

Prof. Nidhi

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1. Career Profile

- **Professor (ECE)**, UIET, Panjab University (04.11.2024 – Present)
 - **Associate Professor (ECE)**, UIET, Panjab University (04.11.2021 – 03.11.2024)
 - **Assistant Professor (ECE)**, UIET, Panjab University (17.10.2008 – 03.11.2021)
 - **Senior Lecturer (ECE)**, Chitkara Institute of Engg & Technology, Rajpura (01.02.2008 – 16.10.2008)
 - **Lecturer (ECE)**, Chitkara Institute of Engg & Technology, Rajpura (03.06.2006 – 31.01.2008)
 - **Lecturer (ECE)**, Swami Devi Dyal Institute of Engg. & Technology, Barwala (08.03.2004 – 02.06.2006)
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2. Qualification

- **Ph.D.** (2019) - Electronics & Communication Engineering
 - **M.E.** (2006) - Electronics & Communication Engineering
 - **B.Tech.** (2003) – Electronics Engineering
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3. Research Contributions

Publications & Citations

- **Total Publications:** 26 Journal Papers | 28 Conference Proceedings | 06 Book Chapters | 01 Patent (Filed)
- **Google Scholar ID:** <https://scholar.google.com/citations?hl=en&user=Ee9Hgy4AAAAJ>
- **Scopus ID:** <https://www.scopus.com/authid/detail.uri?authorId=56785287000>
- **Professional Memberships:** Lifetime Member, Indian Society of Technical Education (ISTE).
- **Awards:** Faculty **Research Award** in 2017 and 2018 sponsored by UIET, PU for research contribution.

Research Supervision

- **PhD:** 05 (Ongoing), 05 (Synopsis Defended), **ME/M.Tech:** 24 (Awarded), 01 (Ongoing)

Research Areas

Digital System Design, Embedded System, Signal Processing

4. Academic Contributions

Workshops & Lectures Organized

- **Hands-on Workshops:**
 - "Exploring the World of Science: Tinkercad Circuits and Arduino" (DST, Govt. of India, 2023)
 - "Simulation of Electronic Circuits Using Tinkercad" (DST, Govt. of India, 2023)
 - "TCAD for Semiconductor Device Simulation" (UIET, PU, Chandigarh, 2023)
 - "Embedded systems and its application" (UIET, PU, Chandigarh, 2018)
 - Member of organizing committee of workshop on "Recent Trends in Signal Processing" (UIET, PU, Chandigarh, April 28-29, 2016)
- **Special Lecture:** "Fuzzy Logic" (UIET, PU, Chandigarh, 2023)
- **Faculty Development Program (FDP):**
 - Organized "PCB Design and Fabrication for Electronic Hardware Realization" (PACER LAB)
 - Organized "Emerging Trends in Electronics and Communication" (TEQIP, 2020)
- **Expert Talks & Invited Lectures:** Delivered at various institutions, including BEL Panchkula, NITTTR Chandigarh, and Govt. College of Engineering Jammu.

Student Engagement & Institutional Contributions

- **Training & Placement Officer (TPO), ECE, UIET (2019-2025)** – Established strong industry connections for student placements.
 - **E-Magazine Lead:** Editor of Technogrid (ECE e-magazine) with three issues published.
 - **Thesis Incharge:** ME ECE/M.Tech Microelectronics since 2013.
 - **NBA Coordination:** Leading student activities UG and PG since 2014.
 - **Infosys Springboard:** Part of **Train the Trainer Program** and developed microsites on Infosys Springboard for students, conducted by Infosys Limited.
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5. List of Publications

Referred Journals:

Supriya Kochhar, Charu Madhu and Nidhi Garg "Supplemented Distributed Energy Efficient Clustering Algorithm for Wireless Sensor Network," *Wireless Personal Communication* (2026). Doi: 10.1007/s11277-026-11919-3.

