Brief Curriculum Vitae of Prof. (Ms.) Aparajita Ojha

1. **Present Position:** Professor, Computer Science and Engineering, PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur.

2. **Date of Birth:** April 23, 1962: **Sex**: Female

3. **Academic Qualifications: Ph.D. (Mathematical Sciences) 1987** R.D. University, Jabalpur, India.

4. **Teaching and Research Experience**: 38+ years**.**

5. **Present and Past Employment:**

   December 2005 – till date: Professor, PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur.
   February 2009-February 17, 2015 – Director, PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur.
   September 2003-November 2005: Professor, RD university, Jabalpur
   March 1990-September 2003: (Reader) Associate Professor, RD university, Jabalpur
   June 1984-March 1990: (Lecturer) Assistant Professor: RD University, Jabalpur

6. **Research Interests:** Artificial Intelligence and Machine Learning (Deep Learning), Steganography, Digital Watermarking, Path Planning for Robotics**,** Geometric Modeling, Finite Element Analysis, Software maintainability, Blockchain Technology

7. **Courses Taught in the Last Five Years**:
   Introduction to Deep Learning, Introduction to Blockchain Technology, Game Theory and Applications, Mathematics for Computer Science, Computer Graphics, Visual Cryptography, Network Flow Optimization, Fundamentals of Robotics, Robotics and Intelligent Systems.

8. **Membership of Professional Societies**
   Senior Member - IEEE, Member ACM, Life member of Indian Mathematical Society, Indian Society of Industrial and Applied Mathematics, International Academy of Physical Sciences, Indian Science Congress.

9. **Research Publications**

   1. Gokhale, M., Mohanty, S. K., & Ojha, A. (2022). A stacked autoencoder based gene selection and cancer classification framework. Biomedical Signal Processing and Control, 78, 103999.
   2. Thakur, P. S., Khanna, P., Sheorey, T., & Ojha, A. (2022). Trends in vision-based machine learning techniques for plant disease identification: A systematic review. Expert Systems with Applications, 118117.
   3. Bamoriya, P., Siddhad, G., Kaur, H., Khanna, P., & Ojha, A. (2022). DSB-GAN: Generation of deep learning based synthetic biometric data. Displays, 74, 102267.
   4. Chaturvedi S., Khanna P., Ojha A. , (2022) A survey on vision-based outdoor smoke detection techniques for environmental safety, ISPRS Journal of Photogrammetry and Remote Sensing, 185, 158-187.
   5. Thakur, P.S., Sheorey, T., Ojha A., VGG-ICNN: A lightweight CNN model for crop disease identification, Multimedia Tools and Applications, Accepted, 2022.
   6. Jain, S., Seal, A., & Ojha, A. (2022). Localization of Polyps in WCE Images Using Deep Learning Segmentation Methods: A Comparative Study. In International Conference on Computer Vision and Image Processing (pp. 538-549). Springer.
   7. Thakur, P. S., Khanna, P., Sheorey, T., & Ojha, A. (2022). Vision Transformer for Plant Disease Detection. In International Conference on Computer Vision and Image Processing (pp. 501-511). Springer.
   8. Khare, N., Thakur, P. S., Khanna, P., & Ojha, A. (2022). Analysis of Loss Functions for Image Reconstruction Using Convolutional Autoencoder. In International Conference on Computer Vision and Image Processing (pp. 338-349). Springer.
   9. Bamoriya, P., Siddhad, G., Khanna, P., & Ojha, A. (2022). Cancelable Template Generation Using Convolutional Autoencoder and RandNet. In International Conference on Computer Vision and Image Processing (pp. 363-374). Springer.

10. Kumar, A., Ojha, A., Yadav, S., Kumar, A., Real-time interception performance evaluation of certain proportional navigation based guidance laws in aerial ground engagement, Intelligent Service Robotics, 2021

11. Chaturvedi, S., Khanna, P., & Ojha, A. (2021, November). Comparative Analysis of Traditional and Deep Learning Techniques for Industrial and Wildfire Smoke Segmentation. In 2021 Sixth International Conference on Image Information Processing (ICIIP) (Vol. 6, pp. 326-331). IEEE.

