International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 10 | Oct - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

Cancer CAD Systems Using AI and ML in Breast, Retinal, Brain, and Skin Cancers

R.Sakthivel[1]

[1]*Professor,*
Government Arts College, Tiruppur, Tamil Nadu, India
E-Mail:sakthi19_69@yahoo.co.

Abstract: Using artificial intelligence (AI) and machine learning (ML) in cancer diagnosis makes it easier to find cancer accurately and helps patients get better results. These technologies help doctors find cancer early and create treatment plans that fit each patient. AI and ML can look at large and complicated sets of medical data, which leads to more accurate diagnoses and treatments that are better suited to each person. As AI and ML keep improving, they are expected to greatly change how cancer is found and how patients are cared for.

Computer-aided detection (CAD) systems use AI and ML to automatically find cancerous tumors, which makes diagnosing cancer faster and more accurate. AI and ML are expected to be used for more types of cancer, which will help improve how cancer is found and treated around the world. As cancer care moves forward, AI and ML are playing a bigger part in solving the problems of finding cancer early.

1. Introduction to Cancer CAD Systems

Using artificial intelligence (AI) and machine learning (ML) in computer-aided diagnosis (CAD) systems has changed how we find and treat cancer by allowing earlier diagnosis and better treatment results. These new technologies make diagnoses more accurate and help create treatment plans that fit each patient.

1.1.Definition and Importance of Computer-Aided Diagnosis (CAD)

Computer-aided diagnosis (CAD) systems use AI and ML to look at medical images, helping radiologists find and sort tumors more accurately [1]. (Shi et al., 2022) This approach is especially important for finding breast cancer, where CAD has shown clear improvements in how well it works [1]. (Improvement in Sensitivity of Screening Mammography with Computer-Aided Detection: A Multiinstitutional Trial, 2004) CAD systems are also being tested for other cancers, like brain and retinal cancers, showing how flexible and useful AI can be in cancer care.

1.2 Overview of AI and ML Technologies in Healthcare

AI and ML are changing healthcare by bringing in new tools to study data, making diagnoses better, and allowing doctors to keep track of patients' health as it happens. These technologies help create new computer programs that can handle large amounts of medical data. As AI and ML become a bigger part of CAD systems, they are expected to work better for different types of cancer, leading to better results for patients and more efficient healthcare. As these technologies keep improving, CAD systems are expected to get even better, making them an important part of modern cancer care. As CAD systems improve, they are expected to use smarter computer programs that can study different kinds of data. This will make diagnoses more accurate and allow these systems to be used in more medical situations.[10],[11],[12],[13],[14],[15],[16],[17].

2.The Role of AI and ML in Cancer Detection

Ongoing progress in AI and ML is expected to make cancer diagnosis even more accurate and help create treatment plans that are better suited to each patient. These new tools are expected to help find cancer earlier and let doctors make better choices about treatments that fit each patient's needs. As AI and ML technologies keep getting better and are used in CAD systems[18],[19],[20],[21],[22],[23],[24],[25], they are expected to greatly improve patient care and treatment results in cancer care.

2.1 General Mechanisms of AI and ML in Medical Imaging

AI and ML make medical imaging better by studying complicated data, helping find cancer early, and improving treatment plans to help patients [1]. Using these technologies is expected to change cancer care by making CAD systems[26],[27],[28],[29],[30],[31],[32],[33]. more effective at finding and treating different types of cancer.

2.2.Benefits of AI and ML in Cancer Diagnosis

Ongoing improvements in AI and ML are expected to change how cancer is diagnosed by making it more accurate and faster. These advances should help find cancer earlier, which can lead to better survival rates and results for patients. Using AI and ML in CAD systems [34],[35],[36],[37],[38],[39],[40],[41].is expected to greatly lower the chances of mistakes in diagnosis, which will help doctors feel more confident and help patients trust their care.

3. Breast Cancer CAD Systems

AI-powered CAD systems for breast cancer have made big improvements in finding cancer early, making fewer mistakes, and making diagnoses more reliable [1]. (Watanabe & al., 2019) These systems help radiologists do their jobs better and support creating treatment plans that fit each person. Using AI in these systems is also expected to help research into treatments made just for each patient, which can improve how the disease is managed.

3.1 Overview of Breast Cancer Detection Techniques

Current ways to find breast cancer include mammograms, ultrasound, and MRI scans. Each method has its own strengths and weaknesses. More research is needed to make these methods work better and be more accurate. Adding AI to these detection methods can help find cancer more accurately and earlier, which leads to better results for patients. Using AI in breast cancer

detection is expected to make the diagnosis process better, leading to better ways to manage the disease and improved care for patients. Continuing research on AI-powered CAD systems [42],[43],[44],[45],[46],[47],[48],[49].is important for making early detection methods better, especially as these technologies use more data and become more accurate.

3.2 AI and ML Applications in Mammography

AI in mammography [50],[51],[52],[53],[54],[55],[56],[57].is changing breast cancer screening by making image analysis better, making diagnoses more accurate, and reducing mistakes, which helps patients [1]. (Use of artificial intelligence for image analysis in breast cancer screening programmes: systematic review of test accuracy, 2021) As these technologies improve, they are expected to fit into current medical routines, making it easier to find cancer early. Improvements in AI are important for fixing the problems with traditional mammography, making diagnoses more accurate, and helping patients get better care during breast cancer screening[59],[60],[61],[62],[63],[64],[65],[66][1][58]. Using AI in mammography helps solve old problems and makes breast cancer screening programs work better, which can lead to much better results for patients [1]. AI programs are being used more often to study complicated images, helping doctors find tumors more accurately and act quickly in breast cancer treatment [1].

