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## Research Grants/ Projects:

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1. Content-Based Image Retrieval System Assisted by Mammogram Classification for the Diagnosis of Breast Cancer
  - **Agency:** Collaborative Research Scheme under the Proposal of AICTE and TEQIP.
  - **Project Grant:** Rs. 7.30 Lacs
  - **Role:** CO-PI
  - **Grant Year:** June 2019

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## Patents:

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1. Methods for Designing Dynamic framework for Tuning of SVM hyper parameters based on MFO and Knowledge-Based Search, No: 202031014705, Published on 15/05/2020.
2. A Framework for Reliability & Performance Analysis of Safety-Critical System using Stochastic Modeling, 202031014381, Published, 05/2020.

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## Journals (SCI/SCIE)

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1. Dhruva Jyoti, **Vibhav Prakash Singh**, and Vinay Kumar. "Two way Threshold Based Intelligent Water Drops Feature Selection Algorithm for Accurate Detection of Breast Cancer", *Soft Computing*, Pre-print, November 2021, Springer (**IF-3.64**). <https://doi.org/10.1007/s00500-021-06498-3>
2. Ashish Ranjan, **Vibhav Prakash Singh**, Ravi Bhusan Mishra, and Anil Kumar Singh. "Sentence polarity detection using stepwise greedy correlation based feature selection and random forests: An fMRI study." *Journal of Neurolinguistics* 59 (2021): 100985. Elsevier, (**IF-1.710**), <https://doi.org/10.1016/j.jneuroling.2021.100985>
3. Shailendra Singh, **Vibhav Prakash Singh**, and AK Mehta, "Differential evolution using homeostasis adaption based mutation operator and its application for software cost estimation", *Journal of King Saud University-Computer and Information System*, Volume 33, Issue 6, July 2021, Pages 740-752 , Elsevier (**IF-13.47**) <https://doi.org/10.1016/j.jksuci.2018.05.009>
4. Dhruva Jyoti, **Vibhav Prakash Singh**, and Vinay Kumar. "A Dynamic Framework for Tuning SVM Hyper Parameters based on Moth-Flame Optimization and Knowledge-Based-Search." *Expert Systems with Applications*, Volume 168, 15 April 2021, pp. 114139, Elsevier. (**IF-6.95**), DOI: <https://doi.org/10.1016/j.eswa.2020.114139>
5. Vinay Kumar, Ashish Kumar Maurya, Karam Veer Singh, Aditya Narayan Hati, and **Vibhav Prakash Singh**. "Safety analysis of safety-critical systems for their applicability on NPP systems: A state-of-the-art review." *Quality and Reliability Engineering International*, Pre-print, January 2021, Wiley (**IF-2.89**) <https://doi.org/10.1002/qre.2828>
6. Nagendra Pratap Singh and **Vibhav Prakash Singh**, "Efficient Segmentation and Registration of Retinal Image Using Gumble Probability Distribution and BRISK

- Feature”, *Traitement du Signal*, Vol. 37 (5), pp. 855-864, December 2020. (**IF-2.59**) DOI: <https://doi.org/10.18280/ts.370519>
7. **Vibhav Prakash Singh**, Rajeev Srivastava, Yadunath Pathak, Shailendra Tiwari, and Kuldeep Kaur. "Content-based image retrieval based on supervised learning and statistical-based moments." *Modern Physics Letters*, Vol. 33, no. 19 (2019): 1950213, DOI: <https://doi.org/10.1142/S0217984919502130> (**IF-1.668**)
  8. **Vibhav Prakash Singh**, and Rajeev Srivastava, “Automated and effective content-based mammogram retrieval using wavelet based CS-LBP feature and self-organizing map”, *Biocybernetics and Biomedical Engineering*. Vol. (38), Issue (1), pp.90-105, 2018, Elsevier. <https://doi.org/10.1016/j.bbe.2017.09.003>, (**IF-4.31**)
  9. **Vibhav Prakash Singh**, Subodh Srivastava, and Rajeev Srivastava, “An Efficient and Automated Content Based Image Retrieval for Digital Mammography”, *Journal of X-Ray Science and Technology* 26 (2018), pp. 29–49, IOS Press UK, (**IF-1.535**), DOI: <https://doi.org/10.3233/XST-17306>
  10. **Vibhav Prakash Singh**, and Rajeev Srivastava, “Improved CBIR System Using Fusion of Fast Features with Varying Weighted Similarity Measure and Random Forest Classifier”, *Multimedia Tools and Applications*, Vol.77, pp. 11435-14460, 2017, Springer (**IF-2.76**). <https://doi.org/10.1007/s11042-017-5036-8>
  11. **Vibhav Prakash Singh**, Subodh Srivastava, and Rajeev Srivastava, “Effective Mammogram Classification Based on Center Symmetric-LBP features in Wavelet Domain Using Random Forest Classifier”, *Technology and Health Care*, Vol. 25, (2017) 709–727, IOS Press UK, (**IF-1.285**). DOI: <https://doi.org/10.3233/thc-170851> ,

