INTELLIGENT COMPUTING TECHNIQUES AND APPLICATIONS

Edited by
Tusharkanta Samal, Ambarish Panda, Manas Ranjan Kabat,
Ali Ismail Awad, Suvendra Kumar Jayasingh and Deepak K Tosh

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Preface

This Taylor & Francis, CRC Press volume contains the papers presented at the International Conference on Emerging Trends in Intelligent Computing Techniques (ICETICT – 2024) held during 27th and 28th December 2024 organized by DRIEMS University, Tangi, Cuttack, Odisha, India. A lot of challenges at us and no words of appreciation is enough for the organizing committee who could still pull it off successfully.

The conference draws the excellent technical keynote talk and many papers. The keynote talks by Prof. Sanjeevikumar Padmanaban, University of South-Eastern Norway and Prof. Bidyadhar Subudhi, Director, NIT, Warangal are worth mentioning. We are grateful to all the speakers for accepting our invitation and sparing their time to deliver the talks.

We received 238 full paper submissions and we accepted only 66 papers with an acceptance rate of 28%, which is considered very good in any standard. The contributing authors are from different parts of the globe that includes UAE, Philippines, Uganda, Jordan, Malaysia, and India. The conference also received papers from distinguished authors from the length and breadth of the country including 20 states and many premier institutes. All the papers are reviewed by at least three independent reviewers and in some cases by as many as five reviewers. All the papers are also checked for plagiarism and similarity score. It was really a tough job for us to select the best papers out of so many good papers for presentation in the conference. We had to do this unpleasant task, keeping the Taylor & Francis guidelines and approval conditions in view. We take this opportunity to thank all the authors for their excellent work and contributions and also the reviewers who have done an excellent job.

On behalf of the technical committee, we are thankful to Prof. Durga Prasad Mohapatra, NIT, Rourkela, to accept the invitation as General Chair of the Conference, for his timely and valuable advice. We also thankful to Prof. Srinibash Sethy for his constant support and guidance. We cannot imagine the conference without his active support at all the crossroads of decision-making process.

The university management of the host institute, the honorable Chairman Dr. Pramod Chandra Rath, Patron, Vice Chairman Durga Prasad Rath and Vice Chanceller, Prof. Prakash Kumar Hota, Director Admin Sj Balaram Kar, Director Coordination Mrs Chinmayee Rath, Co-Patron of the conference and Dean Prof. Nayan Ranjan Samal, Associate Dean Prof. Alok Ranjan Biswal, Organising Chair, Dean Research Prof. Biswaranjan Mohanty have extended all possible support for the smooth conduct of the Conference. Our sincere thanks to all of them.

We would also like to place on record our thanks to all the keynote speakers, reviewers, session chairs, authors, technical program committee members, various Chairs to handle finance, accommodation and publicity and above all to several volunteers. Our sincere thanks to all press, print and electronic media for their excellent coverage of this conference.

We are also thankful to Taylor & Francis, CRC Press publication house for agreeing to publish the accepted and presented papers.

Best wishes.
December, 2024

Tusharkanta Samal
Ambarish Panda
Manas Ranjan Kabat
Ali Ismail Awad
Suvendra Kumar Jayasingh
Deepak K Tosh

Editors Biography

Dr. Tusharkanta Samal
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Dr. Tusharkanta Samal holds a Bachelor of Technology in In received MTech and Ph.D. degree in Computer Science and engineering from Veer Surendra Sai University of Technology, Burla, Odisha, India. Currently he is working as an associate Professor in Department of Computer Science and engineering, DRIEMS University, Odisha, India. He has more than 12 years of teaching and research experience in different Engineering colleges and Universities. Dr. Samal has authored over 30 scientific papers published in SCI, Scopus Indexed Journals and Conferences.

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Dr. Ambarish Panda holds a Bachelor of Engineering in Electrical Engineering and Master of Technology in Power System Engineering from Sambalpur University and V.S.S University of Technology. He completed his Ph.D. in Electrical Engineering from V.S.S University of Technology since April, 2016. He has more than 14 years of teaching and research experience in different Engineering colleges and Universities. To his credit, he has published multiple research articles in SCI/SCIE indexed journals with high repute. Besides his research activities he serves as reviewer and Editor in SCI/SCIE Indexed Journal.

Prof. (Dr.) Manas Ranjan Kabat
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Manas Ranjan Kabat, is currently working as the principal of IMIT, a constituent college of BPUT. He has received his M.E. degree in Information Technology and Computer Engineering from Bengal Engineering College, India, and the Ph.D. degree in Computer Science and Engineering from Sambalpur University He has more than two decade of teaching experience both at undergraduate and postgraduate level. He has published more than 75 research paper in various referred international journals and conferences. He has guided more than 20 M.Tech and 9 Ph.D. students. Chaired and organized many international and national conferences. Contributed as editor and reviewer of many peer-reviewed international journals His research interests include QoS in internet, Wireless Sensor Network, Body Area Network, Cloud Computing etc.

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Ali Ismail Awad (Ph.D., SMIEEE, MACM) is an Associate Professor at the College of Information Technology, United Arab Emirates University (UAEU), Al Ain, United Arab Emirates, where he has been coordinating the master's program in Information Security since 2022. He is also an Honorary Associate Professor at the University of Nottingham, Nottingham, U.K. From 2018 to 2023, he served as a Visiting Researcher at the University of Plymouth, Plymouth, U.K. Dr. Awad joined the Department of Computer Science, Electrical and Space Engineering at Luleå University of Technology (LTU), Luleå, Sweden, in 2013. In 2017, he was promoted to Associate Professor (Docent) and served as the coordinator of the master's program in Information Security from 2017 to 2020. In recognition of his teaching merits and pedagogical achievements, he was promoted to the rank of Recognized University Teacher at LTU in 2021. His research interests include cybersecurity, network security, Internet of Things (IoT) security, and image analysis with biometrics and medical imaging applications. He has edited or co-edited several books and authored or co-authored numerous journal articles and conference papers in these areas of interest. From 2021 to 2024, he was recognized among the top 2% of influential scientists worldwide. Dr. Awad serves on the Editorial Boards of Future Generation Computer Systems, Computers & Security, Internet of Things; Engineering Cyber-Physical Human Systems, Health Information Science and Systems, and Security, Privacy and Authentication (Frontiers). Dr. Awad is an IEEE Senior Member and an ACM Professional Member.

Dr. Suvendra Kumar Jayasingh
Associate Professor and HOD in the Department of Computer Science and Engineering, Institute of Management and Information Technology (IMIT), Cuttack (A Constituent College of BPUT, Govt. of Odisha)

Dr. Suvendra Kumar Jayasingh is working as Associate Professor and HOD in the Department of Computer Science & Engineering, Institute of Management and Information Technology (IMIT), Cuttack (A Constituent College of BPUT, Govt. of Odisha) after being selected in OPSC (Orissa Public Service Commission) in 2005. He has obtained his Bachelor of Engineering the year 2003 from University College of Engineering (UCE), Burla (Now VSSUT). He got his M. Tech. in Computer Science & Engineering in 2007 from RVU, Udaipur and Ph. D. in Computer Science & Engineering in 2020 from North Orissa University, Baripada (Now Maharaja Sriram Chandra Bhanja Deo University). He is having 20 years of teaching experience in Computer Science & Engineering and MCA. He has published several articles, book chapters in reputed National and International journals and periodicals including Springer and Taylor & Francis and has presented research papers in National and International Seminars and Conferences. He has also participated in many National and International Workshops, FDPs, Industrial Training Programs organized by IITs, NITs and NITTTRs. His research interests include Artificial Intelligence, Data Mining, Soft Computing, Machine Learning, Computational Intelligence, Database Management System and Algorithm Analysis and Design. He has published a book on “Introduction to Machine Learning” and a UK patent on “Smart Home Air Quality Monitoring Device”.He is a life member of Indian Society for Technical Education (ISTE).

Dr. Deepak K Tosh
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Dr. Deepak K Tosh is an assistant professor in Computer Science at the University of Texas at El Paso. Before that he was a Cybersecurity Researcher at the DoD Sponsored Center of Excellence in Cybersecurity, Norfolk State University (NSU), Norfolk, Virginia. During that time, he has closely collaborated with researchers from Air Force Research Lab and Army Research Lab to establish data provenance mechanisms in cloud computing in addition to addressing research challenges in the arena of distributed system security, Blockchain, cyber-threat information sharing, cyber-insurance, and Internet of Battlefield Things (IoBT). He was appointed shortly as a postdoctoral researcher at the Tennessee State Univerity, where he worked with Dr. Sachin Shetty in the

CyberViz Laboratory. He has been collaborating with Dr. Shetty since then focusing on research topics such as: distributed consensus models in Blockchain technology, cyber-resiliency in battlefield environment, and various practical issues in cloud computing security. He has received my Ph.D. in Computer Science and Engineering from University of Nevada, Reno, under the supervision of Dr. Shamik Sengupta. His dissertation was focused on designing market based models to enable cybersecurity information sharing among organizations. He received my masters in Computer Science from University of Hyderabad, India in 2012. His master thesis addressed the issue of cognitive radio transmission parameter adaptation problem using multi-objective optimization techniques.

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1 An SRR metamaterial for focusing enhancement of W-band lens antenna for microwave imaging

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Abstract

This paper introduces a hybrid split ring resonator (SRR)-based periodic metamaterial structure developed for a W-band lens antenna, designed to detect electromagnetic radiation emitted by plasma or any cancerous cell. This detection enables localized analysis of the electron temperature from the radiation source. Here the metamaterial is tailored to operate within the W-band spectrum (70–110 GHz). The unit cell in the metamaterial structure is engineered for low loss, minimal dispersion, broad bandwidth, and high gain, optimizing lens performance. The structure's design, simulation, and optimization were conducted using ANSYS HFSS software. A composite metamaterial (CMM) was selected for the unit cell, achieving a near-zero refractive index to construct a low-loss, broadband, high-gain NZMTM (near-zero refractive index metamaterial) lens antenna that significantly enhances focusing. The lens aperture dimensions are 1100 μm × 550 μm × 250 μm.

Keywords: CMM, NZMTM, SRR, W-band

Introduction

Metamaterials have made significant strides in antenna systems, lens antenna, microwave detectors and filters that envisages for modern biomedical experiments for cancerous tissue imaging. Recently, lens antennas effectively focus electromagnetic energy into precise directions, achieving a narrow beam profile that maximizes signal strength in targeted areas as proposed by Abdul Mahmood [1]. Traditionally, dielectric materials are used as lens but the demerits of these materials as lens are their heaviness and bulkiness property, and their machining process is also expensive. Resonant and nonresonant sub wavelength periodic structures and artificial materials called metamaterial depicted by Bray et al. [2] are extensively used as lens for collimating the spherical wave into a focusing beam effectively for breast cancer detection. By choosing the specific sub wavelength metamaterial structure, we can control the effective material parameter. Thus, by manipulating the propagation of the EM wave, one can design different types of lens, e. g., negative index metamaterial lens (NIM), zero index metamaterial lens (ZIM), and gradient refractive index metamaterial lens (GRIN) for bringing high resolution imaging in cancerous cell diagnosis proposed by Dixit and Pinto [3]. Metamaterials in microstrip patches are some specialized geometrical structures that do not exist naturally but are being designed artificially that depicts the negative or near zero value of permittivity, permeability and refractive index that enhances the tomographic microwave imaging quality as depicted by Grzegorczyk et.al, Ibrahim et.al, Islami et.al and Islam et.al [4-7]. Hence, these are also called left-handed materials (LHM) to enhance microwave imaging in biomedical instruments used particularly for cancer cell treatment proposed by Maamoun et al. [8]. This study introduces a multi-layered metamaterial design made up of unit cell components to develop a low-loss, high-efficiency, and broadband thin lens antenna. To achieve enhanced focusing and high-gain broadband performance, careful design and optimization of both the illuminator and unit cell are essential and suitable for biomedical imaging. These processes are conducted using ANSYS HFSS software to maximize performance.

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Unit Cell Design and Parameter Extraction

The proposed metamaterial unit cell, featuring split ring resonators (SRRs) positioned on one side of a cost-effective substrate, while a metallic strip is placed on the opposite side, directly aligned with the SRRs. The substrate, Rogers RT/Duroid 5880, has a relative permittivity of 2.0 and a loss tangent of tan δ = 0.0009. The SRR design incorporates two concentric rings, each with a strip width, separation, and split width measuring 55 μm. The outer ring has a diameter of 275 μm while the inner ring has a diameter of 110 μm. The substrate dimensions extend 550 μm along the x-axis and 1100 μm along the y-axis, with a thickness of 250 μm. The metallic strip on the unit cell measures 550 μm along the x-axis and 275 μm along the y-axis, with a copper layer thickness of 9 μm applied to both the SRRs and metallic strip. Simulations are conducted using a linearly polarized wave propagating in the Y-direction, with boundary conditions set for the E-field (PEC) in the X-direction and the H-field (PMC) in the Z-direction, as illustrated in Figure 1.1.

The simulation utilizes ANSYS HFSS software, which operates on the principles of the finite element method (FEM) to analyze and optimize the design as considered by Afridi et.al.[9]. The effective medium parameters from the scattering parameter data are being extracted by the Nicolson–Ross–Weir (NRW) approach is shown in Figure 1.2. It is clear from the Figure 1.2(a) that the permittivity and permeability are near zero from 70-110 GHz with a resonance at 94 GHz that shows low electric and magnetic loss. In Figure 1.2(b), the dispersion diagram shows a phase (β) change of 1800 each from 87-92 GHz (LH band) and from 92-97 GHz (RH band) reveals near zero metamaterial behavior. In these ranges, the refractive index is almost near zero.

From the simulation of the unit cell structure, the transmission (S21) and reflection (S11), coefficients are shown in Figure 1.3(a). It shows that, in the band of 70-89 GHz, the S21 parameter shows lossy transmission and after that, S21 is apparent. The phase in angle degree for S11 and S21 is shown in Figure 1.3(b).

