Dr. Ravi Shanker

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EDUCATIONAL QUALIFICATIONS

- **PhD in Image Processing and Machine Learning (CGPA: 8.33)** Jul 2015 - Sept 2021
  ABV-Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior, MP
  Title: Morphological and Neurobiological Changes in SCA Patients through MRI Techniques Using Computer Vision Based Analysis
  Supervisor: Prof. Mahua Bhattacharya
- **M.Tech in Digital Communication (CGPA: 7.97)** Jul 2013 - Jun 2015
  ABV-Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior, MP
  Title: Performance Analysis of Multichannel Optical Fiber Communication System
  Supervisor: Prof. Pankaj Srivastava
- **B.Tech in Electronics & Communication Engineering (Percentage: 72.04%)** Jul 2008 - Jun 2012
  Gautam Buddh Technical University, Lucknow

RESEARCH INTEREST

- Medical Image Processing, Machine Learning, Signal Processing, Optical Communication.

PROFESSIONAL EXPERIENCE

- DST-SERB Project work as Research Associate at ABV-Indian Institute of Information Technology and Management, Gwalior, MP under supervision of Prof. Mahua Bhattacharya Jan 2021 - Oct 2022.

RESEARCH PUBLICATIONS

Journal Articles (SCI/SCOPUS)

- Ravi Shanker and Mahua Bhattacharya, "An automated Computer-Aided Diagnosis system for classification of MR images using texture features and Gbest-Guided Gravitational Search Algorithm," Biocybernetics and Biomedical Engineering, Elsevier, vol. 40, no. 2, pp. 815-835, Apr 2020. https://doi.org/10.1016/j.bbe.2020.03.003 [SCI, I.F- 5.687, ISSN: 0208-5216].
- Ravi Shanker and Mahua Bhattacharya, "Automated Diagnosis system for detection of the pathological brain using Fast version of Simplified Pulse-Coupled Neural Network and Twin Support Vector Machine," Multimedia Tools and Applications, Springer, vol. 80, pp. 30479–30502 May 2021. https://doi.org/10.1007/s11042-021-10937-6 [SCI, I.F- 2.757, ISSN: 1573-7721]
- Ravi Shanker and Mahua Bhattacharya, "Classification of brain MR images using Modified version of Simplified Pulse-Coupled Neural Network and Linear Programming Twin Support Vector Machines," The Journal of Supercomputing. vol. 78, pp. 13831–13863, Mar 2022. https://doi.org/10.1007/s11227-022-04420-8 [SCI, IF. 2.577, ISSN: 1573-0484]
- Ravi Shanker and Mahua Bhattacharya, "Brain tumor segmentation of normal and lesion tissues using hybrid clustering and hierarchical centroid shape descriptor," Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, Taylor & Francis Journals. vol. 7, no. 5-6, pp. 676-689, Feb 2019. https://doi.org/10.1080/21681163.2019.1579672 [Scopus, ESCI, ISSN: 2168-1163]
- Ravi Shanker, Heet Sankesara, Surendra Nagar, and Mahua Bhattacharya, "RESPNet: Resource Efficient and Structure Preserving Network for deformable image registration," The Journal of Supercomputing, Springer, pp. 1-24, September 2022. https://doi.org/10.1007/s11227-022-04840-6 [SCI, IF. 2.577, ISSN: 1573-0484]

Book Chapters

- Ravi Shanker and Mahua Bhattacharya, "Brain Tumor Segmentation of Normal and Pathological Tissues Using K-mean Clustering with Fuzzy C-mean Clustering," In: Tavares J., Natal Jorge R. (eds) VipIMAGE 2017. ECCOMAS 2017. Lecture Notes in Computational Vision and Biomechanics, Springer, vol 27. pp. 286-296. 2018. Cham. Porto, Portugal. https://doi.org/10.1007/978-3-319-68195-5-31. [Online ISBN: 978-3-319-68195-5]
- Ashish Kumar, Pankaj Agham, Ravi Shanker, and Mahua Bhattacharya, "Study of Image Segmentation Techniques on Microscopic Cell Images of Section of Rat Brain for Identification of Cell Body and Dendrite," In: Bhateja V., Nguyen B., Nguyen N., Satapathy S., Le DN. (eds) Information Systems Design and Intelligent Applications. Book chapter in Advances in Intelligent Systems and Computing, Springer, vol 672. pp. 452-462. 2018. Singapore. https://doi.org/10.1007/978-981-10-7512-4-45 [Online ISBN: 978-981-10-7512-4]
- Pooja Verma, Ravi Shanker, Veenal Patel, and Mahua Bhattacharya, "The Role of Bioinformatics and Imaging Models in Tumorigenesis and Treatment Response of Brain and Spinal Cord Neoplasm," In: Nima Rezaei and Sara Hanaei, Human Brain and Spinal Cord Tumors: From Bench to Bedside. Volume 1 -Neuroimmunology and Neurogenetics, vol. 1, pp. 103-117. May 2022, Springer, Switzerland. https://pubmed.ncbi.nlm.nih.gov/36587384/ [ISBN : 3031147324]

