


Title	Dr.	First Name	Virendra P.	Last Name	Vishwakarma	
Designation	Professor					
School/Dept.	University School of Information, Communication & Technology					
Address:	E-306, USIC&T, Guru Gobind Singh Indraprastha University, Sector 16-C, Dwarka, New Delhi-110078					
Phone No.	Office: 011-25302725, 25302702					
Email	1. vpv@ipu.ac.in		2. virendravishwa@gmail.com			
Web Page	https://sites.google.com/view/vpvishwa					
Subjects Taught	Digital Image Processing, Computer Vision, Soft Computing, Artificial Neural Networks, Data Structures, Algorithms Analysis & Design, Computer Networks, Embedded Systems, Operating Systems, Artificial Intelligence					
Area of Interest	Digital Image Processing, Soft Computing, Machine Learning					
Experience (in years)	Total	Over 25 Years				
	Industry	6 Years				
	Teaching	Over 19 Years				
	Research	-				
Educational Qualifications	UG	B.Tech. (Electrical Engineering) from Harcourt Butler Technological Institute, (HBTI), Kanpur, U.P., India in May 1994, with 77.9% (Rank holder).				
	PG	M.E. (Computer Science & Engineering) from Motilal Nehru National Institute of Technology (MNNIT) Allahabad, U.P., India in Feb. 2002, with 77.2% (Rank holder).				
	Doctorate	Ph.D. (Computer Science & Engineering) from Guru Gobind Singh Indraprastha (GGSIP) University, New Delhi, India in Oct 2012.				
	Any other	-				
Research Publications in Journals (last 5 years)	<p>[1] V. Sisaudia and V. P. Vishwakarma, "Copyright protection using KELM-PSO based multi-spectral image watermarking in DCT domain with local texture information based selection," <i>Multimed. Tools Appl.</i>, vol. 80, no. 6, pp. 8667–8688, 2021. DOI:https://doi.org/10.1007/s11042-020-10028-y</p> <p>[2] B. Ahuja and V. P. Vishwakarma, "Deterministic Multi-kernel based extreme learning machine for pattern classification," <i>Expert Syst. Appl.</i>, p. 115308, 2021. DOI:https://doi.org/10.1016/j.eswa.2021.115308</p> <p>[3] S. Dalal and V. P. Vishwakarma, "Classification of ECG signals using multi-cumulants based evolutionary hybrid classifier," <i>Sci. Rep.</i>, vol. 11, no. 1, pp. 1–25, 2021. DOI:https://doi.org/10.1038/s41598-021-94363-6</p> <p>[4] B. Ahuja and V. P. Vishwakarma, "Optimization of regularization coefficient and kernel parameters of KELM in face recognition using genetic algorithm," <i>J. Discret. Math. Sci. Cryptogr.</i>, vol. 24, no. 3, pp. 843–858, 2021. DOI:https://doi.org/10.1080/09720529.2021.1877409</p> <p>[5] B. Ahuja and V. P. Vishwakarma, "Deterministic multikernel extreme</p>					

learning machine with fuzzy feature extraction for pattern classification,” *Multimed. Tools Appl.*, pp. 1–25, 2021.