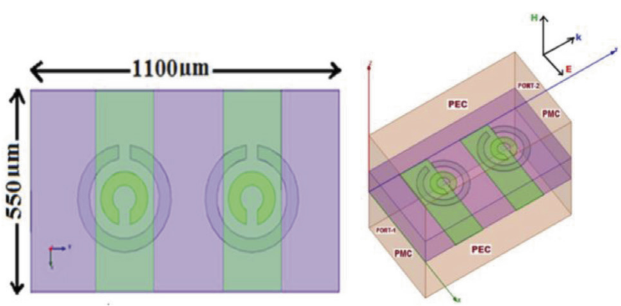

Figure 1.1 The proposed Unit Cell SRR structure and its simulation model with boundary conditions
Source: Author

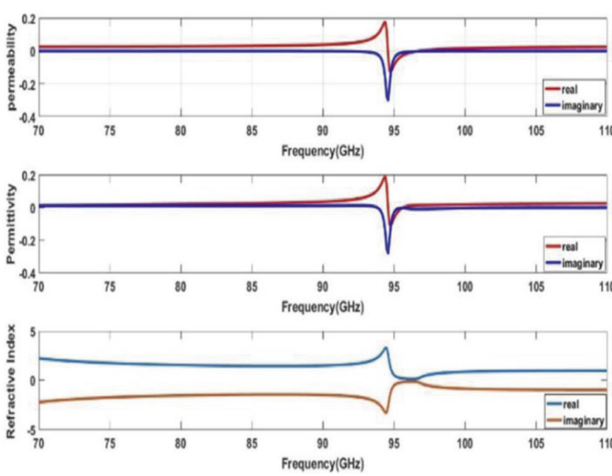

Figure 1.2 (a) Extracted medium parameters of the unit cell
Source: Author

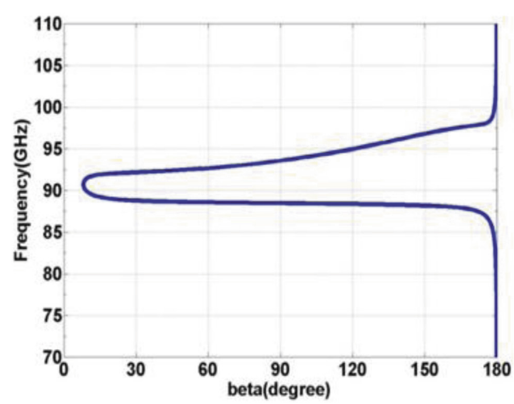

Figure 1.2 (b) Dispersion diagram for the proposed structure
Source: Author

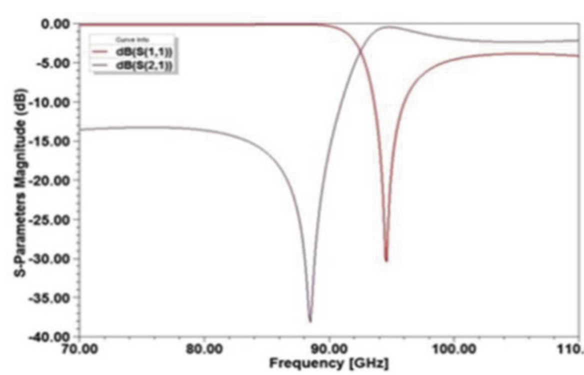

Figure 1.3 (a) Simulation results of magnitude of S11 and S21
Source: Author

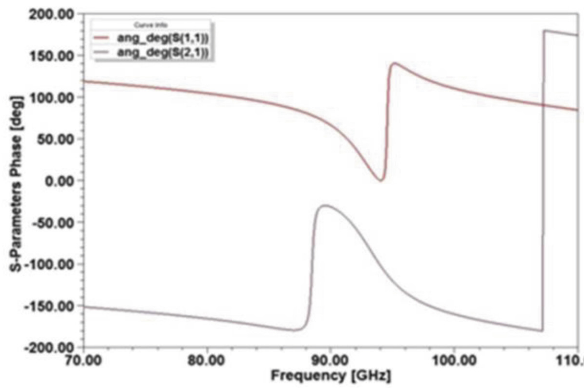

Figure 1.3 (b) Simulation result of phase of S11 and S21
Source: Author

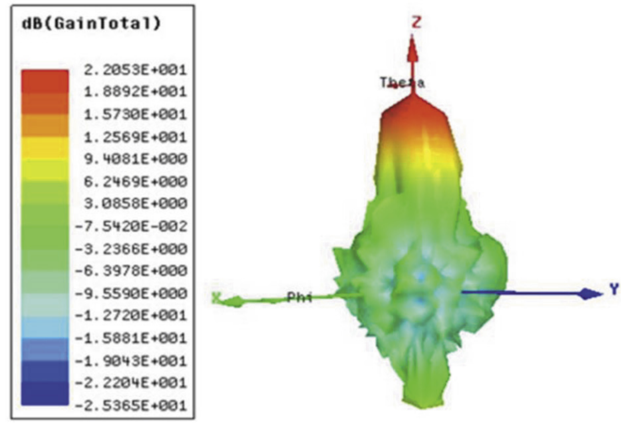

Figure 1.5 The 3D polar plot of gain at 104.5 GHz
Source: Author

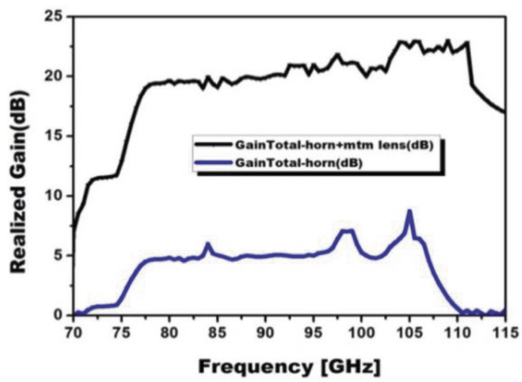

Figure 1.4 Maximum gain versus frequency plot
Source: Author

Lens Design and Simulation Result and Discussion

Metamaterial structure comprising of 10x10 unit cells in 10 layers is considered here to achieve high gain and directivity for a pyramidal horn in this W-band. The SRR lens-based horn is simulated for the desired frequency band and resulted gain versus frequency graph is depicted in Figure 1.4. It shows a consistency in gain enhancement of 10-12 dB in horn over a wide band of 77.5-102.5 GHz after the introduction of the parasitic SRRs.

In Figure 1.5, the 3D polar plot of gain of the lens antenna shows a gain of 22.053 dB in the propagation direction at 104.5 GHz. The lens antenna efficiently focuses electromagnetic waves in that direction, achieving a high concentration of signal strength compared to other directions. This would be beneficial in applications that require directed, high-intensity signal transmission, or reception. The gain is measured at a specific frequency, 104.5 GHz, which lies within the W-band (75–110 GHz). This implies that the antenna is designed or optimized to perform particularly well at this frequency, making it suitable for applications in that band, such as radar, satellite communications, and high-frequency imaging systems.

Conclusion

This paper presents a periodic metamaterial structure based on a hybrid split ring resonator (SRR) designed for a W-band lens antenna aimed at absorbing and detecting electromagnetic radiation from plasma sources. The hybrid design incorporates double-negative (DNG) material properties, enabling it to act as an effective focusing lens with an innovative approach within this frequency range. Optimized for the W-band (70–110 GHz), this metamaterial lens holds potential applications in the development of wideband, high-gain antennas suitable for fusion plasma diagnostics, temperature measurement, radar, and imaging sensor systems.

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References

[1] Abdul Mahmood, S. M. (2015). Assessment of plasma lipid profile and prolactin level in sudanese female with breast cancer. Doctoral dissertation thesis, Alzaeim Alazhari University.

[2] Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and

mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, 68, 394–424.

[3] Dixit, A., & Pinto, M. S. (2019). Simulation of microstrip patch antenna for detection of abnormal tissues in thyroid gland. *International Journal of Innovations in Engineering and Technology*, 13(3), 50–55.

[4] Grzegorczyk, T. M., Meaney, P. M., Kaufman, P. A., & Paulsen, K. D. (2012). Fast 3-D tomographic microwave imaging for breast cancer detection. *IEEE Transactions on Medical Imaging*, 31, 1584–1592.

[5] Ibrahim, A. S. (2014). Cancer incidence in Egypt: results of the national population-based cancer registry program. *Journal of Cancer Epidemiology*, 2014(437971), 18. [Online]. Available at: https://doi.org/10.1155/2014/437971.

[6] Islami, F., Torre, L. A., Drope, J. M., Ward, E. M., & Jemal, A. (2017). Global cancer in women: cancer control priorities. *Cancer Epidemiology, Biomarkers and Prevention*, 26(4), 458–470. cebp.0871, 2016.

[7] Islam, M. T., Mahmud, M. Z., Misran, N., Takada, J.-I., & Cho, M. J. (2017). A microwave breast phantom measurement system with compact side slotted directional antenna. *IEEE Access*, 5, 5321–5330.

[8] Maamoun, W., Badawi, M. I., Aly, A. A., & Khedr, Y. (2021). Nanoparticles in enhancing microwave imaging and microwave Hyperthermia effect for liver cancer treatment. *Reviews on Advanced Materials Science*, 60(1), 223–236.

[9] Afridi, M. A. (2015). Microstrip patch antenna – designing at 2.4 GHz frequency. *Biological and Chemical Research*, 2015, 128–132.

An SRR metamaterial for focusing enhancement of W-band lens antenna for microwave imaging

Abdul Mahmood, S. M. (2015). Assessment of plasma lipid profile and prolactin level in sudanese female with breast cancer. Doctoral dissertation thesis, Alzaeim Alazhari University.

Bray, F. , Ferlay, J. , Soerjomataram, I. , Siegel, R. L. , Torre, L. A. , & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians, 68, 394–424.

Dixit, A. , & Pinto, M. S. (2019). Simulation of microstrip patch antenna for detection of abnormal tissues in thyroid gland. International Journal of Innovations in Engineering and Technology, 13(3), 50–55.

Grzegorczyk, T. M. , Meaney, P. M. , Kaufman, P. A. , & Paulsen, K. D. (2012). Fast 3-D tomographic microwave imaging for breast cancer detection. IEEE Transactions on Medical Imaging, 31, 1584–1592.

Ibrahim, A. S. (2014). Cancer incidence in Egypt: results of the national population-based cancer registry program. Journal of Cancer Epidemiology, 2014(437971), 18. [Online]. Available at: https://doi.org/10.1155/2014/437971.

Islami, F. , Torre, L. A. , Drope, J. M. , Ward, E. M. , & Jemal, A. (2017). Global cancer in women: cancer control priorities. Cancer Epidemiology, Biomarkers and Prevention, 26(4), 458–470. cebp.0871, 2016.

Islam, M. T. , Mahmud, M. Z. , Misran, N. , Takada, J.I. , & Cho, M. J. (2017). A microwave breast phantom measurement system with compact side slotted directional antenna. IEEE Access, 5, 5321–5330.

Maamoun, W. , Badawi, M. I. , Aly, A. A. , & Khedr, Y. (2021). Nanoparticles in enhancing microwave imaging and microwave Hyperthermia effect for liver cancer treatment. Reviews on Advanced Materials Science, 60(1), 223–236.

Afridi, M. A. (2015). Microstrip patch antenna – designing at 2.4 GHz frequency. Biological and Chemical Research, 2015, 128–132.

Development of a visitor tracking system for tourist areas to monitor crowd density, peak hours and visitor demographics

Chianese, A. , & Piccialli, F. (2014). Designing a smart museum: when cultural heritage joins IoT. In 2014 Eighth International Conference on Next Generation Mobile Apps, Services and Technologies, (pp. 300–306).

Kalisch, D. (2012). Relevance of crowding effects in a coastal national park in Germany: results from a case study on Hamburger Hallig. Journal of Coastal Conservation, 16, 531–541.

Barbierato, E. , Gribaudo, M. , & Iacono, M. (2016). Modeling and evaluating the effects of big data storage resource allocation in global scale cloud architectures. International Journal of Data Warehousing and Mining (IJDWM), 12, (2), 1–20.

Jacques Jr,, Musse , , & Jung , (2010). Crowd analysis using computer vision techniques. IEEE Signal Processing Magazine, 27(5), 66–77.

Böhlen, M. , Clark, B. , Dalton, J. , Atkinson, J. , Blersch, D. , & Yang, L. (2013). Another day at the beach: combining sensor data with human perception and intuition for the monitoring and care of public recreational water resources. In 2013 9th International Conference on Intelligent Environments, (pp. 37–44).

Gribaudo, M. , Iacono, M. , & Levis, (2017). An IoTbased monitoring approach for cultural heritage sites: the matera case. Concurrency and Computation: Practice and Experience, 29(11), e4153.

Yannuzzi, M. , van Lingen, F. , Jain, A. , Lluch Parellada, O. , Mendoza Flores, M. , Carrera, D. , et al. (2017). A new era for cities with fog computing. IEEE Internet Computing, 21(2), 54–67.

Girau, R. , Ferrara, E. , Pintor, M. , Sole, M. , & Giusto, D. (2018). Be Right Beach: A Social IoT System for Sustainable Tourism Based on Beach Overcrowding Avoidance. In Proceedings of the 2018 IEEE International Conference on Internet of Things (iThings), Green Computing and Communications (GreenCom), Cyber, Physical and Social Computing (CPSCom), and Smart Data (SmartData) (pp. 9-14) IEEE. DOI: 10.1109/Cybermatics_2018.2018.00036. Hyperlink: https://ieeexplore.ieee.org/document/8726793

Girau, R. , Martis, S. , & Atzori, L. (2016). Lysis: a platform for IoT distributed applications over socially connected objects. IEEE Internet of Things Journal, 4(1), 40–51.

Kawamoto, Y. , Yamada, N. , Nishiyama, H. , Kato, N. , Shimizu, Y. , & Zheng, Y. (2017). A feedback control-based crowd dynamics management in IoT systems. IEEE Internet of Things Journal, 4(5), 1466–1476.

A study on extending IoT applications in multiprocessing agricultural systems

Biradar, H. B. , & Shabadi, L. (2019). Review on IOT based multidisciplinary models for smart farming. In Proceedings of the 2019 2nd IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT), (pp.1923–1926).

Evett, S. R. , Tolk, J. A. , & Howell, T. A. (2012). A depth control stands for improved soil water content measurement with time domain reflectometry. Vadose Zone Journal, 1(1), 11–18.

Goldstein, A. (2016). The impact of remote monitoring and control in agricultural water management. Agricultural Water Management, 178, 32–39.

Swati, J. S. , & Shinde, T. A. (2017). Design and development of automatic seed sowing machine. International Journal of Electronics and Communication Engineering (IJECE), Special Issue, 40–44. ISSN 2348-8549.

Sahu, J. , Sahu, S. K. , & Kumar, J. (2012). Microcontroller based Dc motor control. International Journal of Engineering Research and Technology (IJERT), 1(3), 1–4.

Jones, H. G. (2004). Irrigation scheduling: advantages and pitfalls of plant-based methods. Journal of Experimental Botany, 55(407), 2427–2436.

Matese, A. , Toscano, P. , Di Gennaro, S. F. , Genesio, L. , Vaccari, F. P. , Primicerio, J. , et al. (2015). Intercomparison of UAV, aircraft and satellite remote sensing platforms for precision viticulture. Remote Sensing, 7(3), 2971–2990.

Butet, P. V. , Deshmukh, S. , Rai, G. , Patil, C. , & Deshmukh, V. (2018). Design and fabrication of multipurpose agro system. International Research Journal of Engineering and Technology (IRJET), 5(1), 865–868.

Pereira, L. S. , Cordery, I. , & Iacovides, I. (2012). Coping with Water Scarcity: Addressing the Challenges. Springer Science and Business Media.
Saharawat, Y. S. , Singh, B. , Malik, R. K. , Ladha, J. K. , Gathala, M. , et al. (2010). Evaluation of alternative tillage and crop establishment methods in a rice, wheat rotation in north western IGP. Field Crops Research, 116, 26.
Sørensen, C. G. , Fountas, S. , Nash, E. , Pesonen, L. , Bochtis, D. , Pedersen, S. M. , et al. (2010). Conceptual model of a future farm management information system. Computers and Electronics in Agriculture, 72(1), 37–47.
Balaji, T. , Rajappan, R. , & Senthil, S. (2015). Mechanical design and development of agricultural robot. International Journal of Advancements in Mechanical and Aeronautical Engineering, 2(1), 94–97.
Walter, A. , Finger, R. , Huber, R. , & Buchmann, N. (2017). Opinion: smart farming is key to developing sustainable agriculture. Proceedings of the National Academy of Sciences, 114(24), 6148–6150.
Zhang, N. , Wang, M. , & Wang, N. (2002). Precision agriculture—a worldwide overview. Computers and Electronics in Agriculture, 36(2-3), 113–132.