12. Chaturvedi, S., Khann P., & Ojha A., A survey on vision-based outdoor smoke detection techniques for environmental safety, ISPRS Journal of Photogrammetry and Remote Sensing, 2021, revision submitted.

13. Jain, S., Seal, A., Ojha, A., Yazidi, A., Bures, J., Tacheci, I., & Krejcar, O. (2021). A deep CNN model for anomaly detection and localization in wireless capsule endoscopy images. Computers in Biology and Medicine, 104789. (Impact Factor (IF): 4.589)

14. Thakur, P. S., Sheorey, T., & Ojha, A. (2021, May). Crop disease identification using state-of-the-art deep convolutional neural networks. In Smart Computing: Proceedings of the 1st International Conference on Smart Machine Intelligence and Real-Time Computing (SmartCom 2020), 26-27 June 2020, Pauri, Garhwal, Uttarakhand, India (p. 160). CRC Press.

15. Jain, S., Seal, A., & Ojha, A. (2021, May). Deep learning models for anomaly detection in wireless capsule endoscopy video frames: The transfer learning approach. In Smart Computing: Proceedings of the 1st International Conference on Smart Machine Intelligence and Real-Time Computing (SmartCom 2020), 26-27 June 2020, Pauri, Garhwal, Uttarakhand, India (p. 423). CRC Press.

16. Siddhad, G., Khanna, P., & Ojha, A. (2020, December). Cancelable Biometric Template Generation Using Convolutional Autoencoder. In International Conference on Computer Vision and Image Processing (pp. 303-314). Springer, Singapore.

17. Jain, S., Thakur, P. S., Bharti, K., Khanna, P., & Ojha, A. (2020, December). A Lightweight Multi-label Image Classification Model Based on Inception Module. In International Conference on Computer Vision and Image Processing (pp. 225-236). Springer, Singapore.

18. Jothi, R., Mohanty, S. K., & Ojha, A. (2021). Gene expression clustering using local neighborhood-based similarity measures. Computers & Electrical Engineering, 91, 107032.

19. R Jothi, Sraban K. Mohanty, Aparajita Ojha, Clustering of gene expression profiles using local neighborhood based similarity measures, Computers & Electrical Engineering, accepted, 2020.

20. Jain, S., Seal, A., Ojha, A., Krejcar, O., Bureš, J., Tachecí, I., & Yazidi, A. (2020). Detection of abnormality in wireless capsule endoscopy images using fractal features. Computers in Biology and Medicine, 127, 104094.

21. Reddy, B. R., & Ojha, A. (2019). How effective are maintainability metrics in estimating maintenance efforts? An empirical study. International Journal of System Assurance Engineering and Management, 10(5), 984-1001.

22. Reddy, B R, Ojha, A., Performance of Maintainability Index prediction models: a feature selection based study(2019) Evolving Systems, 10(2), 179-204.

23. Kumar, A., Ojha, A., Experimental Evaluation of Certain Pursuit and Evasion Schemes for Wheeled Mobile Robots(2019) International Journal of Automation and Computing, 16(4), 491-510.

24. Jothi, R; Mohanty, Sraban Kumar, Ojha, A., DK-means: a deterministic k-means clustering algorithm for gene expression analysis (2019) Pattern Analysis and Applications, 22(2), 649-667.

25. Yadav, G. S., Ojha, A., Improved security in the genetic algorithm-based image steganography scheme using Hilbert space-filling curve (2019), The Imaging Science Journal, 67(3), 148-158.

26. Yadav, G. S., Ojha, A., Hamiltonian path based image steganography scheme with improved imperceptibility and undetectability (2018) Applied Soft Computing, 73, 497-507.

27. Jothi, R., Mohanty, S. K., and Ojha, A., Fast approximate minimum spanning tree based clustering algorithm (2018) Neurocomputing, 272, 542-557.