DOI:<https://doi.org/10.1007/s11042-021-11097-3>

- [6] S. Dalal and V. P. Vishwakarma, “Optimization of weights in ELM for face recognition,” *J. Inf. Optim. Sci.*, pp. 1–16, 2021. DOI: <https://doi.org/10.1080/02522667.2021.1893473>
- [7] V. P. Vishwakarma and S. Dalal, “Neuro-Fuzzy Hybridization using Modified S Membership Function and Kernel Extreme Learning Machine for Robust Face Recognition under Varying Illuminations,” *EAI Endorsed Trans. Scalable Inf. Syst.*, vol. 7, no. 27, 2020. DOI: <http://dx.doi.org/10.4108/eai.13-7-2018.163575>
- [8] G. Mishra and V. P. Vishwakarma, “A robust two quadrant sparse classifier for partially occluded face image recognition,” *J. Discret. Math. Sci. Cryptogr.*, pp. 1–12, 2020. DOI: <https://doi.org/10.1080/09720529.2020.1726079>
- [9] S. Yadav and V. P. Vishwakarma, “A new interval type 2 fuzzy-based pixel wise information extraction for face recognition,” *Int. J. Appl. Pattern Recognit.*, vol. 5, no. 3, pp. 171–190, 2018. DOI: <https://doi.org/10.1504/IJAPR.2018.094812>
- [10] V. P. Vishwakarma and V. Sisaudia, “Self-adjustive DE and KELM-based image watermarking in DCT domain using fuzzy entropy,” *Int. J. Embed. Syst.*, vol. 13, no. 1, pp. 74–84, 2020. DOI:10.1504/IJES.2020.108286
- [11] V. P. Vishwakarma and V. Sisaudia, “Gray-scale image watermarking based on DE-KELM in DCT domain,” *Procedia Comput. Sci.*, vol. 132, pp. 1012–1020, 2018. DOI:10.1016/j.procs.2018.05.017
- [12] G. Mishra, V. P. Vishwakarma, and A. Aggarwal, “Face recognition using linear sparse approximation with multi-modal feature fusion,” *J. Discret. Math. Sci. Cryptogr.*, vol. 22, no. 2, pp. 161–175, 2019. DOI:<https://doi.org/10.1080/09720529.2019.1576337>
- [13] S. Dalal and V. P. Vishwakarma, “PHT and KELM Based Face Recognition,” in *Modern Approaches in Machine Learning and Cognitive Science: A Walkthrough*, Springer, Cham, 2020, pp. 157–167. DOI:10.1007/978-3-030-38445-6_12
- [14] S. Dalal and V. P. Vishwakarma, “A Novel Approach of Face Recognition Using Optimized Adaptive Illumination--Normalization and KELM,” *Arab. J. Sci. Eng.*, 2020. DOI:<https://doi.org/10.1007/s13369-020-04566-8>
- [15] R. Mehta, N. Rajpal, and V. P. Vishwakarma, “Robust image watermarking scheme in lifting wavelet domain using GA-LSVR hybridization,” *Int. J. Mach. Learn. Cybern.*, vol. 9, no. 1, pp. 145–161, 2018. DOI:10.1007/s13042-015-0329-6
- [16] V. P. Vishwakarma and S. Dalal, “A novel non-linear modifier for adaptive illumination normalization for robust face recognition,” *Multimed. Tools Appl.*, pp. 1–27, 2020. DOI:10.1007/s11042-019-08537-6
- [17] V. P. Vishwakarma and S. Dalal, “An adaptive illumination normalization using non-linear regression for robust person identification under varying illuminations,” *J. Stat. Manag. Syst.*, vol. 23, no. 1, pp. 77–90, 2020. DOI: <https://doi.org/10.1080/09720510.2020.1714149>
- [18] G. Mishra, V. P. Vishwakarma, and A. Aggarwal, “Constrained L1-optimal sparse representation technique for face recognition,” *Opt. Laser Technol.*, vol. 129, p. 106232, 2020. DOI: <https://doi.org/10.1016/j.optlastec.2020.106232>