A novel approach for mask face detection using convolutional neural network

Abbas, Q. , Albalawi, T. S. , Perumal, G. , & Celebi, M. E. (2023). Automatic face recognition system using deep convolutional mixer architecture and AdaBoost classifier. Applied Sciences, 13(17), 9880.
Abdulmunem, A. A. , Al-Shakarchy, N. D. , & Safoq, M. S. (2023). Deep learning based masked face recognition in the era of the COVID-19 pandemic. International Journal of Electrical and Computer Engineering, 13(2), 1550.
Agarwal, C. , Kaur, I. , & Yadav, S. (2022). Hybrid CNN-SVM model for face mask detector to protect from COVID-19. In Artificial Intelligence on Medical Data: Proceedings of International Symposium, ISCMM 2021. Springer Nature, Singapore.
Allam, Z. , & Jones, D. S. (2020). On the coronavirus (COVID-19) outbreak and the smart city network: universal data sharing standards coupled with artificial intelligence (AI) to benefit urban health monitoring and management. Healthcare, 8(1), 46.
Chavda, A. , Dsouza, J. , Badgujar, S. , & Damani, A. (2021). Multi-stage CNN architecture for face mask detection. In 2021 6th International Conference for Convergence in Technology (i2ct), (pp. 1–8). IEEE.
Chong, W. J. L. , Chong, S. C. , & Ong, T. S. (2023). Masked face recognition using histogram-based recurrent neural network. Journal of Imaging, 9(2), 38.
Gao, F. , Jin, Y. , Ge, Y. , Lu, S. , & Zhang, Y. (2024). Occluded person re-identification based on feature fusion and sparse reconstruction. Multimedia Tools and Applications, 83(5), 15061-15078.
Ge, Y. , Liu, H. , Du, J. , Li, Z. , & Wei, Y. (2023). Masked face recognition with convolutional visual self-attention network. Neurocomputing, 518, 496–506.
Hussain, S. , Yu, Y. , Ayoub, M. , Khan, A. , Rehman, R. , Wahid, J. A. , et al. (2021). IoT and deep learning-based approach for rapid screening and face mask detection for infection spread control of COVID-19. Applied Sciences, 11(8), 3495.
Joshi, A. S. , Joshi, S. S. , Kanahasabai, G. , Kapil, R. , & Gupta, S. (2020). Deep learning framework to detect face masks from video footage. In 2020 12th International Conference on Computational Intelligence and Communication Networks (CICN). (pp. 435–440). IEEE.
Ketab, F. , Russel, N. S. , Selvaraj, A. , & Buhari, S. M. (2023). Parallel deep learning architecture with customized and learnable filters for low-resolution face recognition. The Visual Computer, 39(12), 6699–6710.
Khan, M. J. , Khan, M. J. , Siddiqui, A. M. , & Khurshid, K. (2022). An automated and efficient convolutional architecture for disguise-invariant face recognition using noise-based data augmentation and deep transfer learning. The Visual Computer, 38, 509–523.
Kumar, A. (2023). A cascaded deep-learning-based model for face mask detection. Data Technologies and Applications, 57(1), 84–107.
Kumar, S. , Singh, S. K. , & Peer, P. (2023). Occluded thermal face recognition using BoCNN and radial derivative Gaussian feature descriptor. Image and Vision Computing, 132, 104646.
Mamieva, D. , Abdusalomov, A. B. , Mukhiddinov, M. , & Whangbo, T. K. (2023). Improved face detection method via learning small faces on hard images based on a deep learning approach. Sensors, 23(1), 502.
Mosayyebi, F. , Seyedarabi, H. , & Afrouzian, R. (2024). Gender recognition in masked facial images using EfficientNet and transfer learning approach. International Journal of Information Technology, 16(4), 2693–2703.
Naser, O. , Ahmad, S. , Samsudin, K. , Shafie, S. , & Zamri, N. (2023). Facial recognition for partially occluded faces. Indonesian Journal of Electrical Engineering and Computer Science, 30(3), 1846–1855.
Shukla, R. K. , & Tiwari, A. K. (2023). Masked face recognition using mobilenet v2 with transfer learning. Computer Systems Science and Engineering, 45(1).
Yu, J. , & Zhang, W. (2021). Face mask wearing detection algorithm based on improved YOLO-v4. Sensors, 21(9), 3263.
Zhao, C. , Qin, Y. , & Zhang, B. (2023). Adversarially learning occlusions by backpropagation for face recog-nition. Sensors, 23(20), 8559.

Enhancing 5G network management through association rule mining: Uncovering network traffic patterns

Gao, J. , & Chen, Z. (2023). Application of association rule mining algorithm based on 5G technology in information management system. Scalable Computing: Practice and Experience, 24(2), 139–149.
Huang, M. , Liu, A. , Xiong, N. N. , Wang, T. , & Vasilakos, A. V. (2020). An effective service-oriented networking management architecture for 5G-enabled internet of things. Computer Networks, 173, 107208.
Liu, D. , Wang, L. , Chen, Y. , Elkashlan, M. , Wong, K. K. , Schober, R. , et al. (2016). User association in 5G networks: a survey and an outlook. IEEE Communications Surveys and Tutorials, 18(2), 1018–1044.

Periyathambi, P. , & Ravi, G. (2024). Optimizing resource allocation in 5G wireless networks for enhanced spectral efficiency and energy conservation using machine learning methods. Signal, Image and Video Processing, 18(6), 4961–4977.
Rahman, A. U. , Mahmud, M. , Iqbal, T. , Saraireh, L. , Kholidy, H. , Gollapalli, M. , et al. (2022). Network anomaly detection in 5G networks. Mathematical Modelling of Engineering Problems, 9(2).
Wang, Z. , Liang, W. , Zhang, Y. , Wang, J. , Tao, J. , Chen, C. , et al. (2019). Data mining in IoT era: a method based on improved frequent items mining algorithm. In 2019 5th International Conference on Big Data and Information Analytics (BigDIA), (pp. 120–125). IEEE.
Yuan, X. , Yao, H. , Wang, J. , Mai, T. , & Guizani, M. (2021). Artificial intelligence empowered QoS-oriented network association for next-generation mobile networks. IEEE Transactions on Cognitive Communications and Networking, 7(3), 856–870.
Zhao, Z. , Jian, Z. , Gaba, G. S. , Alroobaea, R. , Masud, M. , & Rubaiee, S. (2021). An improved association rule mining algorithm for large data. Journal of Intelligent Systems, 30(1), 750–762.

A binarization method for Odia palm leaf manuscripts by using the Odia language accelerator model

Azimi, H. , & Nazi, A. (2021). The status of cataloging manuscripts in large libraries in Iran. Library Collections, Acquisitions, and Technical Services, 35(4), 106–117.
Challa, N. P. , & Mehta, R. V. K. (2017). Applications of image processing techniques on palm-leaf manuscripts—a survey. Helix: The Scientific Explorer, 7(5), 2013–2017.
Chamnongsri, N. , Manmart, L. , & Wuwongse, V. (2020). Implementation and evaluation of palm leaf manuscript metadata schema (PLMM). In Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital Libraries, (pp. 367–368).
Comment, J. (2021). Archiving cultural heritage and history through digitization: case studies from russia (comintern archives) and Albania (national archives). In Proceeding of the Conference on Knowledge Creation, Preservation, Access, and Management, (pp. 387–391).
Das, M. , Panda, M. , & Sahoo, S. (2024). Enhancing the Odia handwritten character and numeral recognition system's performance with an ensemble of deep neural networks. International Journal of Advanced Computer Science & Applications, 15(2).
Das, M. , Panda, M. , & Dash, S. (2022). Enhancing the power of CNN using data augmentation techniques for Odia handwritten character recognition. Advances in Multimedia, 2022(1), 6180701.
Devanathan, R. (2019). Conservation of manuscripts–the natural way. International Journal of Current Pharmaceutical Review and Research, 3(4), 99–104.
El Makhfi, N. , El Bannay, O. , Benslimane, R. , & Rais, N. (2021). System of indexing, annotation, and search in the old Arabic manuscripts. In 2021 Colloquium in Information Science and Technology, (pp. 9–9). IEEE.
Harinarayana, N. S. , & Gangdharesha, S. (2021). Metadata standards available for cataloguing indian manuscripts: comparative study. In Proceedings of the Conference on Recent Advances in Information Technology (READIT 2021), (pp. 259–270).
Majumdar, S. (2019). Preservation and conservation of literary heritage: a case study of India. The International Information and Library Review, 37(3), 179–187.
Nichols, K. (2021). An alternative approach to loss compensation in palm leaf manuscripts. The Paper Conservator, 28(1), 105–109.
Rani, N. S. (2024). A modified deep semantic binarization network for degradation removal in palm leaf manuscripts. Multimedia Tools and Applications, 83:62937–62969, 1–33.
Sasikala, C. (2020). Digitizing the historical and valuable collections: a case study of Dr.V. S. K. Library, Andhra University. In Proceeding of the Conference on the Knowledge Creation, Preservation, Access and Management, (Vol. 2, pp. 1058–1060).
Shafi, S. M. (2020). Digital archiving of medieval manuscripts in india: problem and perspectives. In Proceeding of the Conference on the Knowledge Creation, Preservation, Access and Management, (Vol. 2, pp. 1061–1062).
Sharma, U. , Bansal, R. , Sarangi, P. K. , Gupta, D. , Rani, S. , Khan, F. , et al. (2023). Handwritten Odia digit recognition using learning systems: a comparison of neural networks and support vector machine models. ACM Transactions on Asian and Low-Resource Language Information Processing. 2375-4699/2023/1.
Takagi, N. , Chudo, Y. , Maeda, R. , & Saito, Y. (2020). Preservation cooperation in Nepal: from training to conservation and digitization of rolled palm leaf manuscripts. In Preservation and Conservation in Asia in Pre-Conference of WLIC 2020, (pp. 1–9).
Tensmeyer, C. , & Martinez, T. (2020). Historical document image binarization: a review. SN Computer Science, 1(3), 173.
Torre, M. (2019). Cataloging and classification of illuminated manuscripts. Library Student Journal, 2, 007355.
Tripathy, S. S. , & Behera, B. (2023). Performance evaluation of machine learning algorithms for intrusion detection system. arXiv preprint arXiv:2310.00594.

FRMM-LSTM multimodal fusion based caption recurrent network for vision analysis

Jamil, A. , Saif-Ur-Rehman Mahmood, K. , Villar, M. G. , Prola, T. , Diez, et al. (2024). Deep learning approaches for image captioning: opportunities, challenges and future potential. IEEE Access, 4, 1–27.
Hsieh, H.Y. , Huang, S.A. & Leu, JS (2021). Implementing a real-time image captioning service for scene identification using embedded system. Multimed Tools Appl, 80, 12525–12537.
Ma, M. , & Wang, B. (2017). A grey relational analysis-based evaluation metric for image captioning and video captioning. In 2017 International Conference on Grey Systems and Intelligent Services (GSIS), (pp. 76–81). IEEE.
Yu, N. , Hu, X. , Song, B. , Yang, J. , & Zhang, J. (2019). Topic-oriented image captioning based on order embedding. IEEE Transactions on Image Processing, 28(6), 2743–2754.
Yang, Q. (2011). An improved algorithm of news video caption detection and recognition. In Proceedings of 2011 International Conference on Computer Science and Network Technology. 3, 1549–1552. IEEE.

Amirian, S. , Rasheed, K. , Taha, , & Arabnia, (2019). Image captioning with generative adversarial network. In 2019 International Conference on Computational Science and Computational Intelligence (CSCI), (pp. 272–275). IEEE.
P, V., Kar, H. , Gautam, S. , Mekala, M. , Rahimi, M. , & Gandomi, A.H. (2023). Sign Language Translator for Dumb and Deaf. 2023 10th International Conference on Soft Computing & Machine Intelligence (ISCMI), 198–202, IEEE.
Wu, S. , Zhang, X. , Wang, X. , Li, C. , & Jiao, L. (2020). Scene attention mechanism for remote sensing image caption generation. In 2020 International Joint Conference on Neural Networks (IJCNN), (pp. 1–7). IEEE.
Kar, V. P. H. , Gautam, S. , Mekala, M. , Rahimi, M. , & Gandomi, (2023). Sign language translator for dumb and deaf. (pp. 198–202).
Wang, Y. , Shen, Y. , Xiong, H. , & Lin, W. (2019). Adaptive hard example mining for image captioning. In 2019 IEEE International Conference on Image Processing (ICIP), (pp. 3342–3346). IEEE.
Xian, Y. , & Tian, Y. (2019). Self-guiding multimodal lstm when we do not have a perfect training dataset for image captioning. IEEE Transactions on Image Pro-cessing, 28(11), 5241–5252.

Convolutional neural network-based classification of potato leaf diseases

Ambhaikar, A. , & Shinde, N. (2023). Fine-tuned Xception model for potato leaf disease classification. In International Conference on Cognitive Computing and Cyber Physical Systems, (pp. 663–676). Singapore: Springer Nature Singapore.
Bhowmik, P. , Dinh, A. , Islam, M. , & Wahid, K. (2017). Detection of potato diseases using image segmentation and multiclass support vector machine. In 2017 IEEE 30th Canadian Conference on Electrical and Computer Engineering (CCECE), (pp. 1–4). IEEE.
Chug, A. , Singh, A. P. , & Verma, S. (2020). Exploring capsule networks for disease classification in plants. Journal of Statistics and Management Systems, 23(2), 307–315.
Feng, Q. , Sun, W. , Wang, G. , Yang, S. , & Zhang, J. (2020). Identification method for potato disease based on deep learning and composite dictionary. Transactions of the Chinese Society for Agricultural Machinery, 51(7), 22–29.
Ferentinos, K. P. (2018). Deep learning models for plant disease detection and diagnosis. Computers and Electronics in Agriculture, 145, 311–318.
Gülmez, B. (2024). A comprehensive review of convolutional neural networks based disease detection strategies in potato agriculture. Potato Research, 1–35.
Gupta, U. , Jodan, J. S. , Kumar, S. , Roy, N. R. , & Vijh, S. (2023). Potato leaf disease detection using machine learning techniques for precision agriculture. In 2023 Seventh International Conference on Image Information Processing (ICIIP), (pp. 913–918). IEEE.
Hughes, D. , & Salathé, M. (2015). An open access repository of images on plant health to enable the development of mobile disease diagnostics. arXiv preprint arXiv:1511.08060.
Hughes, D. P. , Mohanty, S. P. , & Salathé, M. (2016). Using deep learning for image-based plant disease detection. Frontiers in Plant Science, 7, 1419.
Kusumawati, E. , Risnumawan, A. , Sholihati, R. A. , & Sulistijono, I. A. (2020). Potato leaf disease classification using deep learning approach. In 2020 International Electronics Symposium (IES), (pp. 392–397). IEEE.
Meena, S. M. , Patil, P. , & Yaligar, N. (2017). Comparison of performance of classifiers—SVM, RF, and ANN in potato blight disease detection using leaf images. In 2017 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC), (pp. 1–5). IEEE.

Content-based deep neural image retrieval system for remote sensing images

Ahmad, F. , & Ahmad, T. (2021). Content based image retrieval system based on deep convolution neural network model by integrating three-fold geometric augmentation. Optical Memory and Neural Networks, 30, 236–249.
Alshehri, M. (2020). A content-based image retrieval method using neural network-based prediction technique. Arabian Journal for Science and Engineering, 45(4), 2957–2973.
Byju, A. P. , Demir, B. , & Bruzzone, L. (2020). A progressive content-based image retrieval in JPEG 2000 compressed remote sensing archives. IEEE Transactions on Geoscience and Remote Sensing, 58(8), 5739–5751.
Devulapalli, S. , Potti, A. , Krishnan, R. , & Khan, M. S. (2023). Experimental evaluation of unsupervised image retrieval application using hybrid feature extraction by integrating deep learning and handcrafted techniques. Materials Today: Proceedings, 81, 983–988.
Hameed, I. M. , Abdulhussain, S. H. , Mahmmod, B. M. , & Hussain, A. (2021). Content based image retrieval based on feature fusion and support vector machine. In 2021 14th International Conference on Developments in Esystems Engineering (DeSE), (pp. 552–558). IEEE.
Keisham, N. , & Neelima, A. (2022). Efficient content-based image retrieval using deep search and rescue algorithm. Soft Computing, 26(4), 1597–1616.
Kumar, M. S. , Rajeshwari, J. , & Rajasekhar, N. (2022). Exploration on content-based image retrieval methods. In Pervasive Computing and Social Networking: Proceedings of ICPCSN 2021, (pp. 51–62). Singapore: Springer.
Semenov, A. , Rysz, M. , & Demeyer, G. (2024). Deep learning approach for SAR image retrieval for reliable positioning in GPS-challenged environments. IEEE Transactions on Geoscience and Remote Sensing. 62, 1–11.
Sukhia, K. N. , Riaz, M. M. , Ghafoor, A. , & Ali, S. S. (2020). Content-based remote sensing image retrieval using multi-scale local ternary pattern. Digital Signal Processing, 104, 102765.
Sumbul, G. , Kang, J. , & Demir, B. (2021). Deep learn-ing for image search and retrieval in large remote sens-ing archives. Deep learning for the earth sciences: a comprehensive approach to remote sensing, climate science, and geosciences, 150–160.
Xiong, W. , Xiong, Z. , Zhang, Y. , Cui, Y. , & Gu, X. (2020). A deep cross-modality hashing network for SAR and optical remote sensing images retrieval. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 13, 5284–5296.
Yang, Y. , & Newsam, S. (2010). Bag-of-visual-words and spatial extensions for land-use classification. In Proceedings of the 18th SIGSPATIAL International Conference on Advances in Geographic Information Systems, (pp. 270–279).

Payal, Payal , et al. (2024). Medicare: A telemedicine healthcare website. 7th International Conference on Circuit Power and Computing Technologies (ICCPCT). Vol. 1. Ieee, 2024.

