiala (2020-2023)
5. Executive Member, Punjabi University Teachers Association (PUTA) (2021-22)
6. Organizing Secretary, International Conference on applications of AI and Machine Learning – 2021, held at Department of Computer Science & Engineering, Punjabi University, Patiala on 02 - 03 December, 2021
7. Editor, special issue of *Scopus* indexed journal, Advances in Mathematics: A Scientific Journal, ISSN:1857-8438, ICAML-2020
8. Organizing Secretary, International Conference on applications of AI and Machine Learning – 2020, held at Department of Computer Science & Engineering, Punjabi University, Patiala on 21-22 May, 2020
9. Training & Placement Coordinator, Department of Computer Science & Engineering, Punjabi University, Patiala (2019-2020).
10. Nominated Member, Punjabi University Residents Welfare Association, Patiala (2019-20)
11. Secretary, Faculty Club, Punjabi University, Patiala (2018-2023)
12. Elected Member, Parent Teachers Association, Ryan International School, Patiala (2019-20)
13. Member, NBA Accreditation Process Committee, Department of Computer Science & Engineering, Punjabi University, Patiala (2019-20).
14. Coordinator, One Day Workshop on “Essentials of NBA Accreditation” at Punjabi University, Patiala on 28 November, 2019
15. Coordinator, AICTE Approval Committee, Department of Computer Science & Engineering, Punjabi University, Patiala (2018-19).
16. Member, Board of Studies, Department of Computer Science & Engineering, Punjabi University, Patiala.
17. Member, ACD, Department of Computer Engineering, Punjabi University, Patiala (2017-2018).

18. Co-coordinator for Short term course on Cyber Threat Detection & Safety at Punjabi University, Patiala from 04 January to 15 January, 2016
19. Coordinator, M. Tech. (Part-Time) at Department of Computer Engineering, Punjabi University, Patiala (2014-2016).
20. Incharge, Research and Development at Guru Teg Bahadur Khalsa Institute of Engineering and Technology, Chhapiawali, Malout, 2011.
21. Coordinator (Website), Guru Teg Bahadur Khalsa Institute of Engineering and Technology, Chhapiawali, Malout, 2009-2011.
22. Co-coordinator, Admissions, Guru Teg Bahadur Khalsa Institute of Engineering and Technology, Chhapiawali, Malout, 2009-2011.
23. Incharge (Press and Advertisements), Guru Teg Bahadur Khalsa Institute of Engineering and Technology, Chhapiawali, Malout, 2008-2011.
24. Incharge, Microsoft Licensing (Campus Agreement) for GTB Khalsa Group of Institutes, Chhapiawali, Malout, 2009-2011.
25. Co-coordinator, Training and Placement, Department of Computer Science & Engineering, Guru Teg Bahadur Khalsa Institute of Engineering & Technology, Chhapiawali, 2005-2008.

FACULTY/PROFESSIONAL DEVELOPMENT PROGRAMS

- Short term course on “Security in Artificial Intelligence: Strategies and Best Practices” at Dr B R Ambedkar National Institute of Technology, Jalandhar from 14 June 2023 to 18 June 2023
- Short term course on Cyber Security at NITTTR, Chandigarh from 27 May to 31 May 2019
- Refresher Course at Punjabi University, Patiala from 23 May to 11 June, 2016
- Short term course on Vulnerabilities in Cyberspace & Adopting Security Policies at MIMIT, Malout from 20 July to 31 July, 2015
- Seminar on Fullbright-Nehru Fellowship Opportunities, at Punjabi University on 5 June, 2015
- Participated in Orientation Program at UGC ASC, Pbi. Uni., Patiala from 10 June to 06 July, 2013
- Workshop on Business Intelligence at Chitkara University, Punjab on 28 February 2013
- Faculty Enablement Program at Infosys Limited from 2 July to 6 July, 2012
- Three day induction cum training program at Punjabi University from 3 January to 5 January, 2012

MEMBERSHIP OF PROFESSIONAL BODIES / SOCIETIES

- Member of Internet Society Chapter
- Member of the Society of Digital Information and Wireless Communications (SDIWC)
- Member of International Association of Engineers

(Dr. Navdeep Kanwal)