28. Yadav G.S. , Ojha A., Secure data hiding scheme using shape generation algorithm: a key based approach (2017) Multimedia Tools and Applications, 1-27, DOI 10.1007/s11042-017-5200-1.

29. Yadav, G. S., and Ojha, A., Chaotic system-based secure data hiding scheme with high embedding capacity (2018) Computers & Electrical Engineering, online.

30. Yadav, G. S., Ojha, A., A Reversible Data Hiding Scheme with High Security and Improved Embedding Capacity (2018) In 2018 17th IEEE International Conference On Trust, Security And Privacy In

Computing And Communications/12th IEEE International Conference On Big Data Science And Engineering (TrustCom/BigDataSE), pp. 1555-1559.

31. Reddy, B. R., Ojha, A., Discrimination of inheritance patterns: An improved metric(2018) In 2018 8th IEEE International Conference on Cloud Computing, Data Science & Engineering (Confluence) , pp. 653-657.

32. Reddy BR, Ojha A., Performance of maintainability index prediction models: A feature selection based study (2017) Evolving Systems, doi.org/10.1007/s1253 0-017-9201-0.

33. Shukla D., Ojha A., Jha, R.K., A new composite multi-constrained differential-Radon warping approach for digital video affine motion stabilization (2017) Computer Vision and Image Understanding, 155, pp. 83-105.

34. Kumar A., Ojha A., Padhy P.K., Anticipated trajectory based proportional navigation guidance scheme for intercepting high maneuvering targets (2017) International Journal of Control, Automation, and Systems, 15(3), pp. 1-11.

35. Shukla, D., Jha, R.K., Ojha, A., Digital image stabilization using similarity transformation over constrained differential radon warping vectors (2016) Signal Processing: Image Communication, 47, pp. 115130.

36. Jothi, R., Mohanty, S.K., Ojha, A., Functional grouping of similar genes using eigenanalysis on minimum spanning tree based neighborhood graph (2016) Computers in Biology and Medicine, 71, pp. 135148.

37. Jothi, R., Mohanty, S.K., Ojha, A., On careful selection of initial centers for Kmeans algorithm (2016) Smart Innovation, Systems and Technologies, 43, pp. 435445.

38. Shukla, D., Jha, R.K., Ojha, A., Unsteady camera zoom stabilization using slope estimation over interest warping vectors (2015) Pattern Recognition Letters, 68, pp. 197204.

39. Yadav, G.S., Ojha, A., A scalable data hiding scheme using hilbert space curve and chaos (2015) Proceedings 14th IEEE International Conference on Trust, Security and Privacy in Computing and Communications, TrustCom 2015, 1, art. no. 7345371, pp. 905909.

40. Reddy, B.R., Khurana, S., Ojha, A., Software Maintainability estimation made easy A comprehensive tool COIN (2015) ACM International Conference Proceeding Series, 2527September2015, pp. 6872.

41. Bora, S., Ojha, A., Analysis and combination of positive aspects of threshold RG based VSS schemes (2015) Proceedings of the 2015 Science and Information Conference, SAI 2015, art. no. 7237296, pp. 11921200.

42. Verma, V.S., Jha, R.K., Ojha, A., Significant region based robust watermarking scheme in lifting wavelet transform domain (2015) Expert Systems with Applications, 42 (21), pp. 81848197.

43. Verma, V.S., Jha, R.K., Ojha, A., Digital watermark extraction using support vector machine with principal component analysis based feature reduction (2015) Journal of Visual Communication and Image Representation, 31, art. no. 1533, pp. 7585.

44. Kumar, A., Ojha, A., Anticipated velocity based guidance strategy for wheeled mobile evader amidst stationary and moving obstacles in bounded environment (2015) Computer Animation and Virtual Worlds, 26 (5), pp. 495507.

45. Jothi, R., Mohanty, S.K., Ojha, A. On the impact of postclustering phase in multiway spectral partitioning (2015) Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 9468, pp. 161169.