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### **Journals (Scopus/ACM/DBLP/Other Indexed):**

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1. Ashish Ranjan, **Vibhav Prakash Singh**, Anil Kumar Singh, and Ravi Bhushan Mishra. "Classifying Brain State in Sentence Polarity Exposure: An ANN Model for fMRI Data”, *Revue d'Intelligence Artificielle*, Vol. 34 No. 3, pp. 361-368, June 2020. (**Scopus indexed**), DOI: <https://doi.org/10.18280/ria.340315>
2. **Vibhav Prakash Singh** and Rajeev Srivastava, “Effective Image Retrieval Based on Hybrid Features with Weighted Similarity Measure and Query Image Classification”, *Int. J. Computational Vision and Robotics*, Vol. 8, No. 2, 2018, pp.91-121, Inderscience DOI: <https://doi.org/10.1504/IJCVR.2018.091979> (**Scopus, ACM, DBLP Indexed**)
3. **Vibhav Prakash Singh**, and Rajeev Srivastava, “Content-Based Mammogram Retrieval Using Wavelet based Complete-LBP and K-means Clustering for the Diagnosis of Breast Cancer”, *International Journal of Hybrid Intelligent System*”, Vol. 14, 2017, pp.31-39, IOS Press, DOI: <https://doi.org/10.3233/HIS-170240> (**Scopus, ACM, DBLP Indexed**)
4. **Vibhav Prakash Singh**, Ayush Srivastava, Devang Kulshreshtha, Arpit Chaudhary, and Rajeev Srivastava. "Mammogram Classification Using Selected GLCM Features and Random Forest Classifier." *International Journal of Computer Science and Information Security* 14, no. 6 (2016): 82. (**ESCI**)
5. **Vibhav Prakash Singh**, Subodh Srivastava, and Rajeev Srivastava. "An Efficient Image Retrieval Based on Fusion of Fast Features and Query Image Classification." *International Journal of Rough Sets and Data Analysis (IJRSDA)* 4.1 (2017): 19-37 (**ACM, DBLP Index**). DOI: <https://doi.org/10.4018/IJRSDA.2017010102>

6. Chakrapani, Sumit Raj, and **Vibhav Prakash Singh**, "Detection of Chronic Kidney Disease Using Artificial Neural Network", *International Journal of Applied Engineering Research*, Volume 14, pp. 145-149, Number 10, 2019 (*UGC Listed, Scopus (2017 index)*).
7. **Vibhav Prakash Singh**, Ashim Gupta, and Rajeev Srivastava. "Fast and effective image retrieval using colour and texture features with self-organising map." *International Journal of Computational Systems Engineering* Vol. 3, no. 3 (2017): 133-143., *Inderscience*, UK, DOI: <https://doi.org/10.1504/IJCSYSE.2017.086738> .
8. Yashankit, **Vibhav Prakash Singh**, and Rajeev Srivastava "Comparative Analysis of Distance Metrics for Designing an Effective Content-Based Image Retrieval System Using Colour and Texture Features", *International Journal of Image, Graphics and Signal Processing*, 9 (12), 58-64, 2018. DOI: <https://doi.org/10.5815/ijigsp>
9. Shashank Tripathi and **Vibhav Prakash Singh**. *Integrated Networks: A Survey*. *Current Trends in Information Technology*. 2019; 9(1), pp. 22–29
10. **Vibhav Prakash Singh**, Singh Gaurav Arvind, and Arindam G. Mahapatra. "Hybrid Correlation based Gene Selection for Accurate Cancer Classification of Gene Expression Data." *International Journal of Computer Applications* 43, no. 14 (2012): 13-18.
11. Yogesh Kumar Meena, **Vibhav Prakash Singh**, Shashank, "Text documents clustering using genetic algorithm and discrete differential evolution." *International Journal of Computer Applications* 43, no. 1 (2012): 16-19.
12. Neeraj Kumar, **Vibhav Prakash Singh**, Himanshu Mishra, and Atul Barsaiyan. "Modified Kerberos Model for Sustaining the Integrity Privacy & Authentication of Critical Data in Cloud Computing", *International Journal of Scientific & Engineering Research*, Volume-9, Issues-6, 2014.