3.3 Comparative Analysis of Traditional vs. AI-Enhanced Methods

Switching from old methods to AI-based techniques is a big step forward in finding breast cancer, with the chance to make diagnoses more accurate and help patients through new ways of working. This change shows how AI can help solve problems with traditional screening, making the process of finding breast cancer more reliable and faster.

3.4 Challenges and Limitations in Breast Cancer CAD Systems

Solving the problems and limits of breast cancer CAD systems is important to make sure they work well and meet medical needs. To fix these problems, researchers, doctors, and technology experts need to work together to make CAD systems more reliable and useful in real medical settings. To get the best results from breast cancer CAD systems, it is important to fix any computer program biases, make sure the data is good, and have people from different fields work together when building these systems. Making breast cancer CAD systems work better means testing them carefully, keeping the computer programs updated, and building strong partnerships between healthcare and technology teams.

4. Retinal Cancer CAD Systems

Using AI in retinal cancer CAD systems is expected to make diagnoses more accurate, help find cancer earlier, and improve how the disease is managed. These improvements are important because finding retinal cancer early can greatly help patients and make treatments work better. Ongoing research and development of AI-powered retinal cancer CAD systems are needed to make diagnoses even better and to make sure all patients can get advanced treatments.

4.1 Understanding Retinal Cancer and Its Diagnosis

Our knowledge of retinal cancer is growing, and AI is playing a key role in improving how we find and treat this disease to help patients. As research moves forward, it will be important for AI developers and healthcare workers to work together to make diagnosis methods better and improve care for different types of cancer. Future improvements in AI and ML are expected to make CAD systems[67],[68],[69],[70],[71],[72],[73],[74]. even better, leading to more effective and personalized tools for diagnosing different cancers and helping patients.

4.2 AI and ML Approaches in Retinal Imaging

AI and ML in retinal imaging are helping find diseases like diabetic retinopathy sooner, allowing for earlier diagnosis and better treatments that can really help patients. Improvements in AI and ML are important for making diagnoses more accurate and for creating treatment plans that fit each patient, leading to better results in treating retinal cancer.

4.3 Effectiveness of AI in Early Detection of Retinal Cancer

AI is good at finding retinal cancer early because it can study complicated images, helping doctors diagnose and treat patients quickly. This is important for improving survival rates by giving each patient the care they need.

4.4 Gaps in Research and Future Directions

Future research should focus on fixing current problems in how AI is used for retinal cancer CAD systems, especially by making the computer programs stronger and making sure all patients can use these new technologies. As the field grows, it will be important for researchers, doctors, and technology experts to work together to solve these problems and bring new ideas to retinal cancer CAD systems[75],[76],[77],[78],[79],[80],[81],[82]. As AI and ML technologies keep developing, they are expected to create better tools for diagnosis that help patients with many types of cancer, including retinal cancer.

5. Brain Cancer CAD Systems

Using AI in brain cancer CAD systems is important for making diagnoses more accurate and helping doctors act quickly, which can lead to better results for patients in this challenging area of cancer care. Adding AI to brain cancer CAD systems [83],[84],[85],[86],[87],[88],[89],[90]. is expected to make diagnosis better and improve treatment plans, which can help patients and increase survival rates.

5.1 Brain Cancer Types and Diagnostic Challenges

Because brain cancers are complicated, we need better ways to diagnose them. Using AI in CAD systems[91],[92],[93],[94],[95],[96],[97],[98]. can help by making diagnoses more accurate and allowing for treatments that fit each patient. AI developers and cancer doctors need to work together to solve the special problems of diagnosing brain cancer and to help patients get better results.

5.2 AI and ML Techniques in Neuroimaging

AI and ML techniques in brain imaging are changing how we diagnose brain cancer by allowing careful study of complex

images. This helps find cancer earlier and create better treatment plans that fit each patient, leading to better results.

5.3 Comparative Analysis of CAD Systems for Brain Tumors

Comparing different CAD systems for brain tumors shows big improvements in how accurately they diagnose cancer. This highlights how AI and ML help fix old problems and make treatments more personal. Using AI and ML in brain cancer CAD systems is expected to lead to better treatment plans, which can help patients live longer and have a better quality of life.

5.4 Ethical Considerations and Patient Acceptance

When using AI in brain cancer CAD systems, it is important to think about patient privacy, keeping data safe, and making sure the computer programs are clear so patients can trust them.

Making sure AI systems are designed with ethics in mind is important for building patient trust, which can lead to better healthcare results. Using AI in brain cancer CAD[99],[100],[101],[102],[103],[104],[105],[106]. systems can make diagnoses more accurate and help patients, solving tough problems with this disease [1]. As AI gets better, it is expected to change brain cancer care, helping patients live longer and better lives. Using AI in cancer CAD systems is important for making diagnoses more accurate and making sure treatments are tailored and work well for each patient. This transformation is significant because it aligns with the principles of precision medicine, which aims to tailor treatments to individual patient characteristics and needs [1].