Harry Garg, D S Bhist, Nidhi Garg et. al. "Analysis, evaluation and integration of modular natural illumination system using a rectangular Fresnel lens for high performance," *Lighting Research & Technology (LR&T)*, Sage Publications Ltd., vol. 54, no. 4, pp. 554–570, Apr. 17, 2022. doi: 10.1177/14771535211063624.

Gautam, Nidhi Garg et. Al. "Intelligent Data Processing for Alzheimer's Disease Using Deep Learning," *Recent Advances in Electrical & Electronic Engineering*, Bentham Science Publishing, vol. 17, pp. 1–18, Jul. 30, 2024. doi: 10.2174/0123520965327853240724113549.

Preeti Singh, Pardeep Kaur, Nidhi Garg, "Performance analysis of MDM-OCDMA free space optical system using shift ZCC codes," *Journal of Optical Communication*, Walter De Gruyter, pp. 1–11, Sep. 17, 2024. doi: 10.1515/joc-2024-0084.

Aanchal Rani, Preeti Singh, Nidhi Garg "A Deep Learning-Based Structural Off-line Approach for the Automatic Recognition of Handwritten Punjabi Characters," *Journal of Electrical Systems*, Science Research Society, pp. 6404–6420, Oct. 26, 2024. Available: <https://journal.esrgroups.org/jes/article/view/6799/4716>.

Nidhi Garg, Amod Kumar, Hardeep Singh Ryait, "Analysis of Wrist Pulse Signal: Emotions and Physical Pain", IRBM, Volume 43, Issue 5, 2021, Pages 391-404, ISSN 1959-0318, <https://doi.org/10.1016/j.irbm.2021.06.001>, [SCI with impact factor 1.856].

Shivin Aggarwal, Nidhi Garg, Gurpreet Kaur "Performance Evaluation of Various Dispersion Compensation Modules." Wireless Personal Communication 123, 2011–2025 (2021). pp. 143-157, Doi: <https://doi.org/10.1007/s11277-021-09226-0>, [SCI with impact factor 1.061].

Nidhi Garg, Amandeep Bisht, Hardeep S. Ryait, Amod Kumar, "Identification of motion outliers in wrist pulse signal", in Computers & Electrical Engineering, Elsevier, Volume 67, 2018, pp. 776-790, 2018, Doi: 10.1016/j.compeleceng.2018.03.001, [SCI with impact factor 1.747].

Nidhi Garg, Hardeep S Ryait, Amod Kumar, Amandeep Bisht, "An Effective Method to Identify Various Factors for Denoising Wrist Pulse Signal using Wavelet Denoising Algorithm", in BIO-MEDICAL MATERIALS AND ENGINEERING An International Journal, IOS Press. Vol. 29, no. 1, pp. 53-65, 2018, Doi: 10.3233/BME-171712, [SCI with impact factor 0.872].

Arvind Kumar, Nidhi Garg, Gurpreet Kaur, "An Emotion Recognition Based on Physiological Signals," International Journal of Innovative Technology and Exploring Engineering, vol. 8, no. 9S, pp. 335–341, 2019, doi: 10.35940/ijitee.I1054.0789S19. [Scopus]

Nidhi Garg and Nitika Babbar, "Time-Frequency Techniques in Wrist Pulse Signals," International Journal of Innovative Technology and Exploring Engineering, vol. 8, no. 12, pp. 2679–2682, 2019, doi: 10.35940/ijitee.L2520.1081219. [Scopus]

Harry Garg, D S Bhist, Nidhi Garg, "Analysis, evaluation and integration of modular natural illumination system using a rectangular Fresnel lens for high performance" Lighting Research & Technology (LR&T), Sage Publications Ltd. 2022, DOI:10.1177/14771535211063624 [SCI with impact factor 2.5].