	<p>[19] B. Ahuja and V. P. Vishwakarma, "Optimised multikernels based extreme learning machine for face recognition," <i>Int. J. Appl. Pattern Recognit.</i>, vol. 5, no. 4, pp. 330–340, 2018. DOI:10.1504/IJAPR.2018.097105</p> <p>[20] S. Dalal, V. P. Vishwakarma, and S. Kumar, "Feature-based Sketch-Photo Matching for Face Recognition," <i>Procedia Comput. Sci.</i>, vol. 167, pp. 562–570, 2020. DOI:https://doi.org/10.1016/j.procs.2020.03.318</p> <p>[21] V. P. Vishwakarma and G. Mishra, "A robust multi-level sparse classifier with multi-modal feature extraction for face recognition," <i>Int. J. Appl. Pattern Recognit.</i>, vol. 6, no. 1, pp. 76–102, 2019. DOI: 10.1504/IJAPR.2019.104300</p> <p>[22] V. P. Vishwakarma and T. Goel, "An efficient hybrid DWT-fuzzy filter in DCT domain based illumination normalization for face recognition," <i>Multimed. Tools Appl.</i>, vol. 78, no. 11, pp. 15213–15233, 2019. DOI:https://doi.org/10.1007/s11042-018-6837-0</p> <p>[23] S. Yadav and V. P. Vishwakarma, "Extended interval type-II and kernel based sparse representation method for face recognition," <i>Expert Syst. Appl.</i>, vol. 116, pp. 265–274, 2019. DOI: https://doi.org/10.1016/j.eswa.2018.09.032</p> <p>[24] V. P. Vishwakarma and S. Dalal, "Generalized DCT and DWT hybridization based robust feature extraction for face recognition," <i>J. Inf. Optim. Sci.</i>, vol. 41, no. 1, pp. 61–72, 2020. DOI:https://doi.org/10.1080/02522667.2020.1721593</p> <p>[25] S. Dalal and V. P. Vishwakarma, "GA based KELM Optimization for ECG Classification," <i>Procedia Comput. Sci.</i>, vol. 167, pp. 580–588, 2020. DOI:https://doi.org/10.1016/j.procs.2020.03.322</p> <p>[26] R. Mehta, N. Rajpal, and V. P. Vishwakarma, "A robust and efficient image watermarking scheme based on Lagrangian SVR and lifting wavelet transform," <i>Int. J. Mach. Learn. Cybern.</i>, vol. 8, no. 2, pp. 379–395, 2017. DOI:https://doi.org/10.1007/s13042-015-0331-z</p> <p>[27] T. Goel, V. Nehra, and V. P. Vishwakarma, "Pose normalization based on kernel ELM regression for face recognition," <i>Int. J. Image, Graph. Signal Process.</i>, vol. 9, no. 5, p. 68, 2017. DOI:10.5815/ijigsp.2017.05.07</p> <p>[28] R. Mehta, N. Rajpal, and V. P. Vishwakarma, "Adaptive image watermarking scheme using fuzzy entropy and GA-ELM hybridization in DCT domain for copyright protection," <i>J. Signal Process. Syst.</i>, vol. 84, no. 2, pp. 265–281, 2016. DOI:https://doi.org/10.1007/s11265-015-1055-8</p> <p>[29] K. Arora, P. Garg, and V. P. Vishwakarma, "Face Recognition across Pose using ELM Framework," <i>Eur. J. Electr. Eng. Comput. Sci.</i>, vol. 2, no. 3, 2018. DOI:10.24018/ejece.2018.2.3.23</p> <p>[30] A. Goel and V. P. Vishwakarma, "Fractional DCT and DWT hybridization based efficient feature extraction for gender classification," <i>Pattern Recognit. Lett.</i>, vol. 95, pp. 8–13, 2017. DOI:https://doi.org/10.1016/j.patrec.2017.05.014</p> <p>[31] T. Goel, V. Nehra, and V. P. Vishwakarma, "An adaptive non-symmetric fuzzy activation function-based extreme learning machines for face recognition," <i>Arab. J. Sci. Eng.</i>, vol. 42, no. 2, pp. 805–816, 2017. DOI:https://doi.org/10.1007/s13369-016-2338-5</p>
Papers Published in Conference	<p>[1] V. Sisaudia and V. P. Vishwakarma, "Tamper Detection using Self-Generating Watermarks based on Local Binary Patterns," in <i>2021 International Conference on Smart Generation Computing</i>,</p>