6. Skin Cancer CAD Systems

Adding AI to skin cancer CAD systems is important for making diagnoses more accurate and finding cancer early, which can help patients get better results.

6.1 Skin Cancer Detection and Diagnosis Overview

Using AI in skin cancer CAD systems is expected to make early detection more accurate, which will help doctors manage and treat patients better. Continuing research on AI-powered CAD systems for skin cancer is important for making diagnosis methods better and making sure patients get care quickly and effectively.

6.2 AI and ML Applications in Dermoscopy

AI in dermoscopy is helping find skin cancer by making image analysis and diagnoses more accurate, which helps doctors manage and treat patients better. Using AI in skin cancer CAD systems is changing how doctors diagnose skin cancer by making early detection better and improving how well treatments work for patients.

6.3 Performance Metrics of AI Systems in Skin Cancer Detection

Recent studies show that AI systems for skin cancer detection are very accurate and have made big improvements in how precisely they diagnose the disease. These improvements show that AI can change how we diagnose skin cancer and help create better, more personal treatments that improve care and results for patients.

6.4 Limitations and Areas for Improvement in Skin Cancer CAD

To make skin cancer CAD systems work as well as possible, we need to fix problems like computer program bias, poor data quality, and the need to keep testing and updating AI models.

Solving these problems is important to make sure AI technologies fit well into medical routines and to improve care for skin cancer patients. Using AI in skin cancer CAD systems makes diagnoses more accurate and helps doctors work more efficiently, which benefits patients. Continuing to improve AI programs is expected to fix current problems, help them work for more types of patients, and make skin cancer diagnosis better overall. Current research shows that using AI in skin cancer CAD systems can greatly improve how well doctors diagnose and manage skin cancer.

7. Comparative Analysis Across Cancer Types

Comparing CAD systems for different cancers shows big improvements, but there are still problems like poor data quality and computer programs that are hard to understand. We need to keep improving AI programs and data quality to use them well in real medical settings.

7.1 Similarities and Differences in AI/ML Applications

Using AI and ML for different types of cancer shows that we need special approaches for each type to solve unique problems and meet patient needs. By having people from different fields work together, we can make CAD systems even better at helping patients. As AI and ML in CAD systems keep improving, they are expected to close current gaps in cancer diagnosis and make sure new advances help all kinds of patients.

7.2 Cross-Cancer Insights and Learnings

Using AI for different cancers shows that there are common problems and chances to improve. Working together is important to make diagnoses more accurate and treatments more personal, which helps patients. Continuing to develop AI and ML in CAD systems is important for solving these problems and making diagnoses more accurate, which will help patients with all types of cancer.

Ongoing improvements in AI and ML are expected to make CAD systems better, help doctors diagnose cancer more accurately, and lead to new treatment methods that fit each patient, which will improve care overall. This change means cancer care is becoming more personal and effective, with treatment plans made to fit each patient's unique needs.

7.3 Gaps in Current Research

To move forward, we need to focus on research that fixes problems in how AI is used in CAD systems[107],[108],[109],[110],[111],[112],[1113], so new ideas actually help patients with different types of cancer. Ongoing research and teamwork between healthcare and technology experts are key to solving problems and making the most of AI in cancer CAD systems. Ongoing research and new technology are expected to make CAD systems better at diagnosing cancer and help patients with different types of cancer get better results.

7.4 Future Research Directions

The use of AI and ML in cancer CAD systems is changing, and people from different fields need to work together to solve problems and make diagnoses better for all types of cancer. As cancer diagnosis and treatment change, using AI and ML is important to help patients. Adding these technologies to cancer CAD systems is expected to make diagnoses more accurate and support treatment plans that fit each patient. Continuing to study and use AI and ML in cancer CAD systems [114],[115],[116] is important for solving current problems and creating more personal treatments, which will help patients and improve cancer care. AI developers and cancer doctors need to keep working together to make sure these advanced systems are used well in real medical care and to improve the quality of cancer treatment.

8. Conclusion

Ongoing improvements in AI and ML are expected to greatly improve patient care by making diagnoses more accurate and treatments more personal in cancer CAD systems. As AI and ML become a bigger part of cancer care, it is important to think about ethics and rules to make sure these technologies are used responsibly. Ongoing improvements in AI and ML are expected to help doctors make more accurate diagnoses and create treatment plans that fit each patient in cancer care, following the idea of precision medicine.

8.1 Summary of Findings

The results show that AI and ML in cancer CAD systems can make diagnoses more accurate and help create treatment plans that fit each patient, leading to better results. Continuing to use AI and ML in cancer CAD systems[117-126] makes diagnoses better and supports the idea of precision medicine by helping create treatment plans for each patient. Improvements in these technologies are expected to lead to better and more personal treatment choices, helping patients with different types of cancer get better results. The use of AI and ML in cancer CAD systems is a big change in cancer care, aiming to make diagnoses more accurate and treatments more personal to help patients.

8.2 Implications for Future Research and Practice

These improvements affect more than just patient care right now. They show that we need to keep researching and working together to use AI well in cancer care. Working together is important for dealing with ethical issues and rules when using AI in cancer care. This helps build patient trust and makes treatments more effective, while also supporting the creation of treatment plans that fit each patient. As AI becomes a bigger part of cancer care, it is important to focus on ethics and make sure all patients can use these technologies. As AI technologies in cancer CAD systems keep changing, it is important to think about ethics and make sure everyone can benefit from these new tools.