Nidhi Garg, Gautam Chutani, Himanshu Bohra, Shagun Chaudhary and Preeti Sharma, "Intelligent Data Processing for Alzheimer's Disease Using Deep Learning" Recent Advances in Electrical & Electronic Engineering, Bentham Science Publishing, pp: 1-18, 30th July 2024, Volume 17, 2024, DOI:10.2174/0123520965327853240724113549. [SCI with impact factor 0.6].

Sanyam Bansal, Preeti Singh, Sharmelee Thangjam, Pardeep Kaur, Geeta Dalal, Nidhi Garg and Charu Naula, "Performance analysis of MDM-OCDMA free space optical system using shift ZCC codes" Journal of Optical Communication. 2024, pp: 1-11, <https://doi.org/10.1515/joc-2024-0084>. [Scopus]

Aanchal, Nidhi, Preeti, Gurpratap, "A Deep Learning-Based Structural Off-line Approach for the Automatic Recognition of Handwritten Punjabi Characters" Journal of Electrical Systems, 2024, pp: 6404-6420, <https://journal.esrgroups.org/jes/article/view/6799/4716>. [Scopus]

Himani Jerath, Nidhi Garg, "Exploring Human Emotion Recognition Through Physiological Signals," International Journal of Control Theory and Applications, Vol.10, pp. 57-62, 2017. [Scopus]

Amandeep Bisht, Nidhi Garg, Amod Kumar, Hardeep S. Ryait, "Comparative Analysis of AWGN Filtering in Wrist Pulse Signal," International Journal of Pharmacy & Technology, 9(1), pp. 28201-28209, April 2017. [Scopus]

Book Chapters:

Apeksha Negi, **Nidhi Garg**, and Sunil Agrawal., "Performance analysis of recent algorithms for compression of various medical images," in Biomedical Engineering Science and Technology, Communication in Computer and Information Science (CCIS), Springer, 2023, pp. 24–34.

Nitika Sharma, **Nidhi Garg**, Gurpreet Kaur. (2019), "Advancements and Challenges in Tunnel Field Effect Transistor", In: Nath, V., Mandal, J. (eds) Proceedings of the Third International Conference on Microelectronics, Computing and Communication Systems. Lecture Notes in Electrical Engineering, vol 556. Springer, Singapore. https://doi.org/10.1007/978-981-13-7091-5_33

Harry Garg and **Nidhi Garg**, “Study and analysis of horizontal light pipe system with laser cut panel”, LAP Lambert Academic Publishing, pp 1-84, ISBN: 978-620-2-06228-2,(2019).

Harkiranvir Kaur, Preeti Singh, **Nidhi Garg**, Pardeep Kaur , “Enhanced TESRP Protocol for Isolation of Selective Forwarding Attack in WSN,” in Communications in Computer and Information Science, Advanced Informatics for Computing Research (ICAICR 2018), vol. 956, 2019, pp. 501–511.

Himani Jerath, Nidhi Garg, “Exploring Human Emotion Recognition: An investigation of different approaches”, published in International Conference on Advanced Informatics for Computing Research (ICAICR-2017) at Lyallpur Khalsa College of Engineering, Jalandhar on March 17-18, 2017.

Nidhi Garg, Ramandeep Kaur, Harry Garg, Ryait H.S., Amod Kumar,”Wrist Pulse Signal Features Extraction: Virtual Instrumentation”. In: Singh R., Choudhury S. (eds) Proceeding of International Conference on Intelligent Communication, Control and Devices. Part of the Advances in Intelligent Systems and Computing book series (AISC) vol 479, page no.-135-142 (2017). Springer, Singapore. DOI: 10.1007/978-981-10-1708-7_14.

Conferences:

Gautam Chutani, Nidhi Garg et.al., “Improved Alzheimer Detection using Image Enhancement Techniques and Transfer Learning,” in Proc. IEEE Int. Conf. Emerging Technol. (INCET), 2022, pp. 1–6. doi: 10.1109/INCET54531.2022.9824008.