46. Jothi, R., Ojha, A., On multisecret sharing using Hill cipher and random grids (2015) Conference Proceeding 2015 International Conference on Advances in Computer Engineering and Applications, ICACEA 2015, art. no. 7164778, pp. 683687.

47. Jothi, R., Mohanty, S.K., Ojha, A., Fast minimum spanning tree based clustering algorithms on local neighborhood graph (2015) Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 9069, pp. 292301.

48. Reddy, R.B., Ojha, A., Discrimination of class inheritance hierarchies – a vector approach (2014) Advances in Intelligent Systems and Computing, 276, pp. 121130.

49. Ramachandra Reddy, B., Ojha, A. ClassIn: A class inheritance metric tool (2014) Advances in Intelligent Systems and Computing, 276 VOLUME 2, pp. 113119.

50. Kumari, S., Ojha, A., Maintainable stochastic flow networks with high QoS: A quick and practical approach (2014) Proceedings 2014 4th International Conference on Advances in Computing and Communications, ICACC 2014, art. no. 6906038, pp. 260265.

51. Yadav, G.S., Ojha, A., A Novel Multi Secret Sharing Scheme Based on Bitplane Flips and Boolean Operations (2014) Advances in Intelligent Systems and Computing, 248 VOLUME I, pp. 765772.

52. Kumar, A., Ojha, A., Anticipated Velocity Based Guidance Strategy for Wheeled Mobile Evaders Amidst Moving Obstacles in Bounded Environment (2014) Advances in Intelligent Systems and Computing, 248 VOLUME I, pp. 789798.

53. Bunker, S.C., Barasa, M., Ojha, A., Linear equation based visual secret sharing scheme (2014) Souvenir of the 2014 IEEE International Advance Computing Conference, IACC 2014, art. no. 6779358, pp. 406410.

54. Yadav, G.S., Ojha, A., A novel visual cryptography scheme based on substitution cipher (2013) 2013 IEEE 2nd International Conference on Image Information Processing, IEEE ICIIP 2013, art. no. 6707673, pp. 640643.

55. Kumar, A., Ojha, A., Performance evaluation of certain proportional navigation guidance schemes (2013) CARE 2013 2013 IEEE International Conference on Control, Automation, Robotics and Embedded Systems,

56. Kumar, A., Ojha, A., Subdivisionbased corridor map method for path planning (2013) International Journal of Robotics and Automation, 28 (4), pp. 331339.

57. Kumar, A., Ojha, A., An evadercentric strategy against fast pursuer in an unknown environment with static obstacles (2013) CARE 2013 2013 IEEE International Conference on Control, Automation, Robotics and Embedded Systems, Proceedings, art. no. 6733717, .

58. Johari, S., Ojha, A., Quickest path problems in stochasticflow networks with time constraint: A fast and reliable solution (2013) Proceedings of the 2013 3rd IEEE International Advance Computing Conference, IACC 2013, art. no. 6514458, pp. 15551560.

59. Kumar, A., Ojha, A., Natural path planning using wavelet noise in static environment (2013) Computer Animation and Virtual Worlds, 24 (1), pp. 1724.

60. Kumar, V., Chetan, C., Ojha, A., On a visual secret sharing scheme with high quality decryption (2012) Proc. of the 11th IEEE Int. Conference on Trust, Security and Privacy in Computing and Communications, TrustCom2012 11th IEEE Int. Conference on Ubiquitous Computing and Communications, IUCC2012, art. no. 6296114, pp. 12001203.

61. Yadav, G.S., Ojha, A., A fast and efficient data hiding scheme in binary images (2012) Proceedings of the 2012 8th International Conference on Intelligent Information Hiding and Multimedia Signal Processing, IIHMSP 2012, art. no. 6274406, pp. 7984.

62. Tripathi, D.M., Ojha, A., LPMP: An efficient lightweight protocol for mobile payment (2012) Proceedings 2012 3rd National Conference on Emerging Trends and Applications in Computer Science, NCETACS-2012, art. no. 6203295, pp. 4145.