REFERENCES:

1.Castellino, R.A. 2005. Computer aided detection (CAD): an overview. Cancer Imaging. (Aug. 2005). DOI:https://doi.org/10.1102/1470-7330.2005.0018.

2.Chakraborty, S. and Banerjee, D.K. A review of Brain Cancer Detection and Classification Using Artificial Intelligence and Machine Learning. Journal of artificial intelligence and systems. DOI:https://doi.org/10.33969/ais.2024060111.

3.Doi, K. 2004. Overview on research and development of computer-aided diagnostic schemes. Seminars in Ultrasound Ct and Mri. (Oct. 2004). DOI:https://doi.org/10.1053/J.SULT.2004.02.006.

4.Nishikawa, R.M. 2006. Computer-Assisted Detection and Diagnosis. (Apr. 2006). DOI:https://doi.org/10.1002/0471732877.EMD310.

5.Paliwal, R. 2024. Applications of AI (Artificial Intelligence) In Diagnosis of Breast Cancer. International Journal For Multidisciplinary Research. (Oct. 2024). DOI:https://doi.org/10.36948/ijfmr.2024.v06i05.27787.

6.Perlekar, P. and Desai, A. The Role of Artificial Intelligence in Personalized Medicine: Challenges and Opportunities.

7.Pradhan, U. 2024. Future perspectives on AI in breast cancer detection: A mini review. (Oct. 2024). DOI:https://doi.org/10.61577/jaiar.2024.1000012.

8.Ugemuge, P.K., Khandalkar, G.G. and Ingle, R.G. Artificial Intelligence Could be the Personalized Treatment Strategy for Cancer.

9.Artificial Intelligence in Breast Cancer Screening in Inducing Diagnostic Accuracy with Early Detection. Journal of Angiotherapy. (Jul. 2024). DOI:https://doi.org/10.25163/angiotherapy.879806.

10. Cloud-Powered Healthcare Appointment Optimization with Reinforcement Learning for Efficiency, Kumar, SM; Peter, JBJ; Sujatha, S, 2nd International Conference on Intelligent Cyber Physical Systems and Internet of Things (ICoICI), 2024 SECOND INTERNATIONAL CONFERENCE ON INTELLIGENT CYBER PHYSICAL SYSTEMS AND INTERNET OF THINGS, ICOICI 2024, pp.229-235.

11. Multi-Resolution Analysis for Mass Classification in Digital Mammogram using Stochastic Neighbor Embedding, Kumar, SM and Balakrishnan, G, 2nd IEEE International Conference on Communications and Signal Processing (ICCSP), 2013, 2013 INTERNATIONAL CONFERENCE ON COMMUNICATIONS AND SIGNAL PROCESSING (ICCSP), pp.101-105.

12. Importance of manual image annotation tools and free datasets for medical research, Mohan Kumar, S., Rebinth, A., Journal of Advanced Research in Dynamical and Control Systems, 11(1 Special Issue), pp. 1168-1176, 2019

13. Melanoma skin cancer classification using deep learning convolutional neural network, Medico Legal Update, 20(3), pp. 351-355, Mohan Kumar, S., Ram Kumar, J., Gopalakrishnan, K., 2020

14. Skin Lesion Classification System Using Shearlets, Kumar, S.M., Kumanan, T., Computer Systems Science and Engineering, 44(1), pp. 833-844, 2022

15. Glaucoma diagnosis based on colour and spatial features using kernel SVM, Rebinth, A and Kumar, SM, May 2022, CARDIOMETRY (22), pp.508-515

16. Soft Computing Based Discriminator Model for Glaucoma Diagnosis, Rebinth, A and Kumar, SM, 2022, COMPUTER SYSTEMS SCIENCE AND ENGINEERING 42 (3) , pp.867-880.

17. A Deep Learning Approach To Computer Aided Glaucoma Diagnosis, Mohan Kumar, S., Rebinth, A., 2019 International

Conference onRecent Advances in Energy Efficient Computing and Communication, ICRAECC 2019

18. Wavelet Packet Transform-Based Image Classification for Computer-Aided Glaucoma Diagnosis Using Naïve Bayes Classifier, Kumar, S.M., Rebinth, A., Lecture Notes in Networks and Systems, 134, pp. 597-605, 2021

19. Dermoscopic Image Classification Using Two-Stage Processing of Shearlet Features with Support Vector Machine, Mohan Kumar, S., Kumanan, T., Lecture Notes in Networks and Systems, 179 LNNS, pp. 447-459, 2021

20. Glaucoma Image Classification Using Entropy Feature and Maximum Likelihood Classifier, Kumar, S.M., Rebinth, A., Kumanan, T., Varaprasad, G., Journal of Physics Conference Series, 1964(4), 2021

21. Design of Deep Neural Architecture for Brain Cancer Classification Using Pyramid Design, Kumar, S.M., Yadav, K.P., Journal of Physics Conference Series, 1964(7), 2021

22. Deep learning - Computer-aided melanoma detection using transfer learning, 2021, Mohan Kumar, S., Kumanan, T., Babu, T.R.G.,Poovizhi, S. Machine Learning and IoT for Intelligent Systems and Smart Applications, pp. 163-179

23. A Modern Approach to Detect Person Wearing Mask Using Deep Learning, 2022, Mohan Kumar, S., Nagarajan, G., Ibrahim, S.A., Lecture Notes in Mechanical Engineering, pp. 539-550.