Divya Khanna, Nidhi Garg, Preeti Sharma “Tuberculosis Prediction by using Deep Learning Model,” in Proc. IEEE Int. Conf. Recent Trends Mach. Learn. Adv. Technol. Eng. (RMKMATE), 2023, pp. 1–4. doi: 10.1109/RMKMATE59243.2023.10369599.

Nidhi Garg; Harveen Kaur; Jyoti Verma; Isha Kansa; Vikas Khullar; Preeti Sharma; Amanjot Kaur Lamba, “Deep Learning and Expert Knowledge to Boost the Accuracy and Robustness of Apple Leaf Disease Classification,” in Proc. Int. Conf. Electron. Syst. Signal Process. (ICESS), 2023. doi: 10.1063/5.0228344.

Rishabh, Nidhi Garg “Transfer Learning Model for Plant Disease Detection Using VGG-16 on Tomato Crop,” in Proc. Int. Conf. Electron. Syst. Signal Process. (ICESS), 2023. doi: 10.1063/12.0028001.

Nidhi Garg et. al., “Explainable DenseNet201 and CNN for Automated Guava Disease Classification: A Comparative Analysis,” in Proc. Int. Conf. Emerging Trends Smart Systems (ICETSS), 2024.

Nidhi Garg; Kumari Pragya Prayesi; Keshav Kum ; Preeti Sharma, “Analysis of Data Storage Technology in Cloud Computing Environment,” in Proc. Int. Conf. Electron. Syst. Signal Process. (ICESS), 2023. doi: 10.1063/5.0227787.

R. Mudgil, N. Garg, P. Singh and C. Madhu, "Identification of Tomato Plant Diseases Using CNN- A Comparative Review," 2022 IEEE World Conference on Applied Intelligence and Computing (AIC), Sonbhadra, India, 2022, pp. 174-181, doi: 10.1109/AIC55036.2022.9848931.

Nidhi Garg, Arvind Kumar, and Gurpreet Kaur, “Exploring wrist pulse signals using empirical mode decomposition: emotions,” in IOP Conference Series: Materials Science and Engineering, 2021, vol. 1033, no. 1, pp. 12008-12010.

Nidhi Garg, Amod Kumar, and Hardeep Singh Ryait, “A prospective study to assess the association between emotion and disease: Wrist Pulse Signals,” in 2020 Sixth International Conference on Parallel, Distributed and Grid Computing (PDGC), Nov. 2020, pp. 121–125, doi: 10.1109/PDGC50313.2020.9315739.

Shivin Aggarwal, Nidhi Garg, Gurpreet Kaur, “Performance Evaluation of Diverse Hybrid Pulse Width Reduction Modules in WDM systems,” IOP Conf. Ser. Mater. Sci. Eng., vol. 1033, no. 1, p. 012003, Jan. 2021, doi: 10.1088/1757-899X/1033/1/012003.

Nitika Sharma, Nidhi Garg, and Gurpreet Kaur, “Design analysis of Gate-All-Around nanowire tunnel field effect transistor,” Mater. Today Proc., vol. 45, pp. 5308–5314, 2021, doi: 10.1016/j.matpr.2021.01.903.

Meenakshi Devi, Charu Madhu, Nidhi Garg, "Design and Stability analysis of CNTFET based SRAM cell," IOP Conf. Ser. Mater. Sci. Eng., vol. 1033, no. 1, p. 012043, Jan. 2021, doi: 10.1088/1757-899X/1033/1/012043.

Supriya, Charu Madhu, Arun Singh, and Nidhi Garg, "Enhancing the efficiency of Iterative Filtering Algorithm and sensors material analysis," Mater. Today Proc., vol. 28, pp. 2003–2007, 2020, doi: 10.1016/j.matpr.2020.05.577.

Nitika Sharma, Nidhi Garg, and Gurpreet Kaur, "Performance analysis of gate stacked with nitride GAA-TFET," Mater. Today Proc., vol. 28, pp. 1683–1689, 2020, doi: 10.1016/j.matpr.2020.05.128.