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### Books/Book Chapters:

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1. Imtiyaz Ahmad, **Vibhav Prakash Singh**, Suneeta Agarwal, "Applications of Deep Learning in Diabetic Retinopathy Detection", *Deep learning and Its Applications*, pp.49-72, November 8, 2021, NOVA Publication, USA.
2. **Vibhav Prakash Singh** and Ashish Kumar Maurya, "Role of Machine learning and Texture Features for the Diagnosis of Laryngeal Cancer", *Machine Learning for Healthcare Applications*, pp. 353-367, April 12, 2021, Wiley.
3. **Vibhav Prakash Singh** and Rajeev Srivastava. "Improved Content-Based Image Classification Using a Random Forest Classifier." In *Advances in Computer and Computational Sciences*, pp. 365-376. Springer, Singapore, 2018.
4. Dhruva Jyoti, **Vibhav Prakash Singh**, and Vinay Kumar. "A Survey on SVM Hyper-Parameters Optimization Techniques." In *Social Networking and Computational Intelligence*, pp. 243-256. Springer, Singapore, 2020.
5. Dhruva Jyoti, **Vibhav Prakash Singh**, and Vinay Kumar. "SVM Hyper-Parameters Optimization using Multi-PSO for Intrusion Detection." In *Social Networking and Computational Intelligence*, pp. 227-241. Springer, Singapore, 2020.
6. **Vibhav Prakash Singh**, "Data Mining Approaches for Classifying Gene Expression Data of Cancer", ISBN Number: 978-3-659-39144-6, LAP LAMBERT Publishing Saarbrücken Deutschland, Germany.

7. **Vibhav Prakash Singh**, and Navneet Solanki, "IT Infrastructure & Its Management", ISBN Number: 978-93-81126-52-3, First Edition 2012, at Nandani Prakashan Pvt. Ltd., New Delhi.

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## Conferences:

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1. Aman Verma and **Vibhav Prakash Singh**, "HSADML: Hyper-Sphere Angular Deep Metric based Learning for Brain Tumor Classification", ICVGIP Workshop on Medical Image Processing, IIT Ropar, December 19, 2021.
2. Ashima Tyagi, **Vibhav Prakash Singh**, and M.M. Gore, "Improved Detection of Coronary Artery Disease Using DT-RFE Based Feature Selection and Ensemble Learning, International Conference on Advanced Network Technologies and Intelligent Computing, BHU, 17-18 December, 2021.
3. Imtiyaz Ahmad, **Vibhav Prakash Singh**, Suneeta Agarwal, "Detection of Diabetic Retinopathy Using Deep Learning Based Framework", Springer-International Conference on Machine Intelligence and Smart Systems, September, 2021.
4. Abhay Vidyarathi and **Vibhav Prakash Singh**, "Multiclass Image Classification Using OAA-SVM", Springer-International Conference on Machine Intelligence and Smart Systems, September, 2021.
5. Chakrapani, **Vibhav Prakash Singh** and Dhurba Jyoti Kalita, "Chronic Kidney Disease Detection Using Random Forests and Eigenvectors Based Feature Selection", Accepted and Presented in International Conference (AISCC-2020), Springer, MNIT Jaipur.
6. Abhishek Kumar, Dhurba Jyoti Kalita, and **Vibhav Prakash Singh**. "A Modern Pothole Detection technique using Deep Learning." In *2nd International Conference on Data, Engineering and Applications (IDEA)*, pp. 1-5. IEEE, 2020.
7. Ashish Ranjan, **Vibhav Prakash Singh**, AK Singh, and RB Mishra, "Sentential Negation Identification of fMRI Data Using k-NN", Springer International Conference: MISS-2020, 24-25, September, 2020.
8. **Vibhav Prakash Singh** and Dhurba Jyoti Kalita, "Classifying Gene Expression of Data of Cancer Using Multistage Ensemble of Neural Network", in ICACSE-2019 at KNIT Sultanpur, held on 8-9th Feb, 2019 Published by *Elsevier SSRN*.
9. **Vibhav Prakash Singh** and Rajeev Srivastava, Improved image retrieval using color-invariant moments, 2017 3rd International Conference on Computational Intelligence & Communication Technology (CICT), Pages: 1 – 6. IEEE, 9-10, Feb-2017.
10. **Vibhav Prakash Singh\***; Devang Kulshreshtha\*; Ayush Srivastava; Rajeev Srivastava, Content-based mammogram retrieval using k-means clustering and local binary pattern, 2017 2nd International Conference on Image, Vision and Computing (ICIVC), Pages: 634 – 638, Chedgu, China, IEEE, 2-4, June-2017.
11. Ayush Shrivastava, Arpit Chaudhary, Devang Kulshreshtha, **Vibhav Prakash Singh**, and Rajeev Srivastava, "Automated digital mammogram segmentation using Dispersed Region Growing and Sliding Window Algorithm", 2017 2nd International Conference on Image, Vision and Computing, 2017, Pages: 366 – 370, China, IEEE, 2-4 June-2017.
12. **Vibhav Prakash Singh**, Shivoam Malhotra, and Rajeev Srivastava. "Combining hybrid information descriptors and DCT for improved CBIR performance." In *Control, Computing, Communication and Materials (ICCCCM)*, 2016 International Conference on, pp. 1-5. IEEE, 21-22, Oct-2016.

13. **Vibhav Prakash Singh**, Ashim Gupta, Shubham Singh, and Rajeev Srivastava. "An efficient content based image retrieval for normal and abnormal mammograms." In *2015 IEEE UP Section Conference on Electrical Computer and Electronics (UPCON)*, pp. 1-6. IEEE, 4-6, Dec-2015.
14. **Vibhav Prakash Singh**, and Rajeev Srivastava. "Design & performance analysis of content based image retrieval system based on image classification using various feature sets." In *Futuristic Trends on Computational Analysis and Knowledge Management (ABLAZE), 2015 International Conference on*, pp. 664-670. IEEE, 25-27, Feb-2015.
15. Prateek Prince Thakur, Devang Kulshreshtha, **Vibhav Prakash Singh**, and Rajeev Srivastava, "Convolutional Neural Networks for 3D Brain MRI Classification", in International Conference on Recent Advance in Engineering and Technology (ICRET-18), 7th April 2018 Bangkok.
16. Arpit Chaudhary, Prince Thakur, **Vibhav Prakash Singh** and Rajeev Srivastava, "An Efficient Approach for Image Retrieval Based on X-OR Distance Using Binary Hash Codes", in International Conference on Recent Advance in Engineering and Technology, 7th April -2018 Bangkok.
17. **Vibhav Prakash Singh**, Rajeev Srivastava, and Neeraj Kumar "Multistage Ensemble Classification for Gene Expression Data of Cancer Using Correlated Informative Features", International Conference on Communications, (ICRCWIP 2015), POORNIMA UNIVERSITY- Jaipur, 16-17 Jan-2015.
18. **Vibhav Prakash Singh** and Ashu Sharma, Paper published & presented in National Conference of Artificial Intelligence & Agent Application, IIT-BHU, Varanasi on "Correlation Based Gene Selection for Accurate Cancer Classification of Gene Expression Data", held on 9-10<sup>th</sup> Dec-2011.
19. **Vibhav Prakash Singh** and Achal Tomer, paper published & presented in *AICTE Sponsored National Conference -Advance in Information & Communication Technology* at MITS Gwalior on "Information Security using Color Image Watermarking Using images for transmitting secret information", held on 28-29 Oct-2013.
20. **Vibhav Prakash Singh**: Paper published & presented in National Conference at College of Science & Engineering Jhansi on "How to Measure the Performance of Grid System Which Works as a Parallel System", held on 30-31 Oct-2010.
21. **Vibhav Prakash Singh**, Paper published & presented in National Conference on Trends & Advancement in Computer Science & Engineering at B.S.A College of Engineering & Technology Mathura on "String Matching based correlated feature selection and classification of gene expression data of cancer", held on dated 23 March 2013.
22. Kriti Singh, Rajeev Srivastava, **Vibhav Prakash Singh** "An Introductory survey on Content Based Image Retrieval", National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare technologies (*FTBH 2014*), Oct. 17-18, 2014, School of Biomedical Engineering, IIT (BHU), Varanasi, U.P.
23. **Vibhav Prakash Singh**, Published and presented poster paper on "Computer Added Diagnosis of Breast Cancer Assisted by Content Based Mammogram Retrieval" at IIT (BHU), Varanasi, April 2-3, 2016.
24. Pradeep Koli and **Vibhav Prakash Singh**, Paper accepted on "String Matching based implementation of web crawler", in the 2011-International Conference on Computer Communication and Management, Sydney, Australia.