24. Channel separation with CNN model for glaucoma color spectral detection, Kumar, S.M., Rebinth, A., AIP Conference Proceedings, 2519, 2022

25. Mammogram Classification Using VGG-16 Architecture, AIP Conference Proceedings, 2523, Kumar, S.M., Sivanantham, E., Epsiba, P., ...Gopi, B., Umapathy, K., 2023

26. Lo-Ra Based Covid Patient Health Detecting System, Aip Conference Proceedings, 2523, Kumar, S.M., Majumder, D., Ashoka, D.V., Naragunam, A.S., 2023

27. Data-Driven with IoT Sensing and Deep Learning Model for Dynamic Skin Cancer Diagnosis, 2024, Kumar, S.M., Thenmozhi, R., Balaji Damodhar, T.S., Malathi, N., Meenakshi, B., 2nd International Conference on Self Sustainable Artificial Intelligence Systems Icssas 2024, Proceedings, pp. 1034-1039.

28. Factors for improving the research publications and quality metrics, Mohan Kumar, S., Ilango, V., International Journal of Civil Engineering and Technology, 8(4), pp. 477-496, 2017

29. Methods and techniques to deal with big data analytics and challenges in cloud computing environment, Mohan Kumar, S., Manikyam, N.R.H., International Journal of Civil Engineering and Technology,8(4), pp. 669-678, 2017

30. Healthcare Solution based on Machine Learning Applications in IOT and Edge Computing, SMKD Majumder, International Journal of Pure and Applied Mathematics 119 (16), 1473-1484, 2018

31. Analysis of different wavelets for brain image classification using support vector machine, S Mohankumar, International Journal of Advances in Signal and Image Sciences 2 (1), 1-4, 2016

32. Methods And Techniques To Deal with Big Data Analytics and Challenges in Cloud Computing Environment, DSMK Naga Raju Hari Manikyam, International Journal of Civil Engineering & Technology 8 (4), 668-678, 2017

33. Glaucoma Image Classification Using Entropy Feature and Maximum Likelihood Classifier, A Rebinth, SM Kumar, T Kumanan, G Varaprasad, Journal of Physics: Conference Series 1964 (4), 042075, 2021

34. CNN model Channel Separation for glaucoma Color Spectral Detection, S Murugan, SM Kumar, TRG Babu, International Journal of MC Square Scientific Research 12 (2), 1-10, 2020

35. Skin Cancer Diagnostic using Machine Learning Techniques - Shearlet Transform and Naïve Bayes Classifier, KG S. Mohan Kumar, J. Ram Kumar, International Journal of Engineering and Advanced Technology 9 (2), 3478-3480, 2019

36. Importance of Manual Image Annotation Tools and Free Datasets for Medical Research, DSMK Anisha Rebinth, Journal of Advanced Research in Dynamical and Control System, 2019

37. A Symmetrically Diminished Interconnected Database Segmentation Framework Using Data Mining, SM Kumar, D Majumder, AS Naragunam, DV Ashoka, Journal of Physics: Conference Series 1964 (4), 042071, 2021

38. Wavelet Packet Transform-Based Image Classification for Computer-Aided Glaucoma Diagnosis Using Naïve Bayes Classifier, A Rebinth, SM Kumar, Communication Software and Networks: Proceedings of INDIA 2019, 597-605, 2020

39. Image processing-based Lung Tumor-Detection and Classification using 3D Micro-Calcification of CT Images, S Murugan, SM Kumar, TRG Babu, International Journal of MC Square Scientific Research 12 (1), 1-10, 2020

40. A Deep Learning Approach To Computer Aided Glaucoma Diagnosis, A Rebinth, SM Kumar,International Conference on Recent Advances in Energy-efficient, 2019

41. Statistical Features Based Classification of Microcalcification in Digital Mammogram Using Stochastic Neighbor Embedding, S MohanKumar, Balakrishnan, G, International Journal of Advanced Information Science and Technology 7 (7), 2012

42. Skin Lesion Classification System Using Shearlets, SM Kumar, T Kumanan, Computer Systems Science & Engineering 44 (1), 2023

43. Wavelet and Symmetric Stochastic Neighbor Embedding based Computer Aided Analysis for Breast Cancer, GB S.Mohan Kumar, Indian Journal of Science and Technology 9 (47), 1-7, 2016

44. Categorization of Benign and Malignant Digital Mammograms Using Mass Classification- SNE and DWT, BG S Mohan Kumar, Karpagam Journal of Computer Science 7 (4), 237-243, 2013

45. The performance Evaluation of the Breast Mass Classification CAD system based on DWT, SNE and SVM, S MohanKumar, Balakrishnan, G, IJETAE 3 (10), 581-587, 2013

46. Review on Importance and Advancement in Detecting Sensitive Data Leakage in Public Network, DSMK Ms. Revathi Yegappan, International Journal of Engineering Research and General Science 4 (2), 263-265, 2016

47. Multi Resolution Analysis for Mass Classification in digital Mammogram using Stochastic Neighbor Embedding, GB S Mohan Kumar, International conference on Communication and Signal Processing, April 3-5, 2013