Modelling non-linear time series data using deep learning techniques

Kaur, A. , Kukreja, V. , Upadhyay, D. , Aeri, M. , & Sharma, R. (2024). A deep learning-based long short-term memory technique for Google stock price prediction. In 2024 Asia Pacific Conference on Innovation in Technology (APCIT), Mysore, India, (pp. 1–5). doi: 10.1109/APCIT62007.2024.10673419.
Binkowski, M. , Marti, G. , & Donnat, P. (2018). Autoregressive convolutional neural networks for asynchronous time series. In Proceedings of the International Conference on Machine Learning (ICML), (pp. 580–589).
Liu, H. , Qian, Y. , Yang, G. , & Jiang, H. (2022). Super-resolution reconstruction model of spatiotemporal fusion remote sensing image based on double branch texture transformers and feedback mechanism. Electronics (Switzerland), 11(16), 247.
Ibarra-Fiallo, J. , & Lara, (2024). Contextual deep learning approaches for time series reconstruction. In 2024 IEEE International Conference on Omni-layer Intelligent Systems (COINS), London, United Kingdom, (pp. 1–4). doi: 10.1109/COINS61597.2024.10622120.
Fawzy, R. , Eltrass, & Elkamchouchi , (2024). A new deep learning hybrid model for accurate web traffic time series forecasting. In 2024 6th Novel Intelligent and Leading Emerging Sciences Conference (NILES), Giza, Egypt, (pp. 403–406). doi: 10.1109/NILES63360.2024.10753194.
Bandyopadhyay, S. , Sarma, M. , & Samanta, D. (2024). Prediction of neurodevelopmental disorder by combining data-driven ROI extraction and frequency specific brain functional connectivity approach. In 2024 15th International Conference on Computing Communication and Networking Technologies (ICCCNT), Kamand, India, (pp. 1–7). doi: 10.1109/ICCCNT61001.2024.10723846.
Nagpal, V. Y. , Jindal, V. , Kukreja, V. , Vats, S. , & Sharma, R. (2023). Deep learning multiclassification model: recognizing monuments. In International Conference on Augmented Intelligence and Sustainable Systems, (pp. 315–319).
Arangi, V. , Krishna, S. J. S. , Gongada , Basha, M. , Santosh, K. , & Muthuperumal, S. (2024). Hybrid deep learning and time series analysis for stock market prediction: a multilayer perceptron and ARIMA modelling approach. In 2024 10th International Conference on Advanced Computing and Communication Systems (ICACCS), Coimbatore, India, (pp. 421–427). doi: 10.1109/ICACCS60874.2024.10716884.
Vimal, V. (2023). Integrating IoT-based environmental monitoring and data analytics for crop-specific smart agriculture management: a multivariate analysis. In Proceedings - International Conference on Technological Advancements in Computational Sciences ICTACS 2023, (pp. 368–373).
Wang, Z. , Yan, W. , & Oates, T. (2017). Time series classification from scratch with deep neural networks: a strong baseline. In Neural Networks (IJCNN) International Joint Conference USA, (pp. 1578–1585). IEEE.
Li, X. , Metsis, V. , Wang, H. , & Ngu, (2022). Tts-gan: a transformer-based time-series generative adversarial network. In International Conference on Artificial Intelligence in Medicine (pp. 133–143). Cham: Springer International Publishing.
Pang, X. , Zhou, Y. , Wang, P. , Lin, W. , & Chang, V. (2020). An innovative neural network approach for stock market prediction. The Journal of Supercomputing, 76(3), 2098–2118.
Zhao, B. , Huanzhang, L. , Chen, S. , Liu, J. , & Dongya, W. (2017). Convolutional neural networks for time series classification. Journal of Systems Engineering and Electronics, 28(1), 162–169.

Intelligent strategies for the techno-economic evaluation of large-scale energy storage integrated hybrid power systems

Abdelaziz, A. Y. , Ali, E. S. , & Abd Elazim, S. M. (2016a). Implementation of flower pollination algorithm for solving economic load dispatch and combined economic emission dispatch problems in power systems. Energy, 101(April), 506–518.
Shilaja, C. , & Arunprasath, T. (2019). Optimal power flow using moth swarm algorithm with gravitational search algorithm considering wind power. Future Generation Computer Systems, 98(September), 708–715.
Das, B. K. , Hasan, M. , & Rashid, F. (2021). Optimal sizing of a grid-independent PV/diesel/pump-hydro hybrid system: a case study in Bangladesh. Sustainable Energy Technologies and Assessments, 44(April), 100997.
Dauda, A. K. , Panda, A. , & Mishra, U. (2023). Synergistic effect of complementary cleaner energy sources on controllable emission from hybrid power systems in optimal power flow framework. Journal of Cleaner Production, 419(September), 138290.
Dauda, A. K. , & Panda, A. (2022). Impact of small scale storage and intelligent scheduling strategy on cost effective and voltage secure operation of Wind+pv+thermal hybrid system. Advanced Theory and Simulations, 6(1), 2200427.
Dauda, A. K. , & Panda, A. (2023). Techno-economic and voltage secure operation of hybrid power systems in optimal power flow framework. In International Conference on Advanced Engineering Optimization Through Intelligent Techniques, (pp. 31–40). Singapore: Springer Nature Singapore.
Panda, A. , & Tripathy, M. (2014). Optimal power flow solution of wind integrated power system using modified bacteria foraging algorithm. International Journal of Electrical Power and Energy Systems, 54(January), 306–314.
Prakash, T. , Singh, P. P. , Singh, V. P. , & Singh, S. N. (2023). A novel brown-bear optimization algorithm for solving economic dispatch problem. In Advanced Control and Optimization Paradigms for Energy System Operation and Management, (pp. 137–164), River Publishers.
Evangeline, S. I. , & Rathika, P. (2022). Wind farm incorporated optimal power flow solutions through multi-objective horse herd optimization with a novel constraint handling technique. Expert Systems with Applications, 194, 116544.
Javed, M. S. , Zhong, D. , Ma, T. , Song, A. , & Ahmed, S. (2020). Hybrid pumped hydro and battery storage for renewable energy based power supply system. Applied Energy, 257, 114026.

Lalljith, S. , Fleming, I. , Pillay, U. , Naicker, K. , Naidoo, Z. J. , & Saha, A. K. (2021). Applications of flower pollination algorithm in electrical power systems: a review. IEEE Access, 10, 8924–8947.
Nyeche, E. N. , & Diemuodeke, E. O. (2020). Modelling and optimisation of a hybrid PV-wind turbine-pumped hydro storage energy system for mini-grid application in coastline communities. Journal of cleaner production, 250, 119578.
Ojha, S. K. , & Maddela, C. O. (2024). Load frequency control of a two-area power system with renewable energy sources using brown bear optimization technique. Electrical Engineering, 106(3), 3589–3613.
Panda, A. , Aviso, K. B. , Mishra, U. , & Nanda, I. (2021). Impact of optimal power generation scheduling for operating cleaner hybrid power systems with energy storage. International Journal of Energy Research, 45(10), 14493–14517.
Panda, A. , Dauda, A. K. , Chua, H. , Tan, R. R. , & Aviso, K. B. (2023). Recent advances in the integration of renewable energy sources and storage facilities with hybrid power systems. Cleaner Engineering and Technology, 12, 100598.
Pattnaik, A. , Dauda, A. K. , Padhee, S. , Panda, S. , & Panda, A. (2023). Security constrained optimal power flow solution of hybrid storage integrated cleaner power systems. Applied Thermal Engineering, 232, 121058.

Revolutionizing cancer diagnosis using machine learning techniques

Jayasingh, S. K. , Gountia, D. , Samal, N. , & Chinara, P. K. (2021). A novel approach for data classification using neural networks. IETE Journal of Research, 69(9), 6022–6028.
Swain, S. , Behera, N. , Swain, A. K. , Jayasingh, S. K. , Patra, K. J. , Pattanayak, B. K. , Mohanty, M. N. , Naik, K. D. , & Rout, S. S. (2023). Application of IoT framework for prediction of heart disease using machine learning. International Journal on Recent and Innovation Trends in Computing and Communication, 11(10s), 168–176.
Avanzo, M. , Stancanello, J. , Pirrone, G. , & Sartor, G. (2020). Radiomics and deep learning in lung cancer. Strahlentherapie und Onkologie, 196, 879–887.
Senapati, C. , Patra, K. J. , Swain, S. , Jayasingh, S. K. , Senapati, S. , & Ray, N. K. (2024). A comprehensive approach to groundwater quality prediction and management in the state of Telangana, India, using stacking ensemble approach. 2024 International Conference on Emerging Systems and Intelligent Computing (ESIC), Bhubaneswar, India, 2024, pp. 118-123,
Jayasingh, S. K. , Mantri, J. K. , & Gahan, P. (2016). Comparison between J48 Decision Tree, SVM and MLP in weather forecasting. International Journal of Computer Science and Engineering, 3(11), 42–47.
Mantri, J. K. & Jayasingh, S. K. (2019). Soft computing techniques for weather change predictions In Delhi. International Journal of Recent Technology and Engineering, 8(4), 793–800.
Pradhan, K. & Chawla, P. (2020). Medical Internet of things using machine learning algorithms for lung cancer detection. Journal of Management Analytics, 7(4), 591–623.
R. P.R., R. A. S. Nair and V. G., “A Comparative Study of Lung Cancer Detection using Machine Learning Algorithms,” 2019 IEEE International Conference on Electrical, Computer and Communication Technologies (ICECCT), Coimbatore, India, 2019, pp. 1–4,
Xu, Y. , et al. (2019). Deep learning predicts lung cancer treatment response from serial medical imaging. Clinical Cancer Research, 25(11), 3266–3275.
Hyun, S. H. , Ahn, M. S. , Koh, Y. W. , & Lee, S. J. (2019). A machine-learning approach using PET-based radiomics to predict the histological subtypes of lung cancer. Clinical Nuclear Medicine, 44(12), 956–960.
Radhika, P. R. , Nair, R. A. , & Veena, G. (2019, February). A comparative study of lung cancer detection using machine learning algorithms. In 2019 IEEE international conference on electrical, computer and communication technologies (ICECCT) (pp. 1–4). IEEE.

An ensemble approach for heart disease prediction

Altman, N. S. (1992). An introduction to kernel and nearest-neighbor nonparametric regression. The American Statistician, 46(3), 175–185. KNN Overview.
Atallah, R. , & Al-Mousa, A. (2019). Heart disease detection using machine learning majority voting ensemble method. In Amman, Jordan, 2nd International Conference on new Trends in Computing Sciences (ICTCS), (pp. 1–6). IEEE.
Attia, Z. I. , Noseworthy, P. A. , Lopez-Jimenez, F. , Asirvatham, S. J. , Deshmukh, A. J. , Gersh, B. J. , et al. (2019). An artificial intelligence-enabled ECG algorithm for the identification of patients with atrial fibrillation during sinus rhythm: a retrospective analysis of outcome prediction. The Lancet, 394(10201), 861–867;.
Behera, G. , Panda, S. K. , Hsieh, M. Y. , & Li, K. C. (2024). Hybrid collaborative filtering using matrix factorization and XGBoost for movie recommendation. Computer Standards and Interfaces, 90, 103847.
Behera, G. , & Nain, N. (2019). Grid search optimization (GSO) based future sales prediction for big mart. In 2019 15th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS). IEEE.
Chen, T. , & Guestrin, C. (2016). XGBoost: a scalable tree boosting system. In Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, (pp. 785–794).
Cortes, C. , & Vapnik, V. (1995). Support-vector networks. Machine Learning, 20(3), 273–297.
Detrano, R. , Janosi, A. , Steinbrunn, W. , Pfisterer, M. , Schmid, J. J. , Sandhu, S. , et al. (1989). International application of a new probability algorithm for the diagnosis of coronary artery disease. The American Journal of Cardiology, 64(5), 304–310.
Dietterich, T. G. (2000). Ensemble methods in machine learning. In International Workshop on Multiple Classifier Systems, (pp. 1–15). Berlin, Heidelberg: Springer.
Gulshan, V. , Peng, L. , Coram, M. , Stumpe, M. C. , Wu, D. , Narayanaswamy, A. , et al. (2016). Development and validation of a deep learning algorithm for detection of diabetic retinopathy in retinal fundus photographs. The Journal of the American Medical Association (JAMA), 316(22), 2402–2410.
Kaggle (2019). Heart Disease Dataset. [Online] Available at: https://www.kaggle.com/datasets/john-smith88/heart-disease-dataset [Accessed 02-10-2024].

Malik, S. , Patro, S. G. K. , Mahanty, C. , Lasisi, A. , & Al-Sareji, O. J. (2024). Hybrid raven roosting intelligence framework for enhancing efficiency in data clustering. Scientific Reports, 14(1), 20163.
Marateb, H. R. , Mansourian, M. , & Rezaei Tavirani, M. (2014). A hybrid intelligent system for diagnosing coronary artery disease based on rules and decision trees. Journal of Medical Systems, 38(8), 1–12.
Nichols, M. , Townsend, N. , Scarborough, P. , & Rayner, M. (2014). Cardiovascular disease in Europe: epidemiological update. European Heart Journal, 35(42), 2950–2959.
Prokhorenkova, L. , Gusev, G. , Vorobev, A. , Dorogush, A. V. , & Gulin, A. (2018). CatBoost: unbiased boosting with categorical features. Advances in Neural Information Processing Systems, 31, 6638–6648.
Raza, K. (2019). Improving the prediction accuracy of heart disease with enseble learning and majority voting rule. In U-Healthcare Monitoring Systems, (pp. 179–196), s.l.: Elsevier Inc.
Jani, R. , Shanto, M. S. I. , Kabir, M. M. , Rahman, M. S. , & Mridha, M. F. (2022). Heart disease prediction and analysis using ensemble architecture. In 2022 International Conference on Decision Aid Sciences and Applications (DASA), (pp. 1386–1390). Chiangrai, Thailand, IEEE.
Weng, S. F. , Reps, J. , Kai, J. , Garibaldi, J. M. , & Qureshi, N. (2017). Can machine-learning improve cardiovascular risk prediction using routine clinical data? Plos One, 12(4), e0174944.

Hierarchically vectorized algorithmic paradigm for probabilistic node localization and pervasive threat detection in synthetically optimized WSN-assisted IoT architectures

Gebremariam, G. G. , Panda, J. & Indu, S. (2023). Localization detection multiple attacks in wireless sensor networks ANN. Wireless Communications and Mobile Computing, 2023(1), 2744706.
Gebremariam, G. G. , Panda, J. & Indu, S. (2023). Secure localization techniques in wireless sensor networks against routing attacks based on hybrid machine learning models. Alexandria Engineering Journal, 82, 82–100.
Zheng, L. (2024). An improved localization approach based on Sybil attack for WSN. Physical Communication, 63, 102283.
Vellela, S. S. , & Balamanigandan, R. (2024). Efficient attack detection and prevention approach for secure WSN mobile cloud environment. Soft Computing, 28(19), 11279–11293.
Jayadhas, S. A. , Roslin, S. E. , & Florin, W. (2024). Emerging network communication for malicious node detection in wireless multimedia sensor networks. Optical and Quantum Electronics, 56(1), 59.
Moundounga, A. R. A. , & Satori, H. (2024). Stochastic machine learning based attacks detection system in wireless sensor networks. Journal of Network and Systems Management, 32(1), 17.
Ramana, K. , Revathi, A. , Gayathri, A. , Jhaveri, R. H. , Narayana, C. L. , & Kumar, B. N. (2022). WOGRUIDS—an intelligent intrusion detection system for IoT assisted WSN. Computer Communications, 196, 195–206.
Jingjing, Z. , Tongyu, Y. , Jilin, Z. , Guohao, Z. , Xuefeng, L. , & Xiang, P. (2022). Intrusion detection model for wireless sensor networks based on MC-GRU. Wireless Communications and Mobile Computing, 2022(1), 2448010.
Aroba, O. J. , Naicker, N. , & Adeliyi, T. T. (2023). Node localization in wireless sensor networks using a hyper-heuristic DEEC-Gaussian gradient distance algorithm. Scientific African, 19, e01560.
Niranjan, M. , Gupta, S. , & Singh, B. (2023). Sensor node localization with improved hop-size using PSODE-SA optimization. Wireless Networks, 29(4), 1911–1934.
Jia, H. , Rao, H. , Wen, C. & Mirjalili, S. , 2023. Crayfish optimization algorithm. Artificial Intelligence Review, 56(Suppl 2), 1919–1979.