63. Nigam, D.P., Ojha, A., An aspect oriented model of efficient and secure cardbased payment system (2011) ACM International Conference Proceeding Series, pp. 559564.

64. Choubey, N., Ojha, A., Trigonometric splines with variable shape parameter (2008) Rocky Mountain Journal of Mathematics, 38 (1), pp. 91105.

65. Choubey, N., Ojha, A., Constrained curve drawing using trigonometric splines having shape parameters (2007) CAD Computer Aided Design, 39 (12), pp. 10581064.

66. Nidhi Choubey, H.P. Dikshit, Aparajita Ojha, On Wachspress pentagonal patches, Proceedings of Applied Mathematics and Mechanics, Volume 7, Issue 1 December 2007 Pages 2020099–2020100.

67. A. Ojha, Reconstruction of functions from irregular sampling, in Wavelet Analysis and Applications (ed. Geetha S. Rao), New Age International (2004) 30-40.

68. Dikshit, H.P., Ojha, A., A simple subdivision formula for quadrilateral Wachspress patches (2003) Computer Aided Geometric Design, 20 (7), pp. 395399.

69. H.P. Dikshit and A. Ojha, Bernstein and Wachspress basis functions in computer aided geometric design, (ed. R.S. Pathak), Proceedings of the conference on Analysis and Applications held in BHU, 2001, pp. 169-184.

70. Ojha A., On the total variation of Bernstein polynomials in Analysis and Applications (eds: H.P. Dikshit and P.K. Jain) Narosa Publ. (2002) 189-205.

71. Dikshit, H.P., Ojha, A., On C1continuity of Wachspress quadrilateral patches (2002) Computer Aided Geometric Design, 19 (3), pp. 207222.

72. Ojha A., Continuous wavelet transform: An introduction, in Wavelets and Allied Topics (eds. P.K. Jain et. al), Proceedings of an International Instructional Workshop on Wavelets and Applications held at University of Delhi during August 16-27, 1999. (2001) 1-14.

73. Dahmen, W., Dikshit, H.P., Ojha, A., On Wachspress quadrilateral patches (2000) Computer Aided Geometric Design, 17 (9), pp. 879890.

74. H.P. Dikshit and A. Ojha, Variation diminishing properties of Bernstein polynomials in Approximation Theory and its Applications (ed. Geetha S. Rao), New Age International Publ., (1996) 130-144.

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76. Bhatt A., H.P. Dikshit and A. Ojha, On shape preserving GC2 rational cubic splines, in Advances in Computational Ma thematics, New Delhi, India (Eds. Charles A. Micchelli and H.P. Dikshit), (1994) 87-98.

77. Bhatt, A., Ojha, A., Variation Diminishing Properties of Bernstein Polynomials on a Tetrahedron (1994) Journal of Approximation Theory, 79 (2), pp. 180189.

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80. Dikshit, H.P., Ojha, A., Dimensions of spaces of Wachspress type C1rational finite elements (1991) Computers and Mathematics with Applications, 22 (3), pp. 2326.

81. Dikshit, H.P., Ojha, A., Certain mapping properties of rational complex planar splines (1987) Mathematical Proceedings of the Cambridge Philosophical Society, 101 (1), pp. 141149.

82. Dikshit, H.P., Ojha, A., On convergence and quasiconformality of complex planar spline interpolants (1986) Mathematical Proceedings of the Cambridge Philosophical Society, 99 (2), pp. 347356.

10. **Some Notable /Recent Conferences Organized/Participated in the last five years–**