Conference Proceedings

- Ravi Shanker, Rahul Singh, and Mahua Bhattacharya, "Segmentation of tumor and edema based on K-mean clustering and hierarchical centroid shape descriptor," In 2017 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), vol. 11 pp. 1105-1109. 13 Nov-16 Nov 2017. Kansas City, MO, USA. 10.1109/BIBM.2017.8217810 [Electronic ISBN: 978-1-5090-3050-7]
- Ravi Shanker and Mahua Bhattacharya, "Performance analysis of 16-channel 80-Gbps optical fiber communication system," In 2016 IEEE International Conference on Computational Techniques in Information and Communication Technologies (ICCTICT), vol. 1, pp. 270-274, 11 Mar 2016, Delhi, India. 10.1109/ICCTICT.2016.7514591 [Electronic ISBN: 978-1-5090-0082-1]
- Devanshu Dharwal, Ravi Shanker, and Mahua Bhattacharya, "Automatic parameter setting of pulse coupled neural network for image segmentation," In 2016 International Conference on Communication and Signal Processing (ICCSP) vol. 6, 6 Apr 2016, pp. 2157-2161. IEEE. Melmaruvathur, India. 10.1109/ICCSP.2016.7754563 [Electronic ISBN: 978-1-5090-0396-9]
- Ravi Shanker, Diwakar Sharma, and Mahua Bhattacharya, "Development of Plant-Leaf Disease Classification Model using Convolutional Neural Network," In 2022 4th IEEE International Conference on Cybernetics, Cognition and Machine Learning Applications (ICCCMLA 2022) vol. 4, pp. 434-438, 9 October 2022 IEEE. Goa, India

SEMINAR / TRAINING PROGRAM ATTENDED

- Attended the three days INUP Familiarization workshop on "Nanofabrication Technologies" held at IIT Bombay, Mumbai, during 24-27 May 2016.
- Attended the one week Management Development program on "Academic Writing and Publishing" held at ABV-Indian Institute of Information Technology and Management Gwalior during 17-22 December 2017.
- Attended the one week Faculty Development Program on "Machine Learning and Application" Jointly organized by ABV-Indian Institute of Information Technology and Management Gwalior and Electronics and ICT Academy, PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur during 26-30 March 2018.
- Attended the one week Faculty Development Program on "Introduction and Applications of MATLAB in Engineering and Science" at ABV-Indian Institute of Information Technology and Management Gwalior during 18-22 November 2018.

- Attended the one week Faculty Development Program on "Deep Learning and Applications" Jointly organized by Electronics and ICT Academy at ABV-Indian Institute of Information Technology and Management Gwalior during 27-31, May 2019.

TECHNICAL SKILLS

- ***Tools:*** MATLAB, OptiSystem, draw.io, and Latex.

RELEVANT COURSES

- Analog & Digital Communication
- Digital Electronics Logic Design
- Machine Learning
- Image Processing
- Basic Electronics

ACHIEVEMENTS

- Qualified GATE (2013) and UGC-NET (Assistant Professor, Dec-2018).
- Received MHRD Scholarship in the tenure of M.tech and PhD.

REFERENCES

- Prof. Vishu Priye, Professor & Director in Indian Institute of Information Technology Ranchi
  E-mail: director@iiitranchi.ac.in
- Prof. Mahua Bhattacharya, Professor in Information Technology department
  ABV-Indian Institute of Information Technology and Management Gwalior
  E-mail: mb@iiitm.ac.in
- Prof. Sumantra Dutta Roy, Professor in Electrical department
  Indian Institute of Technology, Delhi
  E-mail: sumantra@ee.iitd.ac.in
- Prof. Pankaj Srivastava, Professor in Applied Science department
  ABV-Indian Institute of Information Technology Gwalior
  E-mail: pankajs@iiitm.ac.in

Date: 26/06/2023 Dr. Ravi Shanker
Place: Ranchi