48. Melanoma Skin Cancer Classification Using Deep Learning Convolutional Neural Network, KG S. Mohan Kumar, J. Ram Kumar, 2020

49. The Performance Evaluation of the Breast Microcalcification CAD System Based on DWT, SNE AND SVM, S MohanKumar, Balakrishnan, G, Ciit International Journal of Digital Image Processing 5 (11), 483-487, 2013

50. Classification of Micro Calcification and Categorization of Breast Abnormalities- Benign and Malignant in Digital Mammograms Using SNE and DWT, BG S Mohan Kumar, Karpagam Journal of Computer Science 7 (5), 253-259, 2013

51. Automated detection of Retinal Defects using image mining-A review, DSM Kumar, A Rebinth, European Journal of Biomedical and Pharmatical Sciences, 2349-8870, 2018

52. A STUDY ON DATA MINING TECHNIQUES, METHODS, TOOLS AND APPLICATIONS IN VARIOUS INDUSTRIES, SMK R. Jaya, International Journal of Current Research and Review 8 (4), 34-38, 2016

53. Ayurveda Medicine Roles in Healthcare Medicine, and Ayurveda Towards Ayurinformatics, R Jaya, S MohanKumar, International Journal of Computer Science and Mobile Computing 4 (12), 2015

54. Breast Cancer Diagnostic system based on Discrete Wavelet Transformation and stochastic neighbour Embedding, BG Mohan Kumar. S, European Journal of Scientific Research 87 (03), 301-310, 2012

55. Factors for improving the research publications and quality metrics, DSMK Dr. V. Ilango, International Journal of Civil Engineering and Technology 8 (4), 477-496, 2017

56. Medical Diagnosis Cad System Using Latest Technologies, Sensors And Cloud Computing, TRDSM Kumar, International Journal of Computer Engineering & Technology 8 (1), 43-50, 2017

57. Classification of Breast Mass classification-CAD System with Performance Evaluation Using SSNE, S MohanKumar, Balakrishnan, G, International Journal of Advanced Research in Computer Science and Software, 2015

58. Mammogram classification using VGG-16 architecture, E Sivanantham, P Epsiba, B Gopi, P Solainayagi, K Umapathy, SM Kumar, AIP Conference Proceedings 2523 (1), 020070, 2023

59. Channel separation with CNN model for glaucoma color spectral detection, A Rebinth, SM Kumar, AIP Conference Proceedings 2519 (1), 030020, 2022

60. Automated Detection of Retinal Anamolies Using Computer Aided Techniques-A Comparative Research, A Rebinth, DSM Kumar, 1st International Conference on Emerging Trends and Challenges in Applied, 2020

61. Computer Aided Diagnostic Techniques in Automated Detection of Eye Related Diseases-A Comparative Study, A Rebinth, DSM Kumar, International Conference on Innovative Research in Engineering, Management, 2019

62. Classification of Breast Mass classification-CAD System with Performance Evaluation, DGB Dr.S.Mohan Kumar, International Journal Of Engineering And Computer Science 4 (9), 14187-14193, 2015

63. Classification of Microcalcification in Digital Mammogram using Stochastic Neighbor Embedding and KNN Classifier, S MohanKumar, Balakrishnan, G, International Conference on Emerging Technology Trends on Advanced, 2012

64. Glaucomatous Image Classification CAD System Using Adaptive Wavelets, Probabilistic PCA and Random Forest Techniques Machine Learning Model, A Rebinth, DSM Kumar, International Journal Of Innovation In Engineering Research & Management

65. Lo-Ra based covid patient health detecting system, D Majumder, SM Kumar, DV Ashoka, AS Naragunam, AIP Conference Proceedings 2523 (1), 020010, 2023

66. Glaucoma diagnosis based on colour and spatial features using kernel SVM, A Rebinth, SM Kumar, Cardiometry, 508-515, 2022

67. Automated detection of retinal defects using image mining-a review, A Rebinth, DSM Kumar, European Journal Of Biomedical And Pharmaceutical Sciences 5, 189-194, 2018

68. A SURVEY ON MEDICAL DATA MINING-HEALTHCARE RELATED RESEARCH AND CHALLENGES, DSM Kumar, International Journal of Current Research 8 (1), 25170, 2016

69. Prognosis and prediction of disease using hybrid machine learning framework, P Epsiba, B Gopi, K Umapathy, P Solainayagi, E Sivanantham, SM Kumar, AIP Conference Proceedings 2523 (1), 020042, 2023

70. Securing Pedestrian Crosswalks in Smart Cities: An Embedded Vision System for Pedestrian Detection and Safety Enhancement, DSM Kumar, International Conference on Smart Technologies for Smart Nation, 2023

71. IoT - BLE Based Indoor Navigation for Visually Impaired People, DSM Kumar, International Conference on Smart Technologies for Smart Nation, 2023

72. Soft Computing Based Discriminator Model for Glaucoma Diagnosis, A Rebinth, SM Kumar, COMPUTER SYSTEMS SCIENCE AND ENGINEERING 42 (3), 867-880, 2022

73. Design of Deep Neural Architecture for Brain Cancer Classification Using Pyramid Design, SM Kumar, KP Yadav, Journal of Physics: Conference Series 1964 (7), 072021, 2021