- Delivered a keynote address at SmartCom 2020 organised by GBPIET, Grawal, June 26-28, 2020.
- Presented a paper on Reversible data hiding scheme with high security and improved embedding capacity at the IEEE Conference TrustCom 2018 held at NewYork, USA during July 31-August 3, 2018.
- Delivered an invited lecture at 22nd International Conference of International Academy of Physical Sciences, Dr. B.R. Ambedkar Awadh Universit, Ayodhya, April 13-15, 2018.
- Organizing Committee Member, 1st International and 4th Natonal Conference on Reliability and Safety Engineering, IIITDM Jabalpur, Feb. 26-28, 2018.
- Coordinator of a Workshop on Innovations and the Society, at PDPM IIITDM Jabalpur under Jabalpur Academia Initiative, a joint venture of six academic institutions in Jabalpur, December 5-6, 2016.
- Organizing Committee Member, Design Workshop, PDPM IIITDM Jabalpur December 12-14, 2016.
- Presented a paper on Reversible data hiding scheme with high security and improved embedding capacity at the IEEE Conference TrustCom 2018 held at NewYork, USA during July 31-August 3, 2018.
- Delivered an invited lecture at 22nd International Conference of International Academy of Physical Sciences, Dr. B.R. Ambedkar Awadh Universit, Ayodhya, April 13-15, 2018.
- Organizing Committee Member, 1st International and 4th Natonal Conference on Reliability and Safety Engineering, IIITDM Jabalpur, Feb. 26-28, 2018.
- Organizing Committee Member, 2017 International Conference on Physics and Mechanics of New Materials and Applications, IIITDM Jabalpur, October 14-16, 2017.
- Delivered an invited lecture at 20th International Conference of International Academy of Physical Sciences, Osmania University Hyderbad, July 14-16, 2017.
- Coordinator of a Workshop on Innovations and the Society, at PDPM IIITDM Jabalpur under Jabalpur Academia Initiative, a joint venture of six academic institutions in Jabalpur, December 5-6, 2016.
- Organizing Committee Member, Design Workshop, PDPM IIITDM Jabalpur December 12-14, 2016.
- Delivered Section Presidential Address at 101st Indian Science Congress held at University of Mumbai during January 3-8, 2015 for the section 'Information Science and Technology including Computer Science'.
- Delivered a key-note lecture at the Second International Conference on Intelligent Interactive Technologies and Multimedia (IITM 2013) held at IIIT Allahabad during March 9-11, 2013.
- Guest of honour and panelist in a session at the 11th Biennial Conference of Indian Society of Industrial and Applied Mathematics held at Gautam Buddha University, Greater Noida during December 15-16, 2012.

- Presented a paper at the 2012 International Symposium on Advances in Trusted and Secure Information Systems (TSIS 2012) held in conjunction with TrustCom 2012 at Liverpool, UK during June 25-27, 2012.
- Delivered a Tribikram Pati Memorial Lecture at the 14th Annual Conference of International Academy of Physical Sciences at SVNIT, Surat, December 22-24, 2011.
- Delivered a Ramaswamy Aiyer Memorial Award Lecture at the 76th Annual Conference of Indian Mathematical Society held at Pune University, December 27-30, 2010.
- Invited for keynote plenary lecture by Organizers of International symposium on Tools and Methods for Competitive Engineering held at Ancona, Italy during April 12-15, 2010
- Invited to attend a Consortium meeting at Japan for development of IIIT: Future prospects during July 25-31, 2009
- Invited to delivered an invited talk at a mini symposium in the Ninth International Conference on Mathematical Methods for Curves and Surfaces held at Tonsberg, Norway during June 26-July 1, 2008.
- Delivered an invited talk at the 74-th annual conference of Indian Mathematical Society at University of Allahabad during December 27-30, 2008.
- Delivered a course of two lectures at a workshop on Wavelets and Applications held during March 2008 at Banaras Hindu University, Varanasi.
- Organized a symposium on "Computer Visualization" at the 73-rd annual conference of Indian Mathematical Society at University of Pune during December 27-30, 2007.
- Delivered a talk on "Wachspress Pentagonal Patches" at Sixth International Congress of Industrial and Applied Mathematics held during July 16-21, 2007 at Zurich, Switzerland.
- Delivered an invited talk at the eighth annual conference of Indian Society of Industrial and Applied Mathematics held at University of Jammu during March 31- April 4, 2007.
- Member, Organizing Committee of 72nd annual conference of Indian Mathematical Society, held at R.D. University, Jabalpur.
- Organized a workshop on Compiler Construction: From Practice to Theory at PDPM IIIT DM, Jabalpur for college and university teachers of computer science during December 5-11, 2008.