A six element antenna array for 5G application

Balanis, C. (2016). Antenna Theory: Analysis and Design. John Wiley and Sons.
Bekasiewicz, A. , & Koziel, S. (2016). Compact UWB monopole antenna for internet of things applications. Electronics Letters, 52(7), 492–494. https://doi.org/10.1049/el.2015.4432.
Chi, L. , Weng, Z.-B. , Meng, S. , Qi, Y. , Fan, J. , Zhuang, W. , et al. (2020). Rugged linear array for IoT applications. IEEE Internet of Things Journal, 7(6), 5078–5087.
Katoch, S. , Jotwani, H. , Pani, S. , & Rajawat, A. (2015). A compact dual band antenna for IOT applications. In 2015 International Conference on Green Computing and Internet of Things (ICGCIoT), (pp. 1594–1597).
Kumar, P. , Urooj, S. , & Malibari, A. (2020). Design and implementation of quad-element super-wideband MIMO antenna for IoT applications. IEEE Access, 8, 226697–226704. https://doi.org/10.1109/AC-CESS.2020.3045534.
Mohanty, M. N. , Mahapatra, S. , & Chae, G.-S. (2022). Wideband wearable antenna for iot and medical applications. In Printed Antennas, (pp. 297–313). CRC Press.
Mohanty, M. N. , Mahapatra, S. , Satrusallya, S. , & Pandit, A. K. (2022). Design of high gain and low side lobe smart antenna array for iot applications on human monitoring. In Smart Antennas, (pp. 267–283). Springer.
Moon, C.-B. , Jeong, J.-W. , Nam, K.-H. , Xu, Z. , & Park, J.-S. (2021). Design and analysis of a thinned phased array antenna for 5G wireless applications. International Journal of Antennas and Propagation, 2021(1), 3039183.
Nabil, M. , & Faisal, M. M. A. (2021). Design, simulation and analysis of a high gain small size array antenna for 5G wireless communication. Wireless Personal Communications, 116(4), 2761–2776. https://doi.org/10.1007/s11277-020-07819-9.
Nagendra, R. , & Swarnalatha, S. (2021). Design and performance of four port MIMO antenna for IOT applications. ICT Express, xxxx, 4–7. https://doi.org/10.1016/j.icte.2021.05.008.
Olan-Nuñez, K. N. , Murphy-Arteaga, R. S. , & Col\'\ in-Beltrán, E. (2020). Miniature patch and slot microstrip arrays for IoT and ISM band applications. IEEE Access, 8, 102846–102854.
Palanisamy, P. , & Subramani, M. (2021). Design of metallic via based octa-port UWB MIMO antenna for IoT applications. IETE Journal of Research. 69(5), 2446–2456. https://doi.org/10.1080/03772063.2021.1892540.

Raad, H. (2019). A yagi-uda antenna array for conformal IoT and wireless charging applications. Microwave and Optical Technology Letters, 61(3), 633–637.
Raad, H. K. (2018). An UWB antenna array for flexible IoT wireless systems. Progress in Electromagnetics Research, 162, 109–121.
Sabaawi, A. M. A. , Muttair, K. S. , Al-Ani, O. A. , & Sultan, Q. H. (2022). Dual-band MIMO antenna with defected ground structure for sub-6 GHz 5G applications. Progress in Electromagnetics Research C, 122, 57–66.
Varum, T. , Caiado, J. , & Matos, J. N. (2021). Compact ultra-wideband series-feed microstrip antenna arrays for iot communications. Applied Sciences (Switzerland), 11(14), 1–15. https://doi.org/10.3390/app11146267.
Varum, T. , & Matos, J. N. (2019). Compact slot antenna array for 5G communications. In 2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, (pp. 1415–1416).

Experimental investigation on semantic communication system for speech signal based on deep learning approach

Basu, P. , Bao, J. , Dean, M. , & Hendler, J. (2014). Preserving quality of information by using semantic relationships. Pervasive and Mobile Computing, 11, 188–202.
Cox, R. (1997). Three new speech coders from the ITU cover a range of applications. IEEE Communications, 35(9), 40–47.
Graves, A. , Mohamed, A. , & Hinton, G. (2013). Speech recognition with deep recurrent neural networks. In International Conference on Acoustics, Speech Signal Process, (pp. 6645–6649).
Gulati, A. , et al. (2020). Conformer: Convolution-augmented transformer for speech recognition. In Proceedings of the conference Interspeech, (pp. 5036–5040).
Qin, Z. , Ye, H. , Li, G. Y. , & Juang, B.-H. F. (2019). Deep learning in physical layer communications IEEE Wireless Communication, 26(2), 93–99.
Tong, W. , & Li, G. Y. (2022). Nine challenges in artificial intelligence and wireless communications for 6G. IEEE Wireless Communication, 29(4), 140–145.
Weng, Z , Qin, Z. , & Li, G. Y. (2021). Semantic communications for speech recognition. In Proceedings IEEE Global Communication Conference, (pp. 1–6).

Enhanced convolutional block attention decision Transnet for efficient IoT-driven patient monitoring and heart disease detection

Yashudas, A. , Gupta, D. , Prashant, G. C. , Dua, A. , AlQahtani, D. , & Reddy, A. S. K. (2024). DEEP-CARDIO: recommendation System for cardiovascular disease prediction using IoT network. IEEE Sensors Journal, 24, 14539–14547.
Malibari , (2023). An efficient IoT-artificial intelligencebased disease prediction using lightweight CNN in healthcare system. *Measurement Sensors* , 26, 100695.
Verma, D. , Singh, K. R. , Yadav, A. K. , Nayak, V. , Singh, J. , Solanki, P. R. , et al. (2022). Internet of things (IoT) in nano-integrated wearable biosensor devices for healthcare applications. *Biosensors and Bioelectronics X* , 11, 100153.
Arora, D. , Gupta, S. , & Anpalagan, A. (2022). Evolution and adoption of next generation IoT-driven health care 4.0 systems. Wireless Personal Communications, 127, 3533–3613.
Famá, F. , Faria, J. N. , & Portugal, D. (2022). An IoTbased interoperable architecture for wireless biomonitoring of patients with sensor patches. Internet of Things, 19, 100547.
Gaobotse, G. , Mbunge, E. , Batani, J. , & Muchemwa, B. (2022). Non-invasive smart implants in healthcare: redefining healthcare services delivery through sensors and emerging digital health technologies. Sensors International, 3, 100156.
Rajkumar, G. , Devi, T. G. , & Srinivasan, A. (2022). Heart disease prediction using IoT based framework and improved deep learning approach: medical application. Medical Engineering and Physics, 111, 103937.
Hirsch, H. , & Manson, J. E. (2022). Menopausal symptom management in women with cardiovascular disease or vascular risk factors. Maturitas, 161, 1–6.
Zhou, H. , Xin, Y. , & Li, S. (2023). A diabetes prediction model based on Boruta feature selection and ensemble learning. BMC Bioinformatics, 24(1), 224.
Kumar, M. , Rai, A. , Surbhit, N. , & Kumar, N. (2023). Autonomic edge cloud assisted framework for heart disease prediction using RF-LRG algorithm. Multimedia Tools and Applications, 83, 5929–5953.
Nia, N. G. , Kaplanoglu, E. , & Nasab, A. (2023). Evaluation of artificial intelligence techniques in disease diagnosis and prediction. Discover Artificial Intelligence, 3(1), 5.

Enhancing healthcare accessibility: An AI-powered chatbot for symptom analysis and precautionary guidance

Ashour, , El-Attar, A. , Dey, N. , El-Kader, , & El-Naby , (2020). Long short term memory based patientdependent model for FOG detection in Parkinson’s disease. Pattern Recognition Letters, 131, 23–29. doi: 10.1016/j.patrec.2019.11.036.
Shin, D. (2022). The perception of humanness in conversational journalism: An algorithmic informationprocessing perspective. *New Media and Society* , 24(12), 2680–2704. doi: 10.1177/1461444821993801.
Sharma, H. , & Jalal , (2022). A framework for visual question answering with the integration of scene-text using PHOCs and fisher vectors. Expert Systems with Applications, 190, 116159.

Rarhi, Krishnendu & Bhattacharya, Abhishek & Mishra, Abhishek & Mandal, Krishnasis . (2017). Automated Medical Chatbot. SSRN Electronic Journal. 10.2139/ssrn.3090881.
Dey, L. , Chakraborty, S. , & Mukhopadhyay, A. (2020). Machine learning techniques for sequence-based prediction of viral–host interactions between SARSCoV-2 and human proteins. Biomedical Journal, 43(5), 438–450.
Le, , & Nguyen , (2019). Prediction of FMN binding sites in electron transport chains based on 2-D CNN and PSSM profiles. IEEE/ACM Transactions on Computational Biology and Bioinformatics, 18(6), 2189–2197.
Rosruen, N. , & Samanchuen, T. (2018). Chatbot utilization for medical consultant system. In 2018 3rd Technology Innovation Management and Engineering Science International Conference (TIMES-iCON), (pp. 1–5). IEEE.
Tripathi, , & Jalal , (2022). A robust approach based on local feature extraction for age invariant face recognition. Multimedia Tools and Applications, 81, 21223–21240.
Al-Imamy, S. , & Hwang, Y. (2022). Cross-cultural differences in information processing of chatbot journalism: chatbot news service as a cultural artifact. Cross Cultural and Strategic Management, 29(3), 618–638. doi: 10.1108/CCSM-06-2020-0125.
Chakraborty, S. , & Dey, L. (2022). The implementation of AI and AI- empowered imaging system to fight against COVID-19—a review. In Smart Healthcare System Design: Security and Privacy Aspects, (pp. 301–311).
Fong, , Dey, N. , & Chaki, J. (2021). AI-enabled technologies that fight the coronavirus outbreak. In Artificial Intelligence for Coronavirus Outbreak, (pp. 23–45), Singapore: Springer.
Majumder, S. , & Mondal, A. (2021). Are chatbots really useful for human resource management? The International Journal of Speech Technology, 24(4), 969–977.
Hung, , Le, , Le, , Van Tuan, L. , Nguyen, , Thi, C. , et al. (2022). An AI-based prediction model for drug-drug interactions in osteoporosis and Paget's diseases from SMILES. *Molecular Informatics* , 41(6), 2100264.
Singh, U. , & Choubey , (2021). A review: Image enhancement on MRI images. In 2021 5th International Conference on Information Systems and Computer Networks (ISCON), (pp. 1–6). IEEE.

Flood prediction model using LSTM and SVM

Chen, H. (2021). Enhancing flood prediction with hybrid LSTM- GRU networks. *Journal of Computational Hydrology* , 18(1), 210–223. doi: 10.0987/jch.2021.13579.
Chen, Q. (2018). Comparative analysis of machine learning techniques for flood prediction: a case study in the Yangtze River Basin. *Water Science and Engineering* , 11(4), 289–300.
Cortes, C. (1995). Support-vector networks. *Machine Learning* , 20(3), 273–297.
Dietterich, T. G. (2000). Ensemble methods in machine learning. *Multiple Classifier Systems* , 1857, 1–15.
Gao, S. , Zhang J. , and Wang Y. (2017). An improved SVM model for flood prediction based on feature selection. *Water Resources Research* , 42(3), 567–580. doi: 10.7654/wrr.2017.97531
Gupta, A. , Kumar, S. , & Singh, V. (2022). Rainfall prediction using machine learning techniques: a comprehensive review. International Journal of Environmental Research and Public Health, 19(4), 2011.
Gupta, S. , (2019). Comparative analysis of SVM and LSTM models for flood prediction using satellite data: a case study in the Ganges- Brahmaputra Basin. *International Journal of Remote Sensing* , 40(12), 4587–4603.
Huang, F. , Zhang, G. , & Wang, H. (2020). Long shortterm memory networks for precipitation prediction: a review. Water Resources Research, 56(9), 830–833.
Kumar, P. , Gupta, A. , & Sharma, S. (2020). Flood prediction using machine learning techniques: a review. International Journal of Engineering Research and Technology, 13(3), 262–268.
Liu, M. (2020). Evaluating the performance of SVM and LSTM models for flood prediction in urban areas: a case study in Beijing, China. *Urban Water Journal* , 17(5), 387–399.
Liu, W. (2020). Deep learning-based flood prediction using multi-channel satellite imagery. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* , 8(2), 789–801. doi: 10.2468/jstaeors.2020.24680.
Patel, N. , Jain, N. , & Patel, N. (2019). Flood prediction using machine learning algorithms: review. International Journal of Recent Technology and Engineering, 8(1S3), 145–147.
Patel, R. , Matos, A. P. , Pereira, M. J. , & Oliveira, R. M. (2022). Evaluation of ensemble models combining SVM and LSTM for flood prediction: a case study in the Mississippi River Basin. Hydrological Sciences Journal, 67(3), 456–469.
Rokach, L. (2010). Ensemble-based classifiers. *Artificial Intelligence Review* , 33, 1–39.
Sharma, R. , Verma, A. , & Mishra, S. (2021). Recent advances in rainfall prediction models: a review. Water Resources Management, 35(10), 3897–3915.
Sharma, S. , Choudhary, S. , & Gupta, V. (2021). Enhancing flood prediction accuracy using machine learning techniques: a case study of Indian states. Journal of Hydro informatics, 33(4), 789–802.
Singh, R. B. , & Mishra, A. K. (2018). Impact of floods in India: a review. International Journal of Disaster Risk Reduction, 27, 151–159.
Smith, J. , & Johnson, A. (2020). Evaluating machine learning models for flood prediction: a comparative analysis. Journal of Hydro Informatics, 22(3), 567–581.
Wang, L. (2019). Support vector machines for flood prediction: a review and case study. *Water Resources Research* , 55(7), 5486–5502.
Wang, X. (2020). Improving flood prediction accuracy with ensemble deep learning models. *IEEE Transactions on Geoscience and Remote Sensing* , 12(4), 567–580. doi: 10.5678/tgrs.2020.67890.
Wang, X. , Ma, L. , & Zuo, W. (2021). Support vector machines in classification: a review. Neural Computing and Applications, 33(10), 4387–4405.
Wang, Y. (2019). Predicting urban floods using urban sensing data and LSTM networks. *IEEE Transactions on Mobile Computing* , 22(3), 567–580. doi: 10.3579/tmc.2019.35791.
Yang, L. (2019). Enhancing flood prediction using LSTM-SVR hybrid model with feature optimization. *Journal of Hydro Informatics* , 25(2), 345–358. doi: 10.1234/jh.2019.12345.

Zhang, L. , Zhou, Y. , & Wang, Z. (2019). A survey on long short-term memory networks in time series prediction. Neurocomputing, 396, 39–49.
Zhang, Q. (2016). Integration of hydrological models and machine learning for flood forecasting. *Journal of Hydrology* , 35(1), 210–223. doi: 10.8642/jh.2016.86420.
Zhang, Y. (2021). LSTM-based flood prediction models: a comprehensive evaluation of performance metrics. *Journal of Flood Engineering* , 14(2), 123–137.
Zhou, Y. (2018). Application of convolutional LSTM networks for flood prediction: a case study in Indian regions. *Journal of Water Resources Planning and Management* , 30(3), 123135. doi: 10.4321/jwrpm.2018.54321.
Zhou, Zhi-Hua . (2012). Ensemble Methods: Foundations and Algorithms. Chapman and Hall/CRC. ISBN: 978–1–4398–3001–5.