74. Brain Image Classification by Deep Neural Network with Pyramid Design of Inception Module, SM Kumar, KP Yadav, Annals of the Romanian Society for Cell Biology 25 (6), 1871-1880, 2021

75. Study on skin Lesion Classifications system and Dermoscopic Feature Analysis for Melanoma, Kumanan T, S Mohan Kumar, International Journal of Creative Research Thoughts 6 (1), 1863 – 1873, 2018

76. Classification of breast microcalcification- CAD system and performance evaluation using SSNE, SMK Balakrishnan, International Journal of Advanced Research in Computer Science and Software, 2015

77. Classification of Breast Mass Classification-CAD System and Performance Evaluation Using SSNE, K SM, Balakrishnan, International Journal of Innovative Science, Engineering & Technology 2 (9), 2015

78. Dermoscopic Image Classification Using Two-Stage Processing of Shearlet Features with Support Vector Machine, SM Kumar, T Kumanan, Micro-Electronics and Telecommunication Engineering, 447, 2021

79. Skin Lesion Classification System and Dermoscopic Features Analysis for Melanoma recognition and Prevention, DSMKDT Kumanan, International Journal of Emerging Technology and Advanced Engineering 7 (8), 2018

80. Artificial Intelligence: Foundations, Applications, and the Generative Future, DSM Kumar, 30th April 2025 ISBN: 978-93-92090-63-9, www.doi.org/10.47716/978-93-92090-63, 2025

81. AI in Precision Healthcare: A New Frontier, DSMKDG Balakrishnan, ISBN: 978-93-86388-50-6,DOI: https://doi.org/10.47715/978-93-86388-50-6, 2025

82. Industry 6.0 impediments and future trends in industries ISBN 979-8324031077, DMS Dr Mohan Kumar S, Dr Thomas M Chen, 2024

83. A distributed e-health management model with edge computing in healthcare framework, D Majumder, SM Kumar, Cardiometry, 444-455, 2022

84. Features with Support Vector Machine, SM Kumar, T Kumanan, Micro-Electronics and Telecommunication Engineering: Proceedings, 2021

85. Medical Image Augmentation and Enhancement using Machine Learning, DKPY Dr. S Mohan Kumar, 978-93-91303-40-2, 2021

86. An Edge Based Smart Healthcare Model with Machine Learning Approaches, DSMK Darpan Majumder, Design Engineering 2021 (09), 9214 - 9229, 2021

87. Deep Learning-Based MRI Brain Tumor Classification Using Convolutional Neural Network Model, KPY, S Mohan Kumar, Design Engineering, 900-909, 2021

88. AN ENHANCED CONVOLUTIONAL NEURAL ARCHITECTURE WITH RESIDUAL MODULE FOR MRI BRAIN IMAGE CLASSIFICATION SYSTEM, SM Kumar, KP Yadav, Turkish Journal of Physiotherapy and Rehabilitation 32 (3), 911-917, 2021

89. Melanoma Skin Cancer Classification Using Deep Learning Convolutional Neural Network, KG S. Mohan Kumar, J. Ram Kumar, Indian Journal of Public Health Research & Development 20 (3), 351-355, 2020

90. Deep Learning Architectures and their Application to MRI Brain Image Classification, DKPY Dr. S Mohan Kumar, ISBN 978-81-952262-2-1

91. Research Methodology, Prof. (Dr.) S. Mohan Kumar, 978-93-91303-73-0

92. Research and Publication Ethics, Prof. (Dr.) S. Mohan Kumar, 978-93-92090-28-8

93. Medical Image Augmentation and Enhancement using Machine Learning,S. Mohan Kumar, 978-93-91303-40-2

94. Deep Learning Architectures and their Application to MRI Brain Image Classification,Dr.S.Mohan Kumar, K.P.Yadav, 978-81-952262-2-1

95. Machine Learning and IoT for Intelligent Systems and Smart Applications, ISBN 9781003194415, Mohan Kumar S., T. Kumanan, T. R. Ganesh Babu, S. Poovizhi

96. AI in Precision Healthcare: A New Frontier, Dr. S. Mohan Kumar, Dr. G. Balakrishnan, ISBN: 978-93-86388-50-6

97. Artificial Intelligence: Foundations, Applications and the Generative Futures, Dr. S. Mohan Kumar, ISBN: 978-93-92090-63-9

98. Importance of manual image annotation tools and free datasets for medical research, Mohan Kumar, S., Rebinth, A., Journal of Advanced Research in Dynamical and Control Systems, 11(1 Special Issue), pp. 1168-1176, 2019

99. Melanoma skin cancer classification using deep learning convolutional neural network, Medico Legal Update, 20(3), pp. 351-355, Mohan Kumar, S., Ram Kumar, J., Gopalakrishnan, K., 2020

100. Skin Lesion Classification System Using Shearlets, Kumar, S.M., Kumanan, T., Computer Systems Science and Engineering, 44(1), pp. 833-844, 2022

101. A distributed e-health management model with edge computing in healthcare framework, Majumder, D and Kumar, SM, May 2022, CARDIOMETRY (22), pp.444-455

102. Glaucoma diagnosis based on colour and spatial features using kernel SVM, Rebinth, A and Kumar, SM, May 2022, CARDIOMETRY (22), pp.508-515

103. Soft Computing Based Discriminator Model for Glaucoma Diagnosis, Rebinth, A and Kumar, SM, 2022, COMPUTER SYSTEMS SCIENCE AND ENGINEERING 42 (3) , pp.867-880.