Meenakshi Devi, Charu Madhu, and Nidhi Garg, "Design and analysis of CMOS based 6T SRAM cell at different technology nodes," Mater. Today Proc., vol. 28, pp. 1695–1700, 2020, doi: 10.1016/j.matpr.2020.05.130.

Arvind Kumar, Nidhi Garg, and Gurpreet Kaur, "Understanding Emotional experience through Physiological signals", 13th Chandigarh Science Congress (CHASCON 2019), 13th-15th March 2019, Panjab University.

Himani Jerath, Nidhi Garg, "Exploring Emotions and their impacts on physiological signals", presented in Chandigarh Science Congress (CHASCON- 2017) at Panjab University Chandigarh on March 9-11, 2017

Amandeep Bisht, Nidhi Garg, "Quantification of Wrist Pulse Signals : An Overview", 4th International Conference on Advancements in Engineering and Technology (ICAET-2016), 424-428,2016.

Nikita Babbar, Nidhi Garg, "Progress and advancement in wrist pulse signal", 4th International Conference on Advancements in Engineering and Technology (ICAET-2016),390-394,2016.

Nidhi Garg, Manu Chopra, Hardeep S. Ryait, Amod Kumar, "Comparative analysis of different techniques for removal of baseline wander from Wrist Pulse Signals(WPS)". In: 2nd International Conference on Recent Advances in Engineering & Computational Sciences (RAECS) IEEE. pp. 14. 2015. ISBN- 978-1-4673-8253-3, Doi: 10.1109/RAECS.2015.7453397.

Manu Chopra, Ramandeep Kaur, Nidhi Garg, "Study and evaluation of denoising and baseline wandering of computerized wrist pulse signal using virtual instrument," *1st International Conference on Next Generation Computing Technologies (NGCT)*, Dehradun, pp. 576-579,2015. doi: 10.1109/NGCT.2015.7375186.

Ramandeep Kaur, Manu Chopra, Nidhi Garg, Hardeep S Ryait, "Role of pulse diagnosis: A review".In: International Conference on Computing, Communication & Automation (ICCCA 2015), IEEE. pp. 152-155, 2015. ISBN- 978-1-4799-8890-7, Doi:10.1109/CCAA.2015.7148391.

Jaspinder Kaur, Nidhi Garg, Daljeet Kaur, "An automatic CAD system for early detection of lung tumor using back propagation network", *International Conference on Medical Imaging, m-Health and Emerging Communication Systems (MedCom)*, Greater Noida, pp. 257-261, 2014, doi: 10.1109/MedCom.2014.7006014.

Jasmine, Nidhi Garg, "Implementation and analysis of fragmentation of MPEG-4 Traffic in NS-2 integrated with Evalvid", National level conference on Recent Trends In Information & Communication Technologies (RTICT-2013) at CT Institute of Engineering, management & Technology, Jalandhar (PTU), January 2-3, 2013, pp. 69-70.

Hardeep Kaur, Nidhi Garg, "Inspection of Defective Pharmaceutical Capsules using Image Processing Techniques", Paper Published in Proceedings of National Conference cum workshop at RTMC-2011.

Hardeep Kaur, Nidhi Garg, "Image Processing Techniques for detection of defective Pharmaceutical Capsules", in Chandigarh Science Congress (CHASCON-2011) at Panjab University, Chandigarh, February 26-28, 2011, pp. - ES-336-ES338.

Shivani Malhotra, Shaifali Madan, Nidhi Garg, "Conceptual Development of Particle Swarm Optimization From Social Simulator To An Optimizer", In International level conference on Wireless networks and Embedded Systems (WECON-2008), October 2008, pp. 705-707.

Shivani Malhotra, Jitender Virmani, Nidhi Garg, " Design of embedded system for measurement of galvanic skin resistance using embedded system for the analysis of anxiety neurosis", In International level International conference on Wireless networks and Embedded Systems (WECON-2008), October 2008, pp. 371-372.