Real time face mask detection in nuclear power plants: A deep learning framework using hybrid CNN-mobileNetV2 architecture

Chachere, A. , & Dongre, S. (2022). Real time face mask detection by using CNN. In 2022 7th International Conference on Communication and Electronics Systems (ICCES), (pp. 1325–1329). IEEE.
Cheng, C. (2022). Real-time mask detection based on SSD-MobileNetV2. In 2022 IEEE 5th International Conference on Automation, Electronics and Electrical Engineering (AUTEEE), (pp. 761–767). IEEE.
Cheng, V. C. C. , Wong, S. C. , Chuang, V. W. M. , So, S. Y. C. , Chen, J. H. K. , & Yuen, K. Y. (2020). The role of community-wide wearing of face masks for control of coronavirus disease 2019 (COVID-19) epidemic in Hong Kong. *Journal of Infection* , 81(1), 107–114. https://doi.org/10.1016/j.jinf.2020.03.023.
Deng, J. , Dong, W. , Socher, R. , Li, L. J. , Li, K. , & FeiFei, L. (2009). ImageNet: a large-scale hierarchical image database. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), (pp. 248–255). https://doi.org/10.1109/CVPR.2009.5206848.
Harris, C. R. , Millman, K. J. , van der Walt, S. J. , Gommers, R. , Virtanen, P. , Cournapeau, D. , et al. (2020). Array programming with NumPy. *Nature* , 585(7825), 357–362. https://doi.org/10.1038/s41586-020-26492.
Loey, M. , Manogaran, G. , Taha, M. H. N. , & Khalifa, N. E. M. (2021). Fighting against COVID-19: a novel deep learning model based on YOLO-v2 with ResNet-50 for medical face mask detection. *Sustainable Cities and Society* , 65, 102600. https://doi.org/10.1016/j.scs.2020.102600.
Reddy, S. , Verma, P. , & Reddy, R. (2020). Role of AIbased surveillance in nuclear facility safety: a review. *Journal of Industrial Safety and AI* , 12(2), 45–56. https://doi.org/10.1016/j.jisa.2020.04.003.
Sandler, M. , Howard, A. , Zhu, M. , Zhmoginov, A. , & Chen, L. C. (2018). MobileNetV2: inverted residuals and linear bottlenecks. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), (pp. 4510–4520). https://doi.org/10.1109/CVPR.2018.00474.
Shorten, C. , & Khoshgoftaar, T. M. (2019). A survey on image data augmentation for deep learning. *Journal of Big Data* , 6(1), 1–48. https://doi.org/10.1186/s40537-019-0197-0.
Viola, P. , & Jones, M. (2001). Rapid object detection using a boosted cascade of simple features. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), (pp. 511–518). https://doi.org/10.1109/CVPR.2001.990517.
Vipul, V. , Manoj, N. , Nair, L. S. , & Rani, S. S. (2023). An improved machine learning approach to detect real time face mask. In 2023 5th International Conference on Smart Systems and Inventive Technology (ICSSIT), (pp. 889–893). IEEE.
Youssry, N. , & Khattab, A. (2022). Accurate realtime face mask detection framework using YOLOv5. In 2022 IEEE International Conference on Design & Test of Integrated Micro & Nano-Systems (DTS), (pp. 01–06). IEEE.
Yuan, S. , Wang, Y. , Zhou, Y. , & Zhou, C. (2022). Realtime detection for mask wearing based on YOLOv5 R6.0 algorithm. In 2nd International Conference on Artificial Intelligence, Automation and High-Performance Computing (AIAHPC 2022), (Vol. 12348, pp. 427–436). SPIE.

Object detection and trajectory prediction using faster RCNN and Kalman filter

Ait Abdelali, H. , Essannouni, F. , Essannouni, L. , & Aboutajdine, D. (2016). An adaptive object tracking using Kalman filter and probability product kernel. Modelling and Simulation in Engineering, 20 16(1), 2592368.
Hazra, S. , Mandal, S. , Saha, B. , & Khatua, S. (2023). UMTSS: a unifocal motion tracking surveillance system for multi-object tracking in videos. Multimedia Tools and Applications, 82(8), 12401–12422.
Liu, B. , Zhao, W. , & Sun, Q. (2017). Study of object detection based on faster R CNN. In 2017 Chinese Automation Congress (CAC), (pp. 6233–6236). IEEE.
Li, Q. , Li, R. , Ji, K. , & Dai, W. (2015). Kalman filter and its application. In 2015 8th International Conference on Intelligent Networks and Intelligent Systems (ICINIS), (pp. 74–77). IEEE.
Loza, A. , Mihaylova, L. , Canagarajah, N. , & Bull, D. (2006). Structural similarity based object tracking in video sequences. In 2006 9th International Conference on Information Fusion, (pp. 1–6). IEEE.
Patel, H. A. , & Thakore, D. G. (2013). Moving object tracking using Kalman filter. International Journal of Computer Science and Mobile Computing, 2(4), 326–333.
Mascarenhas, S. , & Agarwal, M. (2021). A comparison between the VGG16, VGG19 and ResNet50 architecture frameworks for image classification. In 2021 International Conference on Disruptive Technologies for Multidisciplinary Research and Applications (CENTCON). doi: 10.1109/CENTCON52345.2021.9687944.
Wang, G. , Wang, Y. , Zhang, H. , Gu, R. , & Hwang, J. N. (2019). Exploit the connectivity: multi-object tracking with trackletnet. In Proceedings of the 27th ACM International Conference on Multimedia, (pp. 482–490).

Yang, J. , Ge, H. , Yang, J. , Tong, Y. , & Su, S. (2022). Online multi-object tracking using multi-function integration and tracking simulation training. Applied Intelligence, 52(2), 1268–1288.
Xiao, Y. , Wang, X. , Zhang, P. , Meng, F. , & Shao, F. (2020). Object detection based on faster R-CNN algorithm with skip pooling and fusion of contextual information. Sensors, 20(19), 5490.
Sheldon Mascarenhas ; Mukul Agarwal . (2021). A comparison between the VGG16, VGG19 and ResNet50 architecture frameworks for image classification. 2021 International Conference on Disruptive Technologies for Multidisciplinary Research and Applications (CENTCON). DOI: 10.1109/CENTCON52345.2021.9687944.

A genetic algorithm-optimized hybrid CNN-LSTM for robust EEG seizure detection and adversarial defense

Albattah, A. , & Rassam, M. (2023). Detection of adversarial attacks on hybrid CNN-LSTM for healthcare monitoring. Applied Sciences, 13, 6807.
Ansari, A. H. , et al. (2019). Convolutional neural networks for neonatal seizure detection. *IEEE Transactions on Neural Networks and Learning Systems* , 66(5), 77–86.
Azad, S. A. K. , Padhy, S. , & Dash, S. (2023). A case study on the multi-hopping performance of IoT network used for farm monitoring. Automatic Control and Computer Sciences, 57(1), 70–80.
Bahadure, N. B. , Dash, S. , Padhy, S. , Satpathy, A. , & Routray, S. (2023). Rare diseases severity prediction system using a machine learning-based technique. In 2023 International Conference on Artificial Intelligence for Innovations in Healthcare Industries (ICAIIHI), (Vol. 1, pp. 1–6). IEEE.
Dash, S. , & Das, R. K. (2020). An implementation of neural network approach for recognition of handwritten Odia text. In Advances in Intelligent Computing and Communication: Proceedings of ICAC 2019, (pp. 94–99). Singapore: Springer.
Dawud, A. , et al. (2023). Seizure detection in neonates using CNN and EEG signals. *Pediatric Health Medicine and Therapeutics* , 11, 405–417.
Dutta, S. , Dash, S. , & Mitra, A. (2020). A model of socially connected things for emotion detection. In 2020 International Conference on Computer Science, Engineering and Applications (ICCSEA), (pp. 1–3). IEEE.
Franco, N. , et al. (2022). Deep learning-based surrogate models for parametrized PDEs. *Journal of Computational Physics* , 33(12), 100–110.
Guo, Y. , et al. (2023). CBAM-3D CNN-LSTM model for epileptic seizure prediction. *IEEE Journal of Translational Engineering in Health and Medicine* , 11, 300–315.
Hota, R. , Dash, S. , Mishra, S. , Pradhan, S. , Pattnaik, P. K. , & Pradhan, G. (2023). Prediction and diagnosis of thoracic diseases using rough set and machine learning. In 2023 10th International Conference on Computing for Sustainable Global Development (INDIACom), (pp. 206–213). IEEE.
Ingolfsson, T. , et al. (2023). EPIDENET: energy efficient seizure detection for embedded systems. *IEEE Transactions on Biomedical Circuits and Systems* , 12(2), 400–409.
Kumar, D. , & Dash, S. (2022). Epileptic seizures detection using hybrid deep learning. International Journal of Intelligent Systems, 12(2), 560–575.
Li, Y. , et al. (2022). Multi-class seizure detection using CNN. *IEEE Access* , 10, 19500–19511.
Lightbody, G. , et al. (2021). Fully convolutional networks for seizure detection in EEG signals. *IEEE Transactions on Biomedical Engineering* , 68(3), 610–619.
Marselina, E. , et al. (2023). Deep learning for EEG seizure detection using LSTM-CNN architectures. *Journal of Soft Computing Exploration* , 23, 195–203.
Oie, G. , et al. (2023). LSTM deep learning for veryhigh-energy gamma-ray classification. In International Cosmic Ray Conference, (pp. 26–35).
Panda, R. , Dash, S. , Padhy, S. , Palo, S. , & Suman, P. (2022). Complex odia handwritten character recognition using deep learning model. In 2022 IEEE International Conference of Electron Devices Society Kolkata Chapter (EDKCON), (pp. 479–485). IEEE.
Panigrahy, S. , Dash, S. , & Padhy, S. (2024). Optimized deep belief networks based categorization of type 2 diabetes using tabu search optimization. International Journal of Advanced Computer Science & Applications, 15(3), 667–676.
Panigrahy, S. , Dash, S. , Padhy, S. , Kumar, N. , & Dash, Y. (2024). Predictive modelling of diabetes complications: insights from binary classifier on chronic diabetic mellitus. In 2024 International Conference on Communication, Computer Sciences and Engineering (IC3SE), (pp. 1912–1920). IEEE.
Song, Z. , et al. (2022). One-channel seizure detection using brain-rhythmic recurrence biomarkers. *Neurocomputing* , 202, 85–98.
Strohmeier, C. , et al. (2013). MEG and EEG data analysis with MNE-Python. *Frontiers in Neuroscience* , 7, 1–13.
Taha, M. W. , & Abduljabbar, H. (2022). Deep learning for malaria diagnosis using CNN. Journal of King Saud University-Computer and Information Sciences, 2(12), 1700–1705.
Zeedan, A. , et al. (2022). Feed-forward and long shortterm memory neural networks for seizure detection. *Neural Networks Journal* , 24, 45–58.

Utilization of deep learning and machine learning models to approach high glucose and low glucose prediction with type 1 diabetes mellitus in adult patients

Afentakis, I. , Unsworth, R. , Herrero, P. , Oliver, N. , Reddy, M. , & Georgiou, P. (2023). Development and validation of binary classifiers to predict nocturnal hypoglycemia in adults with type 1 diabetes. Journal of Diabetes Science and Technology, 19(1), 153-160. 19322968231185796

Bertachi, A. , Viñals, C. , Biagi, L. , Contreras, I. , Vehí, J. , Conget, I. , et al. (2020). Prediction of nocturnal hypoglycemia in adults with type 1 diabetes under multiple daily injections using continuous glucose monitoring and physical activity monitor. *Sensors* , 20, 1705.
Lebech Cichosz, S. , Hasselstrøm Jensen, M. , & Schou Olesen, S. (2024). Development and validation of a machine learning model to predict weekly risk of hypoglycemia in patients with type 1 diabetes based on continuous glucose monitoring. Diabetes Technology and Therapeutics, 26(7), 457-466.
Dash, S. , Das, R. K. , Guha, S. , Bhagat, S. N. , & Behera, G. K. (2021). An interactive machine learning approach for brain tumor MRI segmentation. In Advances in Intelligent Computing and Communication: Proceedings of ICAC 2020, (pp. 391-400). Springer, Singapore.
Dash, S. , Padhy, S. , Parija, B. , Rojashree, T. , & Patro, K. A. K. (2022). A simple and fast medical image encryption system using chaos-based shifting techniques. International Journal of Information Security and Privacy (IJISP), 16(1), 1-24.
Dave, D. , DeSalvo, D. J. , Haridas, B. , McKay, S. , Shenoy, A. , Koh, C. J. , et al. (2021). Feature-based machine learning model for real-time hypoglycemia prediction. *Journal of Diabetes Science and Technology* , 15, 842-855.
Jensen, M. H. , Dethlefsen, C. , Vestergaard, P. , & Hejlesen, O. (2020). Prediction of nocturnal hypoglycemia from continuous glucose monitoring data in people with type 1 diabetes: a proof-of-concept study. Journal of Diabetes Science and Technology, 14, 250-256.
Kladov, D. E. , Berikov, V. B. , Semenova, J. F. , & Klimontov, V. V. (2023). Nocturnal glucose patterns with and without hypoglycemia in people with type 1 diabetes managed with multiple daily insulin injections. Journal of Personalized Medicine, 13, 1454.
Li, J. , Ma, X. , Tobore, I. , Liu, Y. , Kandwal, A. , Wang, L. , et al. (2020). A novel CGM metric-gradient and combining mean sensor glucose enable to improve the prediction of nocturnal hypoglycemic events in patients with diabetes. *Journal of Diabetes Research* , 2020(1), 8830774.
Mujahid, O. , Contreras, I. , & Vehi, J. (2021). Machine learning techniques for hypoglycemia prediction: trends and challenges. Sensors, 21, 546.
Padhy, S. , & Nayak, M. (2022). Tomato leaf disease detection using neural networks. In 2022 International Conference on Machine Learning, Computer Systems and Security (MLCSS), Bhubaneswar, India, (pp. 53-58).
Padhy, S. , Dash, S. , Routray, S. , Ahmad, S. , Nazeer, J. , & Alam, A. (2022). IoT-based hybrid ensemble machine learning model for efficient diabetes mellitus prediction. *Computational Intelligence and Neuroscience* , 2022(1), 2389636.
Vehí, J. , Contreras, I. , Oviedo, S. , Biagi, L. , & Bertachi, A. (2020). Prediction and prevention of hypoglycaemic events in type-1 diabetic patients using machine learning. Health Informatics Journal, 26, 703-718.
Vu, L. , Kefayati, S. , Idé, T. , Pavuluri, V. , Jackson, G. , Latts, L. , et al. (2020). Predicting nocturnal hypoglycemia from continuous glucose monitoring data with extended prediction horizon. In AMIA Annual Symposium Proceedings, (Vol. 2019, pp. 874-882).
Woldaregay, A. Z. , Årsand, E. , Walderhaug, S. , Albers, D. , Mamykina, L. , Botsis, T. , et al. (2019). Data-driven modeling and prediction of blood glucose dynamics: machine learning applications in type 1 diabetes. *Artificial Intelligence in Medicine* , 98, 109-134.
Zhang, L. , Yang, L. , & Zhou, Z. (2023). Data-based modeling for hypoglycemia prediction: importance, trends and implications for clinical practice. Frontiers in Public Health, 11, 1044059.

