

# Dr. Vivek Singh Verma

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## Objective

To seek a responsible and challenging career in teaching-involving utilization of my talents with an opportunity for personal growth and professional advancement, while fulfilling objective of the Institution.

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Image Processing

Computer Vision

Research  
Contribution

## Research Interests

Image Authentication and Verification, Digital Multimedia data Hiding and Information Assurance, Image retrieval, Image Security.

Recognition, Detection and Classification problems, Image Enhancement.

[https://www.researchgate.net/profile/Vivek\\_Verma18](https://www.researchgate.net/profile/Vivek_Verma18)

<https://scholar.google.co.in/citations?user=xXVOMUKAAAAJ&hl=en>

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2012 - 2016

**Doctor of Philosophy (Ph.D.)**, Indian Institute of Information Technology, Design and Manufacturing Jabalpur, M.P., India.

Thesis Title: "*Robust Image Watermarking Techniques in the Lifting Wavelet Transform Domain*".

Supervisors: **Prof. Aparajita Ojha** (IIITDM, Jabalpur, M.P., India) and **Dr. Rajib Kr. Jha** (IIT Patna, Bihar, India).

Overall CPI: 9.7

2005 - 2008

**Master of Technology (M. Tech.)**, Information Technology, Guru Gobind Singh Indraprastha University, Delhi, India.

Overall CPI: 7.25

1997 - 2001

**Bachelor of Technology (B. Tech.)**, Computer Science and Engineering, Institute of Engineering and Technology, CSJM Kanpur University, Kanpur, India.

Overall CPI: 7.62

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## Work Experience (24 yrs.)

### Teaching Experience (21 yrs.)

August 2022

onwards

**Associate Professor**, Department of Computer Science and Engineering, HBTU, Nawabganj, Kanpur, India.

Aug. 2001 - July.

2022

Worked on various teaching positions in the Computer Science and Engineering department of premier Institutions affiliated with AKTU, Lucknow.

### Research Experience (3.0 yrs.)

Jan. 2012 - Dec.

2014

**Research Scholar**, Indian Institute of Information Technology, Design and Manufacturing Jabalpur, M.P., India.

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**Duration (April, 2025  
– May 2028)**  
**Amount: 27Lakh**

## Research Projects

**Duration (April, 2025  
– May 2028)**  
**Amount: 37Lakh**

- ❖ Project titled “Transforming Healthcare Access through AI Driven Diagnostics Application and Mobile Health Solutions”, funded by the **Department of Science and Technology (DST)**, Government of India, under the PRAYAS program (Grant No. 2024- 25/0958), facilitated by the India–Biotechnology Innovation and Technology Foundation (**IBITF**). Additional support is provided by **Health Compass Pvt. Ltd.**, as part of a public–private partnership to advance AI-enabled diagnostic solutions for healthcare.
- ❖ Project titled “Drone based advance approach to smart agriculture and farming with Fintech solutions for accelerating Agricultural Production”, funded by the **Department of Science and Technology (DST)**, Government of India, under the PRAYAS program (Grant No. 2024- 25/0959/01), facilitated by the India–Biotechnology Innovation and Technology Foundation (**IBITF**).

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**International  
Journals (SCI)**

## Publications

- ❖ N. Bagwari, **V. S. Verma**, S. Kumar, “Residual quadratic encoder–decoder architecture for semantic segmentation of satellite images,” *Signal, Image and Video Processing*, Springer, vol. 19, no. 1, pp. 1-9, 2025.
- ❖ N. Bagwari, S. Kumar, **V. S. Verma**, “A comprehensive review on segmentation techniques for satellite images,” *Archives of Computational Methods in Engineering*, Springer, vol. 30, no. 7, pp. 4325-4358, 2023.
- ❖ **V. S. Verma**, S. Gupta, and P. Gupta, “Image data protection in IoT applications using significant block selection-based image watermarking,” *Multimedia Tools and Applications*, Springer, vol. 82, no. 4, pp. 5073–5090, 2023.
- ❖ S. Gupta, P. Gupta, and **V. S. Verma**, “Study on Anatomical and Functional Medical Image Registration Methods,” *Neurocomputing*, Elsevier, vol. 452, pp. 534-548, 2021.
- ❖ A. Wadhwa, A. Bhardwaj, and **V. S. Verma**, “A review on brain tumor segmentation of MRI images,” *Magnetic Resonance Imaging*, Elsevier, vol. 61, pp. 247 - 259, 2019.
- ❖ **V. S. Verma**, A. Bhardwaj, and R. K. Jha, “A new scheme for watermark extraction using combined noise-induced resonance and support vector machine with PCA based feature reduction,” *Multimedia Tools and Applications*, Springer, vol. 78, no. 16, pp. 23203–23224, May-2019.
- ❖ A. Bhardwaj, **V. S. Verma**, and R. K. Jha, “Robust Video Watermarking using Significant Frame Selection based on Coefficient Difference of Lifting Wavelet Transform,” *Multimedia Tools and Applications*, Springer, vol. 77, no. 15, pp. 19659–19678, 2018.
- ❖ **V. S. Verma**, and R. K. Jha, “LWT-DSR based new robust framework for watermark extraction under intentional attack conditions,” *Journal of the Franklin Institute*, Elsevier, vol. 354, no. 14, pp. 6422-6449, 2017.
- ❖ **V. S. Verma**, R. K. Jha, and A. Ojha, “Significant region based robust watermarking scheme in lifting wavelet transform domain,” *Expert Systems with Applications*, Elsevier, vol. 42, no. 21, pp. 8184 - 8197, 2015.