11. **Academic Distinctions \ Accomplishments**
Devang Mehta Business School Award for outstanding contribution in education 2013 and 2016.
Sectional President, Indian Science Congress for the year 2015: Section Information Science and Technology including Computer Science.
Council of Scientific and Industrial Research **Junior Research Fellowship** awarded in the year 1984 based on a national level test.
4 medals including a **University Gold Medal** for ranking first in the Faculty of Sciences and in Mathematics, R.D. University, Jabalpur in the year 1983.

12. **International Research Collaboration**
   a) Prof. Yasushi Yamaguchi, University of Tokyo, Japan – on 3D Mesh model steganography and steganalysis.
   b) Prof. Wolfgang Dahmen, RWTH, Aachen, Germany – on Wachspress rational patches.
   c) Prof. Richard A. Zalik, University of Alabama at Auburn, USA. – on Rational Complex planar splines.
   d) Late Prof. A. Sharma of University of Alberta, Edmonton, Canada – on Complex planar splines.

13. **Research Projects /Other funded projects**
   (i) Chief Investigator, Empowering Girls to Reduce the Gender Gap in IT and ITES Sectors in South Asia Region: Training and E-Content Development Programme, funded by Asi@Connect, Accepted, 2021.
   (ii) Chief Investigator, 3D-Mesh Model Steganography and Secure Communication in a Cloud Manufacturing Environment, DST INDIA-JSPS, 2021-23 (Rs. 5.98 lakhs)
   (iii) Chief Investigator, Electronics and ICT Academy, IIITDMJ funded by Department of Electronics and IT, Govt. of India. 2014-2019. (Rs. 9.5 crores).
   (iv) Chief Investigator, Similarity Detection and process information Retrieval from Large Part-Drawing Database of Manufacturing Companies: A Mini Industry 4.0 Solution, AlfaTKG Integrated Solutions India Pvt Ltd. , March 2019-2021 (Rs. 8.26 lakhs).
   (v) A major research project on "Constrained Curve Drawing Algorithm for Robot Motion Planning" Funding agency DST – Co PI: Prof. T. Sheorey. Duration – 2010-2014. (Rs. 9.24 lakhs)
   (vi) A project on "Research, Design and Development of Self Instruction Material in CAGD" funded by DEC, Delhi, duration 2004-2005. (Rs. 40 lakhs)
   (vii) "On Geometric Behaviour of Rational Patches and Their Applications to CAGD" funded by MPCST for 2002-2005. (Rs. 1.5 lakhs approx.)
   (viii)   Worked as a member of the core group in a major research project "Bezier Technique and its Applications to Modelling' funded by AICTE during 1995-99.

(ix) Worked as a member of the core group in a major project "Mathematical Modelling and Designing through Computer Graphics" funded by UGC during 1993-1997.

(x) Worked as a co-investigator in a major research project "Interpolation by Finite Elements, Their Convergence and Mapping Properties" funded by CSIR during 1987-1990 (PI: Prof. H.P. Dikshit).

14. **Major Administrative Assignments Held (Past and Present)**

Director, PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur February 4, 2009 – February 17, 2015

Member, (MHRD nominee), University Court, Amarkantak, National Tribal University. 2015-17.

Director, University Institute of Computer Science and Applications, R.D. University, Jabalpur, 2009.

Professor-in-charge, Library Services, R.D. University, Jabalpur.

Head, Department of Library and Information Sciences, R.D. University, Jabalpur.

Independent Director, Board of Directors, M.P. Power Transmission, Generation and Distribution Companies, nominated by M.P. Govt., Department of Energy.

Member, Board of Governors, IIIT DM Kurnool (2020-2022)

Member, Academic Senate, IIIT Nagpur (2020 – till date)

Member, Advisory Board, Computer Science & Engineering/ IT, SAGE University, Indore. (2022-till date)