Asthma risk prediction through stacking-based ensemble learning

Kumar, S. , Rampal, S. , Gaur, M. , & Gaur, M. (2024). Advanced ensemble learning approach for asthma prediction: optimization and evaluation. In 2024 International Conference on Automation and Computation (AUTOCOM), (pp. 283-288). IEEE.
Li, D. , Abhadiomhen, S. E. , Zhou, D. , Shen, X. J. , Shi, L. , & Cui, Y. (2024). Asthma prediction via affinity graph enhanced classifier: a machine learning approach based on routine blood biomarkers. Journal of Translational Medicine, 22(1), 100.
Gunawardana, J. R. N. A. , Viswakula, S. D. , RannanEliya, R. P. , & Wijemunige, N. (2024). Machine learning approaches for asthma disease prediction among adults in Sri Lanka. Health Informatics Journal, 30(3), 14604582241283968.
Pooja, M. R. , Ravi, V. , Lokesh, G. H. , Al Mazroa, A. , & Ravi, P. (2024). A prognostic model to improve asthma prediction outcomes using machine learning. The Open Bioinformatics Journal, 17(1).
Ekpo, R. H. , Osamor, V. C. , Azeta, A. A. , Akindeji, K. , & Orelaja, A. E. (2024). Designing a model for predicting asthma in adolescent using map reduce and federated learning. In 2024 International Conference on Science, Engineering and Business for Driving Sustainable Development Goals (SEB4SDG), (pp. 1-8). IEEE.
Tsang, K. C. H. , Pinnock, H. , Wilson, A. M. , and Ahmar Shah, S. (2020). Application of machine learning to support self-management of Asthma with mHealth. In 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), Montreal, QC, Canada, (pp. 5673-5677). doi: 10.1109/EMBC44109.2020.9175679.
Rani, A. , & Sehrawat, H. (2022). Role of machine learning and random forest in accuracy enhancement during asthma prediction. In 2022 10th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, (pp. 1-10). doi: 10.1109/ICRITO56286.2022.9965149.
Koshta, V. , Singh, B. K. , Behera, A. K. , & Ganga, R. T. (2023). Classification of Asthma, COPD and healthy lung sounds using fourier bessel series expansion in machine learning and deep learning paradigm. In 2023 11th International Conference on Intelligent Systems and Embedded Design (ISED), Dehradun, India, (pp. 1-6). doi: 10.1109/ISED59382.2023.10444569.
Swain, S. , Pattnayak, B. K. , Mohanty, M. N. , Jayasingh, S. K. , Patra, K. J. , & Panda, C. (2024). Smart livestock management: integrating IoT for cattle health diagnosis and disease prediction through machine learning. Indonesian Journal of Electrical Engineering and Computer Science, 34(2), 1192-1203.
Swain, S. , Patra, K. J. , Jayasingh, S. K. , Mohanty, M. N. , & Pattanayak, B. K. (2024). The Role of ensemble learning in advancing child fetal health: a focus on voting and bagging techniques. In 2024 1st International Conference on Cognitive, Green and Ubiquitous Computing (IC-CGU), (pp. 1–6). IEEE.
Patra, K. J. , Mishra, J. , Dash, S. K. , & Jayasingh, S. K. (2024). Enhancing diagnostic precision for early detection of gastric polyps with U-Net3+ segmentation. In 2024 3rd Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON), (pp. 1-5). IEEE.

Senapati, C. , Patra, K. J. , Swain, S. , Jayasingh, S. K. , Senapati, S. , & Ray, N. K. (2024). A comprehensive approach to groundwater quality prediction and management in the state of Telangana, India, using stacking ensemble approach. In 2024 International Conference on Emerging Systems and Intelligent Computing (ESIC), (pp. 118-123). IEEE.

Predicting diabetic patients coronary artery calcium score, deep learning using retinal images

Azad, S. M. , Padhy, S. , & Dash, S. (2023). A case study on the multi-hopping performance of IoT network used for farm monitoring. Automatic Control and Computer Sciences, 57, 70-80.

Breiman, L. (2001). Random forests. Machine Learning, 45, 5-32.

Cheung, C. Y. , Xu, D. , Cheng, C. Y. , Sabanayagam, C. , Tham, Y. C. , Yu, M. , et al. (2021). A deep-learning system for the assessment of cardiovascular disease risk via the measurement of retinal-vessel calibre. *Nature Biomedical Engineering* , 5, 498-508.

Cheung, C. Y. L. , Ikram, M. K. , Chen, C. , & Wong, T. Y. (2017). Imaging retina to study dementia and stroke. Progress in Retinal and Eye Research, 57, 89-107.

Cheung, C. Y. L. , Zheng, Y. , Hsu, W. , Lee, M. L. , Lau, Q. P. , Mitchell, P. , et al. (2011). Retinal vascular tortuosity, blood pressure, and cardiovascular risk factors. *Ophthalmology* , 118, 812-818.

Dash, S. , Das, R. K. , Guha, S. , Bhagat, S. N. , & Behera G. K. (2021). An interactive machine learning approach for brain tumor MRI Segmentation. In Advances in Intelligent Computing and Communication: Proceedings of ICAC 2020, (pp. 391-400). Springer Singapore.

Dash, S. , Padhy, S. , Parija, B. , Rojashree, T. , & Patro, K. A. K. (2022). A simple and fast medical image encryption system using chaos-based shifting techniques. International Journal of Information Security and Privacy (IJISP), 16(1), 1-24.

Freund, Y. , Schapire, R. , & Abe, N. (1999). A short introduction to boosting. Journal of the Japanese Society for Artificial Intelligence, 14, 1612.

Goff, Jr. D. C. , Lloyd-Jones, D. M. , Bennett, G. , Coady, S. , D'Agostino, R. B. , Gibbons, R. , et al. (2013). 2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American college of cardiology/American heart association task force on practice guidelines. *Circulation* , 129, S49-S73.

Greenland, P. , Blaha, M. J. , Budoff, M. J. , Erbel, R. , & Watson, K. E. (2018). Coronary calcium score and cardiovascular risk. Journal of the American College of Cardiology, 72, 434-447.

Hota, R. , Dash, S. , Mishra, S. , Pradhan, S. , Pattnaik, P. K. , & Pradhan, G. (2023). Early prediction and diagnosis of thoracic diseases using rough set and machine learning. In 2023 10th International Conference on Computing for Sustainable Global Development (INDIACom), (pp. 206-213). IEEE.

Kim, M. , Yun, J. , Cho, Y. , Shin, K. , Jang, R. , Bae, H. J. , et al. (2019). Deep learning in medical imaging. *Neurospine* , 16, 657.

McGrory, S. , Cameron, J. R. , Pellegrini, E. , & Warren, C. (2016). The application of retinal fundus camera imaging in dementia: a systematic review. Alzheimers Dement, 6, 91-107.

Bahadure, N. B. , Dash, S. , Padhy, S. , Satpathy, A. , & Routray, S. (2023). Rare diseases severity prediction system using a machine learning-based technique. In 2023 International Conference on Artificial Intelligence for Innovations in Healthcare Industries (ICAIIHI), Raipur, India, (pp. 1-6).

Padhy, S. , Dash, S. , Shankar, T. N. , Rachapudi, V. , Kumar, S. , & Nayyar, A. (2024). A hybrid cryptocompression model for secure brain MRI image transmission. Multimedia Tools and Applications, 83(8), 24361-24381.

Padhy, S. , Alowaidi, M. , Dash, S. , Alshehri, M. , Malla, P. P. , Routray, S. , et al. (2023). AgriSecure: a fog computing-based security framework for agriculture 4.0 via blockchain. *Processes* , 11(3), 757.

Patnaik, R. , Rath, P. S. , Padhy, S. , & Dash, S. (2022). Histopathological colorectal cancer image classification by using inception V4 CNN model. In International Conference on Robotics, Control, Automation and Artificial Intelligence, (pp. 1003-1014). Singapore: Springer Nature Singapore.

Poplin, R. , Varadarajan, A. V. , Blumer, K. , Liu, Y. , McConnell, M. V. , Corrado, G. S. , et al. (2018). Prediction of cardiovascular risk factors from retinal fundus photographs via deep learning. *Nature Biomedical Engineering* , 2, 158-164.

Rim, T. H. , Lee, C. J. , Tham, Y. C. , Cheung, N. , Yu, M. , Lee, G. , et al. (2021). Deep-learning based cardiovascular risk stratification using coronary artery calcium scores predicted from retinal photographs. *The Lancet Digital Health* , 3, e306-e316.

Panigrahy, S. , Dash, S. , Padhy, S. , Kumar, N. , & Dash, Y. (2024). Predictive modelling of diabetes complications: insights from binary classifier on chronic diabetic mellitus. In 2024 International Conference on Communication, Computer Sciences and Engineering (IC3SE), Gautam Buddha Nagar, India, (pp. 1912-1920).

Sabanayagam, C. , Xu, D. , Ting, D. S. W. , Nusinovici, S. , Banu, R. , Hamzah, H. , et al. (2020). A deep learning algorithm to detect chronic kidney disease from retinal photographs in community-based populations. *The Lancet Digital Health* , 2, e295-e302.

Padhy, S. , Dash, S. , Routray, S. , Ahmad, S. , Nazeer, J. , & Alam, A. (2022). IoT-based hybrid ensemble machine learning model for efficient diabetes mellitus prediction. Computational Intelligence and Neuroscience, 2022, 2389636.

Son, J. , Shin, J. Y. , Chun, E. J. , Jung, K. H. , Park, K. H. , & Park, S. J. (2020). Predicting high coronary artery calcium score from retinal fundus images with deep learning algorithms. Translational Vision Science and Technology, 9, 28.

Chaitanya, V. S. K. , Rakesh, D. , Dash, S. , Sahoo, B. K. , Padhy, S. , & Nayak, M. (2022). Tomato leaf disease detection using neural networks. In 2022 International Conference on Machine Learning, Computer Systems and Security (MLCSS), Bhubaneswar, India, (pp. 53-58).

Yeboah, J. , & McClelland, R. L. (2012). Comparison of novel risk markers for improvement in cardiovascular risk assessment in intermediate-risk individuals. Jama, 308, 788-795.

Modelling and performance analysis of a dexterous linkage-driven three-fingered under-actuated robotic hand

Akbas, B. , Yuksel, H. T. , Soylemez, A. , Zyada, M. E. , Sarac, M. , & Stroppa, F. (2024). The impact of evolutionary computation on robotic design: a case study with an underactuated hand exoskeleton. arXiv preprint arXiv. 2403:15812.

Arulkirubakaran, D. , Malkiya Rasalin Prince, R. , Ramesh, R. , Rajesh, T. C. S. N. , Neil Anand, K. , Mathew, S. M. , et al. (2022). Evolution of industrial robotic grippers-a review. In Recent Advances in Materials and Modern Manufacturing: Select Proceedings of ICAMMM 2021, (pp. 553-563).

Biswal, D. R. , & Parida, P. K. Modelling and finite element based analysis of a five fingered underactuated robotic hand, *International Journal for Research in Applied Science & Engineering Technology* , 10(9), 100-108.

Chen, M. , Li, S. , Shuang, F. , Du, Y. , & Liu, X. (2023). Development of a three-fingered multi-modality dexterous hand with integrated embedded high dimensional sensors. Journal of Intelligent & Robotic Systems, 108(2), 24.

Da Fonseca, V. P. , Jiang, X. , Petriu, E. M. , & de Oliveira, T. E. A. (2022). Tactile object recognition in early phases of grasping using underactuated robotic hands. Intelligent Service Robotics, 15(4), 513-525.

Hamon, P. , Chablat, D. , & Plestan, F. (2021). A new robotic hand based on the design of fingers with spatial motions. In International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. American Society of Mechanical Engineers. 85451:V08BT08A021.

Li, G. , Liang, X. , Gao, Y. , Su, T. , Liu, Z. , & Hou, Z. G. (2023). A linkage-driven underactuated robotic hand for adaptive grasping and in-hand manipulation. IEEE Transactions on Automation Science and Engineering, 21(3), 3039-3051.

Llop-Harillo, I. , Pérez-González, A. , & Andrés-Esperanza, J. (2020). Anthropomorphism indexes of the kinematic chain for artificial hands. Journal of Bionic Engineering, 17, 501-511.

Neha, E. , Suhaib, M. , Mukherjee, S. , & Shrivastava, Y. (2023). Kinematic analysis of four-fingered tendon actuated robotic hand. Australian Journal of Mechanical Engineering, 21(2), 541-551.

Parveen, S. , Suhaib, M. , & Majid, M. A. (2023). Multifinger robotic gripper: a review. In 2023 International Conference on Recent Advances in Electrical, Electronics & Digital Healthcare Technologies (REEDCON), (pp. 466-470). IEEE.

Rahman, M. M. , Shahria, M. T. , Zarif, M. I. I. , Haque, M. E. , Ahamed, S. I. , Ghommam, J. , et al. (2024). Performance assessment of 3-finger adaptive robotic grippers in handling objects for daily living assistance. *Archives of Physical Medicine and Rehabilitation* , 105(4), 53.

Pu, Z. , Da-Ming, N. , Yun, L. , Shi-Qiang, Z. , Gu, J. , & Ruilong, D. (2022). Design of humanoid robotic hand based on link underactuation. In 2022 12th International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (CYBER), (pp. 174-178). IEEE.

Puhlmann, S. , Harris, J. , & Brock, O. (2022). RBO hand 3: a platform for soft dexterous manipulation. IEEE Transactions on Robotics, 38(6), 3434-3449.

Rahman, M. M. , Shahria, M. T. , Sunny, M. S. H. , Khan, M. M. R. , Islam, E. , Swapnil, A. A. Z. , et al. (2024). Development of a three-finger adaptive robotic gripper to assist activities of daily living. *Designs* , 8(2), 35.

Ryu, W. , Choi, Y. , Choi, Y. J. , Lee, Y. G. , & Lee, S. (2020). Development of an anthropomorphic prosthetic hand with underactuated mechanism. Applied Sciences, 10(12), 4384.

Scarcia, U. , Berselli, G. , Palli, G. , & Melchiorri, C. (2017). Modeling, design, and experimental evaluation of rotational elastic joints for underactuated robotic fingers. In 2017 IEEE-RAS 17th International Conference on Humanoid Robotics (Humanoids), (pp. 353-358). IEEE.

Su, C. , Wang, R. , Lu, T. , & Wang, S. (2023). SAU-RFC hand: a novel self-adaptive underactuated robot hand with rigid-flexible coupling fingers. Robotica, 41(2), 511-529.

Sun, B. Y. , Gong, X. , Liang, J. , Chen, W. B. , Xie, Z. L. , Liu, C. , et al. (2021). Design principle of a dual-actuated robotic hand with anthropomorphic self-adaptive grasping and dexterous manipulation abilities. *IEEE Transactions on Robotics* , 38(4), 2322-2340.

Tang, S. , Yu, Y. , Sun, S. , Li, Z. , Sarkodie-Gyan, T. , & Li, W. (2020). Design and experimental evaluation of a new modular underactuated multi-fingered robot hand. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 234(18), 3709-3724.

Wang, D. , Xiong, Y. , Zi, B. , Qian, S. , Wang, Z. , & Zhu, W. (2021). Design, analysis and experiment of a passively adaptive underactuated robotic hand with linkage-slider and rack-pinion mechanisms. Mechanism and Machine Theory, 155, 104092.

Yang, H. , Wei, G. , & Ren, L. (2019). Design and development of a linkage-tendon hybrid driven anthropomorphic robotic hand. In Intelligent Robotics and Applications: 12th International Conference, ICIRA 2019, Shenyang, China, August 8-11, 2019, Proceedings, Part I 12 (pp. 117-128). Springer International Publishing.

Yang, H. , Wei, G. , Ren, L. , Qian, Z. , Wang, K. , Xiu, H. , et al. (2021). A low-cost linkage-spring-tendonintegrated compliant anthropomorphic robotic hand: MCR-Hand III. *Mechanism and Machine Theory* , 158, 104210.

Yang, Y. , Guo, J. , Yao, Y. , & Yin, H. (2023). Development of a compliant lower-limb rehabilitation robot using underactuated mechanism. Electronics, 12(16), 3436.

Yuan, S. , Epps, A. D. , Nowak, J. B. , & Salisbury, J. K. (2020). Design of a roller-based dexterous hand for object grasping and within-hand manipulation. In 2020 IEEE International Conference on Robotics and Automation (ICRA), (pp. 8870-8876). IEEE.

Zhang, N. , Zhao, Y. , Gu, G. , & Zhu, X. (2022). Synergistic control of soft robotic hands for human-like grasp postures. Science China Technological Sciences, 65(3), 553-568.

Intelligent agriculture system using soft computing techniques

Akhter, R. , & Sofi, S. A. (2022). Precision agriculture using IoT data analytics and machine learning. Journal of King Saud University-Computer and Information Sciences, 34(8), 5602-5618.

Basnet, B. , & Bang, J. (2018). The state-of-the-art of knowledge-intensive agriculture: a review on applied sensing systems and data analytics. Journal of Sensors, 2018(1), 3528296.