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**International  
Journals/Conferen  
ces (Scopus  
Indexed)**

- ❖ **V. S. Verma**, R. K. Jha, and A. Ojha, "Digital watermark extraction using support vector machine with principal component analysis based feature reduction," *Journal of Visual Communication and Image Representation*, Elsevier, vol. 31, pp. 75 - 85, 2015.
- ❖ **V. S. Verma**, and R. K. Jha, "Improved watermarking technique based on significant difference of lifting wavelet coefficients," *Signal Image & Video Processing*, Springer, vol. 9, no. 6, pp. 1443 - 1450, 2015.
- ❖ **V. S. Verma**, and R. K. Jha, "An overview of robust digital image watermarking," *IETE Technical Review*, Taylor & Francis, vol. 32, no. 6, pp. 479 - 496, 2015.

- ❖ N. Bagwari, S. Kumar, **V. S. Verma**, "Comparative Analysis of Differential Evolution Algorithm Using Shannon, Fuzzy, and Cosine Similarity Entropy Functions for Satellite Image Segmentation," *IEEE 3rd Int. Conf. on Issues and Challenges in Intelligent Computing Techniques (ICICT)*, pp. 1-6, 2023.
- ❖ A. Bhardwaj, **V. S. Verma**, and S. Gupta, "Image Authentication Using Block Truncation Coding in Lifting Wavelet Domain," *International Journal of Image and Graphics*, vol. 22, pp. 2250011, 2021.
- ❖ **V. S. Verma**, A. Bhardwaj, and D. Saxena, "Statistical Features Based Text Detection Using Modified OCR," *International Journal of Advanced Science and Technology*, vol. 29, no. 3, pp. 13789 - 13800, 2020.
- ❖ S. Tyagi, S. Malhotra, D. Kumar, and **V. S. Verma**, A. Bhardwaj, "Mammographic image segmentation with modified FCM based clustering algorithm", in *Proc. American Institute of Physics*, vol. 2214, no. 1, pp. 020028, March 2020.
- ❖ S. Saxena, V. Sharma, and **V. S. Verma**, A. Bhardwaj, "Robust digital image watermarking scheme based on discrete fractional Fourier transform", in *Proc. American Institute of Physics*, vol. 2061, no. 1, pp. 020034, Jan. 2019.
- ❖ A. Bhardwaj, A. Wadhwa, and **V.S. Verma**, "Image enhancement in lifting wavelet transform domain", in *Proc. American Institute of Physics*, vol. 2061, no. 1, pp. 020027, Jan. 2019.
- ❖ R. Sharma, A. K. Gupta, D. Singh, and **V. S. Verma**, A. Bhardwaj, "A robust image watermarking in contourlet transform domain", in *Proc. American Institute of Physics*, vol. 1897, no. 1, pp. 020014, Oct. 2017.
- ❖ Priya, and **V. S. Verma**, "New morphological technique for medical image segmentation", in *Proc. IEEE 3<sup>rd</sup> Int. Conf. on Computational Intelligence Communication Technology (CICT)*, pp. 1-5, Feb. 2017.
- ❖ A. Bhardwaj, D. Verma, and **V. S. Verma**, "A robust watermarking scheme using lifting wavelet transform and singular value decomposition", in *Proc. American Institute of Physics*, vol. 1802, no. 1, pp. 020002, 2017.
- ❖ **V. S. Verma**, A. Bhardwaj, and R. K. Jha, "Robust image watermarking using combined DSR-SVM with PCA based feature reduction", in *Proc. IEEE 6<sup>th</sup> Int. Symposium on Embedded Computing and System Design (ISED)*, pp. 323-327, Dec., 2016.

**Book Chapter**

- ❖ D. Kaushik, **V. S. Verma**, "Review on text recognition in natural scene images," *Innovations in Computational Intelligence*, Springer, pp. 29-43, 2018.