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## **Professional Activities:**

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### **Organized Workshop/Faculty Development Program**

1. Organized One-Week Short-term course on Understanding Deep Learning (Workshop cum Training Program), held on from March 15-March 19, 2021.
2. Organized One-Week Short-term course on “Machine Learning and its Applications in IoT, Computer Vision and Cloud Computing (MICC-2021)” organized by CSED, MNNIT Allahabad during 20-24 September 2021

### **Session Chair/ Program Committee (International Conferences):**

1. Session Chaired in International Conference on Artificial Intelligence: Theory and Applications (AITA-2021), National Institute of Technology Patna, December 23, 2021.
2. Session Chaired in 9th International Conference on Big Data Analytics at IIIT Allahabad, held on from December 15-18, 2021.
3. Session Chaired in International Conference on Advanced Network Technologies and Intelligent Computing, BHU, 17-18 December, 2021.
4. Session Chaired in International Conference on International Conference on Machine Intelligence and Smart Systems at Gwalior, held on from September 24-25, 2021.
5. Session Chaired in Machine Vision and Augmented Intelligence (2021), at IIITDM Jabalpur, held on from 11/02/2021 to 14/02/2021.
6. Session Chaired in 3rd-International Conference on Advance Computing and Software Engineering-2021 at KNIT, Sultanpur, held on from 19/01/2021 to 20/01/2021.
7. Session Chaired in International Conference, MISS-2020, at Gwalior, held on from 24/09/2020 to 25/09/2020.
8. Jury Member in "Grand Finale of Smart India Hackathon 2020 (Software Edition)" at nodal center BHU, Varanasi, held on from 01/08/2020 to 03/08/2020.
9. Session Chaired in IEEE-SCES at MNNIT Allahabad, held on from 10/07/2020 to 12/07/2020.
10. Session Chaired in 2nd-International Conference on Advance Computing and Software Engineering-2019 at KNIT, Sultanpur.
11. TPC, ISCON-2021, GLA University
12. Technical Programme Committee, CVIP-2020 at IIIT Allahabad
13. Program Committee member of FRSM-2020, NIT Silchar
14. 5th International Conference Information, Communication & Computing Technology, Springer, 2020.
15. 10<sup>th</sup> IDRBT Doctoral Colloquium-2019, Institute for Development and Research in Banking Technology Hyderabad.
16. Program Committee member of Sixth International Conference on Communication Systems and Network Technologies, PTU Punjab.