<p>Proceedings (last 5 years)</p>	<p><i>Communication and Networking (SMART GENCON)</i>, 2021, pp. 1–6. DOI:10.1109/SMARTGENCON51891.2021.9645894</p> <p>[2] B. Ahuja and V. P. Vishwakarma, “Local Binary Pattern Based ELM for Face Identification,” in <i>Proceedings of International Conference on Artificial Intelligence and Applications</i>, 2021, pp. 363–369. DOI:10.1007/978-981-15-4992-2_34</p> <p>[3] S. Chand and V. P. Vishwakarma, “Comparison of Segmentation Algorithms for Leukemia Classification,” in <i>Proceedings of the First International Conference on Advanced Scientific Innovation in Science, Engineering and Technology, ICASISSET 2020, 16-17 May 2020, Chennai, India</i>, (DOI:10.4108/eai.16-5-2020.2303967)</p> <p>[4] M. Swami, D. Verma, and V. P. Vishwakarma, “Blockchain and Industrial Internet of Things: Applications for Industry 4.0,” in <i>Proceedings of International Conference on Artificial Intelligence and Applications</i>, 2020, pp. 279–290. DOI:https://doi.org/10.1007/978-981-15-4992-2_27</p> <p>[5] S. Dalal, V. P. Vishwakarma, and V. Sisaudia, “ECG Classification using Kernel Extreme Learning Machine,” in <i>2nd IEEE International conference on power Electronics, Intelligent Control and Energy systems (ICPEICES-2018)</i>, 2018. DOI:10.1109/ICPEICES.2018.8897416</p> <p>[6] S. Yadav and V. P. Vishwakarma, “Fuzzy Quaternion-based Pixel Wise Information Extraction for Face Recognition,” in <i>2nd IEEE International conference on power Electronics, Intelligent Control and Energy systems (ICPEICES-2018)</i>, 2018. DOI:10.1109/ICPEICES.2018.8897304</p> <p>[7] D. Verma, V. P. Vishwakarma, and S. Dalal, “A Hybrid Self-constrained Genetic Algorithm (HSGA) for Digital Image Denoising Based on PSNR Improvement,” in <i>Advances in Bioinformatics, Multimedia, and Electronics Circuits and Signals</i>, Springer, 2020, pp. 135–153. DOI:10.1007/978-981-15-0339-9_12</p> <p>[8] G. Mishra and V. P. Vishwakarma, “Nested Sparse Classification Method for Hierarchical Information Extraction,” in <i>Proceedings of International Conference on Artificial Intelligence and Applications</i>, pp. 533–542. DOI: https://doi.org/10.1007/978-981-15-4992-2_50</p> <p>[9] B. Ahuja and V. P. Vishwakarma, “Local Feature Extraction based KELM for Face Recognition,” in <i>2019 Twelfth International Conference on Contemporary Computing (IC3)</i>, 2019, pp. 1–5. DOI: 10.1109/IC3.2019.8844888</p> <p>[10] N. Srivastava, V. P. Vishwakarma, and U. Ghose, “Predicting the popularity of websites using multilayer perceptron and extreme learning machine,” in <i>2nd IEEE International conference on power Electronics, Intelligent Control and Energy systems (ICPEICES-2018)</i>, 2018. DOI:10.1109/ICPEICES.2018.8897340</p> <p>[11] B. Ahuja and V. P. Vishwakarma, “Local Binary Pattern Based Feature Extraction with KELM for Face Identification,” in <i>2020 6th International Conference on Signal Processing and Communication (ICSC)</i>, 2020, pp. 91–95. DOI: 10.1109/ICSC48311.2020.9182760</p> <p>[12] V. P. Vishwakarma and S. Yadav, “A Hybridization of Fuzzy Logic and Deterministic Learning Machine for Face Recognition,” in <i>International Conference on VLSI, Communication and Signal Processing (VCAS 2018)</i>, 2018. DOI:10.1007/978-981-32-9775-3_90</p> <p>[13] V. P. Vishwakarma and S. Dalal, “A Novel Approach for Compensation of Light Variation Effects with KELM Classification for Efficient Face</p>