## National Conferences

- ❖ **V. S. Verma**, “An approach for image watermarking based on lifting wavelet transform”, presented in *Nat. Conf., Emerging Computer Technologies, COMTECH-2016*, Ajay Kumar Garg Engineering College, Ghaziabad, April 1-2, 2016.
- ❖ D. Kaushik and **V. S. Verma**, “A comprehensive review of character recognition in digital image processing”, presented in *Nat. Conf., Emerging Computer Technologies, COMTECH-2016*, Ajay Kumar Garg Engineering College, Ghaziabad, April 1-2, 2016.
- ❖ **V. S. Verma**, B. Prasad, and R. Purwar, “Copyright protection of high-quality images”, presented in *Nat. Conf., Technologies and Trends in Advance computing*, Ideal Institute of Technology, Ghaziabad, May 2-3, 2008.

## Professional Activities

Feb. 2019 - April 2019	NPTTEL Online Certification on <b>Machine Learning, ML</b> , funded by MHRD, Govt. of India.
Dec. 04 – 08, 2018	Attended, Faculty Development Programme on “ <b>Machine Learning and Data Analytics with Python</b> ” conducted by Ajay Kumar Garg Engineering College, Ghaziabad in association with Electronics & ICT Academy, IIT Roorkee, India.
Feb. 09 – 10, 2018	Attended, Faculty Development Programme on “ <b>Internet of Things</b> ” conducted by Dept. Comp. Sc. & Engg. and Dept. of Info. Tech., Ajay Kumar Garg Engineering College, Ghaziabad, India.
Nov. 30 – Dec. 07, 2017	Attended, Faculty Development Programme on Advance Workshop, Level-2 on “ <b>Universal Human Values and Professional Ethics</b> ” conducted by Value Education Cell, AKTU at AKGEC, Ghaziabad, India.
June 13 - 20, 2017	Attended, Faculty Development Programme on Refresher Workshop on “ <b>Human Values and Professional Ethics</b> ” conducted by Value Education Cell, AKTU at ABES Engineering College, Ghaziabad, India.
Dec. 14 - 21, 2015	Attended, Faculty Development Programme on “ <b>Human Values and Professional Ethics</b> ” conducted by Value Education Cell, AKTU at IIT Kanpur, India.
Sept. 07 - 11, 2015	Participated, AICTE recognized short term course on “ <b>Global System for Mobile Communication through ICT</b> ” conducted by Dept. Electronics & Comm. Engg., Ajay Kumar Garg Engineering College, Ghaziabad, India.
July 13 - 17, 2015	Attended, Faculty Development Programme on “ <b>Dot Net Technologies</b> ” organized by Dept. Computer Sc. & Engg., Ajay Kumar Garg Engineering College, Ghaziabad, India.
April 03 - 04, 2015	Participated, National Seminar on “ <b>Development of Reliable Information Security System, Threats &amp; Issues</b> ” organized by Dept. Computer Applications, Ajay Kumar Garg Engineering College, Ghaziabad, India.
Jan. 30 - 31, 2015	Attended, Faculty Development Programme on “ <b>Natural Language Processing</b> ” organized by Dept. Computer Sc. & Engg., Ajay Kumar Garg Engineering College, Ghaziabad, India.
June 11-14, 2013	Participated, <b>School on Advanced Algorithms (SOAA-13)</b> , jointly organized by Indo-German Max Planck Center for Computer Sc. (IMPECS) & IIITDM, Jabalpur, India.
March 31- April 01, 2012	Participated, National workshop on “ <b>Deployment &amp; Use of NPTEL Courses</b> ”, jointly organized by IIT Kanpur & IIITDM, Jabalpur, India.

- Jan. 17-24, 2011 Attended, Faculty Development Programme on “**Embedded Systems**”, jointly organized by M.T.U., Noida, G.B.T.U., Lucknow & Thinnkware - a venture of K.C. Robotics and Embedded Pvt. Ltd., Noida, India.
- Feb. 23-24, 2007 Attended, National workshop on “**Current Trends in Computing and Bioinformatics**”, organized by University Institute of Engineering & Technology, C.S.J.M. University Kanpur, India.