## **Invited Talks**

1. Delivered an Expert lecture on "Image Mining" in a one-week short term program on Research Trend in Machine Learning and IoT, At MNNIT Allahabad, held on from 15-19 September, 2021.
2. Delivered an Expert lecture on "Applications of Deep Learning" in a one-week training program on Understanding Deep Learning, at MNNIT Allahabad, held on from March 15- 20 March, 2021.
3. Delivered Expert Lecture on " Image Retrieval: An AI Perspective" at MNNIT Allahabad, Prayagraj on 22nd September 2021 in One Week Short Term Course on "Machine Learning and its Applications in IoT, Computer Vision and Cloud Computing (MICC-2021), organized by CSED, MNNIT Allahabad
4. Taken Hands-on Session on " WeKA tool for the Analysis of Data " at MNNIT Allahabad on 22nd September 2021 in One Week Short Term Course on "Machine Learning and its Applications in IoT, Computer Vision and Cloud Computing, organized by CSED, MNNIT Allahabad ".
5. Delivered an Expert lecture on "CBIR and Its Applications" in an ATAL-FDP: Deep Learning in Computer Vision, June 9, 2021, at KNIT Sultanpur.
6. Delivered an Expert lecture on "Deep Learning Applications in Computer Vision" in a TEQIP Sponsored Workshop on Computer Science as an Integral Part of Modern Technology Development, at Gaya College of Engineering, Gaya held on from 15/12/2020 to 19/12/2020.
7. Delivered an Expert lecture on "CBIR and Text Analytics" in a ATAL-FDP on Data Science, at Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, C.G, held on from 12/10/2020 to 16/10/2020.
8. Delivered an Expert lecture on "Some interesting use cases for deep learning" in a one week FDP program on Deep Learning and Machine Learning Applications in Computer Vision, at Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, C.G, held on from 22/08/2020 to 28/08/2020.
9. Delivered an Expert lecture on "Computer Vision: An Image Mining Perspective" in a one week short term program on Research Trend in Machine Learning and IOT, at MNNIT Allahabad, Prayagraj, held on from 15/09/2021 to 19/09/2021.
10. Delivered an Expert lecture on "Computer Vision: An AI Perspective" in a One -Day Webinar organized by Feroze Gandhi Institute of Engineering & Technology, Raebareli, June 8, 2020.
11. Delivered an Expert lecture on "Role of Digital Education" Intellectual Basket of Women National Conference 2020 organized by Jayoti Vidyapeeth Women's University, Jaipur at University Virtual Base from June 16 - 21, 2020.

## **Workshop/Faculty Development Program**

1. Participated in one-week induction program at IIT Kanpur
2. Participated in four days workshop on mathematics in engineering at IIT Bombay
3. Participated in two days workshop on OBE Integration at VJTI, Mumbai.
4. Participated in one week NBA accreditation program organized by NITTR Kolkata
5. Participated in two days workshop for OBE integration and CO-PO mapping at AKU, Patna

6. Participated in five days FDP program on research methodology at GCE, Gaya
7. Participated in two days workshop on NBA at GCE, Gaya
8. Participated in four week FDP program at HITM, Agra
9. Participated in two days workshop on Meta Heuristic & IT researchers at IIITM Gwalior
10. Participated in one-day workshop on MAT LAB & SIMULINK organized by Math Works.
11. Participated in two days workshop on NLP organized by IIT (BHU), Varanasi.

**Reviewer:**

1. IEEE Transactions on Industrial Electronics
2. IEEE Transactions on Neural Networks and Learning Systems
3. IEEE Transactions on Computational Social Systems
4. IEEE Intelligent Systems
5. IEEE Access
6. Expert Systems with Applications, Elsevier
7. Computer Methods and Programs in Biomedicine, Elsevier
8. Measurement, Elsevier
9. Informatics in Medicine Unlocked-Journal, Elsevier
10. Complex & Intelligent Systems, Springer
11. Signal, Image and Video Processing, Springer
12. Sadhana, Springer
13. Multimedia Tools and Application, Springer
14. Iranian Journal of Science and Technology, Springer
15. International Journal of Imaging Systems and Technology, Wiley
16. IETE Journal of Research, Taylor and Francis
17. Computers, Materials & Continua, Tech Science Press
18. International Journal of Computational Vision and Robotics, Inderscience
19. International Journal of Medical Engineering and Informatics, Inderscience
20. American Society of Agricultural and Biological Engineers

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**Specialization and Interesting Subjects:**

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- Image Processing and Computer Vision
  - Medical Image Analysis
  - Data Mining
  - Machine Learning
  - Design & Analysis of Algorithms
  - Computer Graphics
  - Computer Networks
  - Operating System and Advanced Operating System
  - Cryptography & Network Security
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