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	<p>Recognition,” in <i>International Conference on VLSI, Communication and Signal Processing (VCAS 2018)</i>, 2018. DOI:https://doi.org/10.1007/978-981-32-9775-3_89</p> <p>[14] V. P. Vishwakarma, S. Dalal, and V. Sisaudia, “Efficient Feature Extraction using DWT-DCT for Robust Face Recognition under varying Illuminations,” in <i>2nd IEEE International conference on power Electronics, Intelligent Control and Energy systems (ICPEICES-2018)</i>, 2018. DOI: 10.1109/ICPEICES.2018.8897464</p> <p>[15] G. Mishra and V. P. Vishwakarma, “Partial Occlusion Handling using Quadrant-wise Sparsity for Face Image Recognition,” in <i>2020 7th International Conference on Computing for Sustainable Global Development (INDIACom)</i>, 2020, pp. 35–38. DOI:10.23919/INDIACom49435.2020.9083680</p> <p>[16] V. P. Vishwakarma, “Fractional Discrete Cosine Transform Based Approach for Compensating the Effect of Light Variations for Robust Face Recognition,” in <i>11th International Conference on Contemporary Computing (IC3)</i>, 2018. DOI: 10.1109/IC3.2018.8530612</p> <p>[17] R. Mehta and V. P. Vishwakarma, “LC-ELM-Based Gray Scale Image Watermarking in Wavelet Domain,” in <i>Quality, IT and Business Operations</i>, Springer, Singapore, 2018, pp. 191–202. DOI:10.1007/978-981-10-5577-5_16</p> <p>[18] U. Aiman and V. P. Vishwakarma, “Face recognition using modified deep learning neural network,” in <i>Computing, Communication and Networking Technologies (ICCCNT), 2017 8th International Conference on</i>, 2017, pp. 1–5. DOI: 10.1109/ICCCNT.2017.8203981</p>
Books Authored/ Book Volume Chapters	--
No. of Conferences/ Workshops/ FDPs	<ul style="list-style-type: none"> • Delivered an invited lecture on “Fuzzy Logic for Pattern Recognition and Computer Vision (Implementation using MATLAB)” in AICTE Training and Learning (ATAL) Academy Faculty Development Programme (FDP) on Recent Trends and Challenges in Image Processing and Computer Vision (Online) organized by University School of Information, Communication & Technology, GGSIP University, New Delhi on 29th Nov. 2021. • Delivered an invited lecture on “Fundamental Concepts & Advances in Artificial Neural Networks” in Faculty Development Programme (FDP) on Recent Advancements and Challenges in IT (Online) organized by Department of Information Technology, Maharaja Surajmal Institute of Technology, New Delhi on 9th Mar. 2021. • Delivered an invited lecture on “Neural Networks: Iterative to Non-Iterative Variants” in AICTE Training and Learning (ATAL) Programme on Neural Network and Deep Learning (Online) organized by University School of Information, Communication & Technology, GGSIP University, New Delhi on 26th Nov. 2020. • Delivered an invited lecture on “DIP Preprocessing Concepts and ANNs Applied for Illumination Normalization in Face Recognition” in AICTE Training and Learning (ATAL) Programme on Neural Network and Deep Learning (Online) organized by University School of Information, Communication & Technology,

	<p>GGSSIP University, New Delhi on 26th Nov. 2020.</p> <ul style="list-style-type: none"> • Delivered an invited lecture on “Soft Computing Techniques in Person Identification” in the 1st Short Term Course in Cyber Security organized by UGC-Human Resource Development Centre, Jawaharlal Nehru University, New Delhi on 8th Jan 2020. • Delivered an invited lecture on “Fundamental concepts of Artificial Neural Networks & Its Applications” in the FDP held at SRM University, Ghaziabad, U.P. on 12th June 2018. • Delivered an invited lecture on “Preprocessing Concepts of DIP Applied for Illumination Normalization in Face Recognition” in the FDP held at Bharti Vidyapeeth College of Engineering, Pashchim Vihar, New Delhi on 25th May 2018. • Delivered an invited lecture on “Digital Image Processing: Preprocessing Concepts Applied for Illumination Normalization in FR” in the