## Administrative Responsibilities

- Co-In charge (May 2025 onwards)** Training and Placement, HBTU, Kanpur
- Nodal Officer (Dec. 2022 onw.)** Darpan Portal, CM Dashboard, Harcourt Butler Technical University, Kanpur
- SPOC (2024-25)** **Smart India Hackathon** competition, organized by AICTE and MHRD, Govt. of India.
- Head (Aug. 2018 Sept. 2021)** Software Development Center (**SDC-SI**), *Ajay Kumar Garg Engineering College*, Ghaziabad, India.
- Coordinator (2018-2021)**
  - ❖ AKTU sponsored online FDP on “**Emerging Trends of Information Technologies and it’s Applications**” conducted by an Information Technology department, AKGEC, Ghaziabad during 16<sup>th</sup> to 20<sup>th</sup> Dec. 2020.
  - ❖ MOOC video lecture recording of the course on “**Computer Organization and Architecture**”, developed under the supervision of AKTU Lucknow.
  - ❖ MOOC video lecture recording of the course on “**Digital Logic Design**”, developed under the supervision of AKTU Lucknow, India.
  - ❖ National Board of Accreditation of Information Technology department, AKGEC, Ghaziabad during the session 2018-19.
- SPOC (2017-2018)** **Smart India Hackathon** competition, organized by AICTE and MHRD, Govt. of India.
- Member, Organizing Committee**
  - ❖ *5<sup>th</sup>Nat. Conf. on Information Technology for Business Transformation, ITBT-2018*, organized by AKGEC, Ghaziabad, held in March. 09-10, 2018.
  - ❖ *4<sup>th</sup>Nat. Conf. on Information Technology for Business Transformation, ITBT-2017*, organized by AKGEC, Ghaziabad, held in Feb. 17-18, 2017.
  - ❖ *Nat. Conf. on Emerging Computer Technologies, COMTECH-2016*, organized by AKGEC, Ghaziabad, held in April 1-2, 2016.
  - ❖ *IEEE Int. Conf. Industrial and Information Systems (ICIIS 2014)*, organized by ABV-IIITM Gwalior, India and San Diego State University, San Diego, USA held in Dec. 2014.
- 2004-2005 **Group Leader, Flying Squad**, *U.P.T.U.*, Lucknow, India during examination at MIT, Bulandshahar, India.
- 2003 **Member, Affiliation Committee**, *Bhim Rao Ambedkar University*, Agra, India for B.C.A. course affiliation at *Shivdhan Singh institute of Technology*, Aligarh, India.

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## Awards and Honors

Jan. 20-24, 2025	<b>Expert Lecture</b> in short-term course (e-STC) on “ <b>Machine Learning and its applications in Information Security, Computer Vision and Natural Language Processing (MaLiCoN 2025)</b> ”, NIT Hamirpur, India
Dec. 21-25, 2020	<b>Expert Sharing</b> in Short-term Course on “ <b>Research Trends in Communication and Signal Processing</b> ”, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India
Jan. 11-13, 2018	<b>Invited Talk</b> on Image Processing Basics with hands on Image Watermarking, Workshop on “ <b>MATLAB: Modeling Tools for Engineering Applications</b> ”, Raj Kumar Goel Institute of Technology, Ghaziabad, India
Sept. 19, 2014	<b>Expert Lecture</b> on “ <b>Digital Image Processing</b> ”, Oriental Group of Institute, Jabalpur, M.P. India
Jan. 2012- Dec.2014	Recipient of <b>Institute Scholarship</b> (Ministry of Human Resource Development, India) for Postgraduate Studies (Ph.D.).
2008	Received <b>certificate of appreciation</b> from the Chairman, Accurate institute of Mgmt. & Technology, Greater Noida, India.

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## Research and Guidance

**Reviewer** (peer reviewed Journals)

- ❖ Transactions on Signal Processing, IEEE
- ❖ Neural Computing and Applications, Springer
- ❖ Journal of Digital Imaging, Springer
- ❖ Circuits, Systems & Signal Processing, Springer
- ❖ Multimedia Systems, Springer
- ❖ Journal of Medical Systems, Springer
- ❖ Journal of Medical Systems, Springer
- ❖ Horizon Research Publishing, USA (HRPUB)
- ❖ International Journal of Image and Graphics

**Guidance/Supervision**

### Ph.D. Scholar

- **Ms. Shailja Gupta**, enrolled with HBTU, Kanpur
- **Ms. Meena Kumari**, enrolled with HBTU, Kanpur
- **Mr. Abhay Singh**, enrolled with HBTU, Kanpur
- **Mr. Krishna Kr. Jha**, enrolled with HBTU, Kanpur
- **Mr. Adison Pal**, enrolled with HBTU, Kanpur
- **Mr. Amitash**, enrolled with HBTU, Kanpur
- **Ms. Neha Bagwari** enrolled with AKTU, Lucknow.

### M. Tech. Scholar

- **Ms. Deepti Kaushik** and **Ms. Priya** (Thesis Completed)
- Guided various students of UG level.

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Prog. Languages  
Familiar With  
Type Setting

### **Computer skills**

C, Python, MATLAB  
C++, Java, Pascal  
L<sup>A</sup>T<sub>E</sub>X, Microsoft Office, Open Office

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Father's Name  
Mother's Name  
Date of Birth  
Gender  
Marital Status  
Nationality

### **Personal Information**

Mr. A. K. Verma  
Late Smt. M. K. Verma  
20 Dec. 1978  
Male  
Married  
Indian

I, Vivek Singh Verma do hereby confirm that the information given above is true to the best of my knowledge.

**Dr. Vivek Singh Verma**