104. A Deep Learning Approach To Computer Aided Glaucoma Diagnosis, Mohan Kumar, S., Rebinth, A., 2019 International Conference on Recent Advances in Energy Efficient Computing and Communication, ICRAECC 2019

105. Wavelet Packet Transform-Based Image Classification for Computer-Aided Glaucoma Diagnosis Using Naïve Bayes Classifier,

Kumar, S.M., Rebinth, A., Lecture Notes in Networks and Systems, 134, pp. 597-605, 2021

106. Dermoscopic Image Classification Using Two-Stage Processing of Shearlet Features with Support Vector Machine, Mohan Kumar, S., Kumanan, T., Lecture Notes in Networks and Systems, 179 LNNS, pp. 447-459, 2021

107. A Symmetrically Diminished Interconnected Database Segmentation Framework Using Data Mining, Journal of Physics Conference Series, 1964(4), Mohan Kumar, S., Majumder, D., Shajin Naragunam, A., Ashoka, D.V., 2021

108. Glaucoma Image Classification Using Entropy Feature and Maximum Likelihood Classifier, Kumar, S.M., Rebinth, A., Kumanan, T., Varaprasad, G., Journal of Physics Conference Series, 1964(4), 2021

109. Design of Deep Neural Architecture for Brain Cancer Classification Using Pyramid Design, Kumar, S.M., Yadav, K.P., Journal of Physics Conference Series, 1964(7), 2021

110. Deep learning - Computer-aided melanoma detection using transfer learning, 2021, Mohan Kumar, S., Kumanan, T., Babu, T.R.G.,Poovizhi, S. Machine Learning and IoT for Intelligent Systems and Smart Applications, pp. 163-179

111. A Modern Approach to Detect Person Wearing Mask Using Deep Learning, 2022, Mohan Kumar, S., Nagarajan, G., Ibrahim, S.A., Lecture Notes in Mechanical Engineering, pp. 539-550.

112. Channel separation with CNN model for glaucoma color spectral detection, Kumar, S.M., Rebinth, A., AIP Conference Proceedings, 2519, 2022

113. Prognosis and Prediction of Disease Using Hybrid Machine Learning Framework, Aip Conference Proceedings 2523, Kumar, S.M., Epsiba, P., Gopi, B., Umapathy, K., Sivanantham, E., 2023

114. Mammogram Classification Using VGG-16 Architecture, Aip Conference Proceedings, 2523, Kumar, S.M., Sivanantham, E., Epsiba, P., ...Gopi, B., Umapathy, K., 2023

115. Lo-Ra Based Covid Patient Health Detecting System, AIP Conference Proceedings, 2523, Kumar, S.M., Majumder, D., Ashoka, D.V., Naragunam, A.S., 2023

116. Data-Driven with IoT Sensing and Deep Learning Model for Dynamic Skin Cancer Diagnosis, 2024, Kumar, S.M., Thenmozhi, R., Balaji Damodhar, T.S., Malathi, N., Meenakshi, B., 2nd International Conference on Self-Sustainable Artificial Intelligence Systems ICSAS 2024, Proceedings, pp. 1034-1039.

117. Cloud-Powered Healthcare Appointment Optimization with Reinforcement Learning for Efficiency, Kumar, SM; Peter, JBJ; Sujatha, S, 2nd International Conference on Intelligent Cyber Physical Systems and Internet of Things (ICoICI), 2024 SECOND INTERNATIONAL CONFERENCE ON INTELLIGENT CYBER PHYSICAL SYSTEMS AND INTERNET OF THINGS, ICOICI, pp.229-235, 2024

118. Multi-Resolution Analysis for Mass Classification in Digital Mammogram using Stochastic Neighbor Embedding, Kumar, SM and Balakrishnan, G, 2nd IEEE International Conference on Communications and Signal Processing (ICCSP), pp.101-105, 2013.

119. Patent Title: Device for Detection of Melanoma Skin Cancer Using AI, 376924-001, S Mohan Kumar, T Y SATHEESHA,Amit Kumar K

120. Patent Title: Patient Health Monitoring Device, 382543-001, Mohd.Wazih Ahmad, Taranath N L, Roopa H, S Mohan Kumar

121. Patent Title: Fire Detection and Prevention Device, 382544-001,MV B Murali Krishna, Pavithra B, Smitha GV, S Mohan Kumar

122. Patent Title: Water Desalination Machine, 382137-001, Raj Kumar, Chinnahajisagari Mohammad Akram, Sandeep B, S Mohan Kumar

123. Patent Title: Smart Wearable Device for Monitoring and Managing Postpartum Stress Disorder in Females, 387824-001, Kavitha Bhatt, S Mohan Kumar

124. Patent Title: Intelligent Wireless Device for Detection of Cancerous Cells, 387005-001Shilpa Bhairanatti, S Mohan Kumar

125. Patent Title: AI Based Cloud Security Device, 395223-001, Binu C T, S Mohan Kumar

126. Patent Title: Machine Learning for Moist Convention: Modeling Novel Method of Aqua condensation using Renewable Energy,S Mohan Kumar