FDP held at Maharaja Surajmal Institute of Technology, Janakpuri, New Delhi on 3rd Mar. 2016. • Delivered invited talks on “Artificial Neural Networks and its Applications” and “Applications of Extreme Learning Machine (ELM)” in National workshop on Image Processing and Optimization Techniques (NWIPOT) at Amity School of Engineering & Technology, Bijwasan, New Delhi on 11-12th Feb. 2016. • Delivered an invited lecture on “Fundamentals, Current Trends in Artificial Neural Networks & Their Applications” in the FDP held at YMCA University of Science & Technology, Faridabad on 3rd June. 2015. • Delivered an invited lecture on “Artificial Neural Networks Concepts and Applications” in the FDP held at Amity University, Noida on 28th May 2015. • Delivered invited talk on “Some Concepts in Digital Image Processing and their Application to Face Recognition System” in National Conference on Recent Advances in Embedded Technologies at Jagannath International Management School, New Delhi on 11th Apr. 2015. • Delivered lectures on “Digital Image Processing: Fundamentals, Enhancement and Application to Face Recognition” in Refresher Course organized by UGC-ASC Bhagat Phool Singh Mahila, University, Sonapat, Haryana on 16th Jun. 2014. • Delivered invited talk on “Preprocessing & Classification for Face Recognition: Issues & Techniques under Varying Illumination Conditions” in National Seminar on Computing and Intelligence Systems, at Krishan Institute of Engineering & Technology, Ghaziabad, U.P. on 28th Mar. 2014. • Session Chair in “International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT-2014)” at Krishna Institute of Engineering & Technology, Ghaziabad, U.P. on 7th Feb. 2014 2013. • Session Chair and Best Paper Competition Judge in “2nd National Conference on Trends and Advancement in Computer Science & Engineering” at B.S.A. College of Engineering & Technology, Mathura, U.P. on 23rd Mar. 2013. 			
Research Guidance	Programme	PG	M. Phil	Doctorate
	Awarded	39	--	Dr. Bhawna Ahuja Dr. Sahil Dalal Dr. Sudesh Yadav

				Dr. Tripti Goel
	Undergoing			Ms. Gargi Mishra Ms. Varsha Sisaudia Ms. Sunita Chand Ms. Arshi Husain Mr. Abhay Yadav Mr. Lalit Narayan
Research Projects	Completed	1. FRGS (GGSIPU), entitled “Design, analysis and development of non-linear feature extraction for robust face recognition under varying constraints” in 2018-19. 2. FRGS (GGSIPU), entitled “Design, analysis and development of fractional discrete Cosine transform based face recognition under varying illuminations” in 2017-18.		
	Undergoing	NA		
Awards & Distinctions	Recipient of Letter of Appreciation for “ Faculty Achievement Award ” at GGSIP University in year 2019 .			
Administrative Assignments Handled	Head , University IT Services Cell (UITS), GGSIPU from Mar. 2015 to July 2019.			
Association with Professional Bodies	<ul style="list-style-type: none"> • Member, IEEE (Membership No. 94257530) • Life Member of Computer Society of India (CSI) • Member, The Institution of Engineering and Technology (IET) • Life Member, Association of Computer Electronics & Electrical Engineers (ACEEE) (Membership No. 7000052) 			
Any other Achievements	<ul style="list-style-type: none"> • Subject expert in the Board of Studies (BoS) of Computer Science & Engineering and Information Technology at Madhav Institute of Technology & Science, Gwalior, M.P. • Subject Expert in the Ph. D. DRC of the department of CSE of NorthCap University, Gurgaon, India 			