Ben Ayed, R. , & Hanana, M. (2021). Artificial intelligence to improve the food and agriculture sector. Journal of Food Quality, 2021(1), 5584754.
dos Santos, U. J. L. , Pessin, G. , da Costa, C. A. , & da Rosa Righi, R. (2019). AgriPrediction: a proactive internet of things model to anticipate problems and improve production in agricultural crops. Computers and Electronics in Agriculture, 161, 202-213.
Eli-Chukwu, N. C. (2019). Applications of artificial intelligence in agriculture: a review. Engineering, Technology & Applied Science Research, 9(4), 4377-4383.
Garcia-Sanchez, A.-J. , Garcia-Sanchez, F. , & GarciaHaro, J. (2011). Wireless sensor network deployment for integrating video-surveillance and data-monitoring in precision agriculture over distributed crops. Computers and Electronics in Agriculture, 75(2), 288-303.
Maurya, S. , & Jain, V. K. (2016). Fuzzy based energy efficient sensor network protocol for precision agriculture. Computers and Electronics in Agriculture, 130, 20-37.
Nikolidakis, S. A. , Kandris, D. , Vergados, D. D. , & Douligeris, C. (2013). Energy efficient routing in wireless sensor networks through balanced clustering. Algorithms, 6(1), 29-42.
Ojha, T. , Misra, S. , & Raghuwanshi, N. S. (2015). Wireless sensor networks for agriculture: The state-ofthe-art in practice and future challenges. Computers and Electronics in Agriculture, 118, 66-84.
Qureshi, K. N. , Bashir, M. U. , Lloret, J. , & Leon, A. (2020). Optimized cluster-based dynamic energyaware routing protocol for wireless sensor networks in agriculture precision. Journal of Sensors, 2020(1), 9040395.
Sabrina, F. , Sohail, S. , Farid, F. , Jahan, S. , Ahamed, F. , & Gordon, S. (2022). An interpretable artificial intelligence based smart agriculture system. Computers, Materials and Continua, 72(2), 3777-3797.

Synthesis, structural and Raman study of Zn doped CuO nanoparticles

Ahmed, T. M. , Kamoun, E. A. , El-Moslamy, S. H. , Salim, S. A. , Zahran, H. Y. , Zyoud, S. H. , et al. (2024). Performance of Ag-doped CuO nanoparticles for photocatalytic activity applications: synthesis, characterization, and antimicrobial activity. *Discover Nano* , 19, 166.
Bikram, K. D. , Das, T. , & Das, D. (2023). Structural and electrical properties of mechanically alloyed ZnO nanoceramic for NTC thermistor application. Journal of Materials Science: Materials in Electronics, 34(3), 230.
Bikram, K. D. , Das, T. , Das, D. , Parashar, K. , Parashar, S. K. S. , Kumar, R. , et al. (2024). Negative temperature co-efficient of resistance behaviour of Cr doped ZnO nanoceramics. *Journal of Materials Science and Engineering B* , 299, 117017.
Ganesan, K. , Jothi, V. K. , Natarajan, A. , Rajaram, A. , Ravichandran, S. , & Ramalingam, S. (2020). Green synthesis of copper oxide nanoparticles decorated with graphene oxide for anticancer activity and catalytic applications. Arabian Journal of Chemistry, 13, 6802-6814.
Okoye, P. C. , Azi, S. O. , Qahtan, T. F. , Owolabi, T. O. , & Saleh, T. A. (2023). Synthesis, properties, and applications of doped and undoped CuO and Cu2O nanomaterials. Materials Today Chemistry, 30, 101513.
Reungruthai, S. , Chaopanich, P. , Prasatkhetragarn, A. , Chailuecha, C. , Kuimalee, S. , & Klinbumrung, A. (2022). Doping effect of Zn on structural and optical properties of CuO nanostructures prepared by wet chemical precipitation process. Radiation Physics and Chemistry, 190, 109788.
Das, T. , & Das, B. K. (2024). Impact of strontium doping on the structural and NTCR properties of ZnO ceramics. Journal of Materials Science: Materials in Electronics, 35, 2202.
Das, T. , Das, D. , & Das, B. K. (2024). Impedance spectroscopy and conduction mechanism of Zn1-xMgxO NTCR ceramics. Journal of Materials Science and Engineering B, 302, 117206 35.

Immersive Learning in Ayurveda: Revolutionizing Dhatu Poshan Nyaya education through AR/VR technologies

Ismail, N. M. , & Fazeen Rasheed, A. K. (2024). VR devices in ayurvedic care: understanding influential factors for user behavior and continuance intention. International Journal of Human-Computer Interaction, 40, 1-18. doi.org/10.1080/10447318.2024.2399418.
Khan, H. U. , Ali, Y. , Khan, F. , & Al-Antari, M. A. (2024). A comprehensive study on unraveling the advances of immersive technologies (VR/AR/MR/XR) in the healthcare sector during the COVID-19: challenges and solutions. Heliyon, 10(15), e35037. doi: 10.1016/j.heliyon.2024.e35037. PMID: 39157361; PMCID: PMC11328097.
Kumar, A. , & Arya, V. (2024). Achieving holistic health through ayurveda along with advanced technologies: a conference report. *Journal of Ayurveda and Integrative Medicine* , 15(3), 100967. doi: 10.1016/j.jaim.2024.100967. Epub 2024 May 27. PMID: 38805855; PMCID: PMC11152973.
Ranade, M. (2024). Artificial intelligence in ayurveda: current concepts and prospects. Journal of Indian System of Medicine, 12(1), 53-59. DOI: 10.4103/jism.jism_60_23.
Sawarkar, G. (2021). Role of virtual learning in ayurveda education. Journal of Indian System of Medicine, 9, 151. 10.4103/JISM.JISM_76_21. DOI: 10.4103/JISM.JISM_76_21.
Verma, P. , Nagar, L. K. , Sharma, A. K. , Sharma, K. L. , & Meena, R. (2023). A conceptual study of dhatu poshan Nyaya (metabolic transformation) in ayurvedic perspective. International Research Journal of Ayurveda & Yoga, 6(1), 42-45. https://doi.org/10.48165/IRJAY.2023.6107.

Combating food insecurity through remote sensing and machine learning for enhanced crop yield prediction

Azad, S. M. , Padhy, S. , & Dash, S. (2023). A case study on the multi-hopping performance of IoT network used for farm monitoring. Automatic Control and Computer Sciences, 57, 70-80. https://doi.org/10.3103/S0146411623010029.

Bhuyan, B. P. , Tomar, R. , Singh, T. P. , & Cherif, A. R. (2022). Crop type prediction: a statistical and machine learning approach. Sustainability, 15(1), 481.

Das, P. , Jha, G. K. , Lama, A. , & Parsad, R. (2023). Crop yield prediction using hybrid machine learning approach: a case study of lentil (Lens culinaris Medik.). Agriculture, 13(3), 596.

Dash, S. , Padhy, S. , Parija, B. , Rojashree, T. , & Patro, K. A. K. (2022). A simple and fast medical image encryption system using chaos-based shifting techniques. International Journal of Information Security and Privacy (IJISP), 16(1), 1-24.

Ed-Daoudi, R. , Alaoui, A. , Ettaki, B. , & Zerouaoui, J. (2023). Improving crop yield predictions in morocco using machine learning algorithms. Journal of Ecological Engineering, 24(6), 392-400.

Elbasi, E. , Zaki, C. , Topcu, A. E. , Abdelbaki, W. , Zreikat, A. I. , Cina, E. , et al. (2023). Crop prediction model using machine learning algorithms. Applied Sciences, 13(16), 9288.

Hasan, M. , Marjan, M. A. , Uddin, M. P. , Afjal, M. I. , Kardy, S. , Ma, S. , et al. (2023). Ensemble machine learning-based recommendation system for effective prediction of suitable agricultural crop cultivation. Frontiers in Plant Science, 14, 1234555.

Hota, R. , Dash, S. , Mishra, S. , Pradhan, S. , Pattnaik, P. K. , & Pradhan, G. (2023). Prediction and diagnosis of thoracic diseases using rough set and machine learning. In 2023 10th International Conference on Computing for Sustainable Global Development (INDIACom), (pp. 206-213). IEEE.

Jhajharia, K. , Mathur, P. , Jain, S. , & Nijhawan, S. (2023). Crop yield prediction using machine learning and deep learning techniques. Procedia Computer Science, 218, 406-417.

Kumar, D. , & Dash, S. (2022). Epileptic seizures detection using hybrid deep learning. International Journal of Intelligent Systems, 12, 560-575.

Li, L. , Zhang, Y. , Wang, B. , Feng, P. , He, Q. , Shi, Y. , et al. (2023). Integrating machine learning and environmental variables to constrain uncertainty in crop yield change projections under climate change. European Journal of Agronomy, 149, 126917.

Morales, A. , & Villalobos, F. J. (2023). Using machine learning for crop yield prediction in the past or the future. Frontiers in Plant Science, 14, 1128388.

Padhy, S. , Dash, S. , Shankar, T. N. , Rachapudi, V. , Kumar, S. , & Nayyar, A. (2024). A hybrid crypto-compression model for secure brain MRI image transmission. Multimedia Tools and Applications, 83(8), 24361-24381. https://doi.org/10.1007/s11042-023-16359-w

Padhy, S. , Alowaidi, M. , Dash, S. , Alshehri, M. , Malla, P. P. , Routray, S. , et al. (2023). AgriSecure: a fog computing-based security framework for agriculture 4.0 via blockchain. Processes, 11(3), 757.

Panigrahi, B. , Kathala, K. C. R. , & Sujatha, M. (2023). A machine learning-based comparative approach to predict the crop yield using supervised learning with regression models. Procedia Computer Science, 218, 2684-2693.

Patnaik, R. , Rath, P. S. , Padhy, S. , & Dash, S. (2022). Histopathological colorectal cancer image classification by using inception V4 CNN model. In International Conference on Robotics, Control, Automation and Artificial Intelligence, (pp. 1003-1014). Singapore: Springer Nature Singapore.

Rajest, S. S. , Priscila, S. S. , Regin, R. , Shynu, T. , & Steffi, R. (2023). Application of machine learning to the process of crop selection based on land dataset. International Journal on Orange Technologies, 5(6), 91-112.

Rani, S. , Mishra, A. K. , Kataria, A. , Mallik, S. , & Qin, H. (2023). Machine learning-based optimal crop selection system in smart agriculture. Scientific Reports, 13(1), 15997.

Panigrahy, S. , Dash, S. , Padhy, S. , Kumar, N. , and Dash, Y. (2024). Predictive modelling of diabetes complications: insights from binary classifier on chronic diabetic mellitus. In 2024 International Conference on Communication, Computer Sciences and Engineering (IC3SE), Gautam Buddha Nagar, India, (pp. 1912-1920).

Sarr, A. B. , & Sultan, B. (2023). Predicting crop yields in Senegal using machine learning methods. International Journal of Climatology, 43(4), 1817-1838.

Padhy, S. , Dash, S. , Routray, S. , Ahmad, S. , Nazeer, J. , & Alam, A. (2022). IoT-based hybrid ensemble machine learning model for efficient diabetes mellitus prediction. Computational Intelligence and Neuroscience, 2022, 2389636.

Shafi, U. , Mumtaz, R. , Anwar, Z. , Ajmal, M. M. , Khan, M. A. , Mahmood, Z. , et al. (2023). Tackling food insecurity using remote sensing and machine learning based crop yield prediction. IEEE Access, 11, 108640-108657.

Shao, G. , Han, W. , Zhang, H. , Zhang, L. , Wang, Y. , & Zhang, Y. (2023). Prediction of maize crop coefficient from UAV multisensor remote sensing using machine learning methods. Agricultural Water Management, 276, 108064.

Vignesh, K. , Askarunisa, A. , & Abirami, A. M. (2023). Optimized deep learning methods for crop yield pre-diction. Computer Systems Science and Engineering, 44(2), 1051-1067.

PQ improvement with TLBO FOPID based SHAF

Das, H. , Das, S. R. , Ray, P. K. , Mallick, R. K. , & Mishra, A. K. , (2022). Harmonic distortion minimization in power system using differential evolution based active power filters. Recent Advances in Computer Science and Communications, 15(2), 186-195.

Mishra, A. K. , Das, S. R. , Ray, P. K. , Mallick, R. K. , Mohanty, A. , & Mishra, D. K. (2020). PSO-GWO optimized fractional order PID based hybrid shunt active power filter for power quality improvements. IEEE Access, 8, 74497-74512.

Mohanty, A. , Mishra, A. K. , Ray, P. K. , Mallick, R. K. , & Das, S. R. (2021). Adaptive fuzzy controlled hybrid shunt active power filter for power quality enhancement. Neural Computing and Applications, 33, 1435-1452.

Nanda, P. K. , Ray, P. K. , Mishra, A. K. , Das, S. R. , & Patra, A. K. (2023). IFGO optimized self-adaptive fuzzy-PID controlled HSAPF for PQ enhancement. International Journal of Fuzzy Systems, 25(2), 468-484.

Patra, A. K. , Mishra, A. K. , Nanda, P. K. , Ray, P. K. , & Das, S. R. , (2024). DT-CWT and type-2 fuzzy-HSAPF for harmonic compensation in distribution system. Soft Computing, 28(1), 527-539.

GWO fuzzy PID controlled cuk and SEPIC converter based PFR

Barik, S. , Mishra, A. K. , Patra, A. K. , Agrawal, R. , Debanath, M. K. , Satapathy, S. , & Swain, J. R. (2020). Fuzzy-controlled power factor correction using single ended primary inductance converter. In Icicc 2019. (Vol. 1, pp. 589-600), Springer, Singapore.

Behera, S. , Praharaj, K. , Mishra, A. K. , Patra, A. K. , Agrawal, R. , & Nahak, N (2019). Comparative analysis between SEPIC and Cuk converter for power factor correction. In Icit, (pp. 42-46). IEEE.

Mishra, A. K. , Nanda, P. K. , Das, D. , Patra, A. K. , Nahak, N. , & Sathapathy, L. M. (2023). PID and FOPID controller based SEPIC and cuk converter for PFC. In Apsit, (pp. 210-214). IEEE.

Swain, N. , Dash, D. , Mishra, A. K. , Patra, A. K. , Agraw-Al, R. , Sharma, S. , & Mohapatra, P. (2020). Output voltage regulated Cuk and SEPIC converter with high input power factor. In Aecss, (pp. 785-799). Springer, Singapore.

Enhancing web application security: A machine learning approach to firewall implementation

Moradi Vartouni, A. , Mehralian, S. , Teshnehlab, M. , & Sedighian Kashi, S. (2019). Auto-encoder LSTM methods for anomaly-based web application firewall. International Journal of Information and Communication Technology Research, 11(3), 49-56.

Moradi Vartouni, A. , Teshnehlab, M. , & Sedighian Kashi, S. (2019). Leveraging deep neural networks for anomaly-based web application firewall. IET Information Security, 13(4), 352-361.

Dawadi, B. R. , Adhikari, B. , & Srivastava, D. K. (2023). Deep learning technique-enabled web application firewall for the detection of web attacks. Sensors, 23(4), 2073.

Appelt, D. , Nguyen, C. D. , Panichella, A. , & Briand, L. C. (2018). A machine-learning-driven evolutionary approach for testing web application firewalls. IEEE Transactions on Reliability, 67(3), 733-757.

Ito, M. , & Iyatomi, H. (2018). Web application firewall using character-level convolutional neural network. In 2018 IEEE 14th International Colloquium on Signal Processing & Its Applications (CSPA), (pp. 103-106).

Jakić, P. (2019). The overview of intrusion detection system methods and techniques. In Sinteza 2019-International Scientific Conference on Information Technology and Data Related Research, Singidunum University, (pp. 155-161).

Hao, S. , Long, J. , & Yang, Y. (2019). Bl-ids: detecting web attacks using bi-lstm model based on deep learn-ing. In International Conference on Security and Privacy in New Computing Environments, (pp. 551-563), Cham: Springer International Publishing.

Combination of transition metal oxide into carbon nanofiber matrix for enhancement in electrochemical performance of supercapacitor

Du, Q. , Zheng, M. , Zhang, L. , Wang, Y. , Chen, J. , Xue, L. , et al. (2010). Preparation of functionalized graphene sheets by a low-temperature thermal exfoliation approach and their electrochemical supercapacitive behaviors. Electrochimica Acta, 55(12), 3897-3903.

Ervin, M. H. , Miller, B. S. , Hanrahan, B. , Mailly, B. , & Palacios, T. (2012). A comparison of single-wall carbon nanotube electrochemical capacitor electrode fabrication methods. Electrochimica Acta, 65, 37-43.

Hu, C.-C. , Chang, K. H. , Lin, M. C. , & Wu, Y. T. (2006). Design and tailoring of the nanotubular arrayed architecture of hydrous RuO_2 for next generation supercapacitors. Nano Letters, 6(12), 2690-2695.

Li, J. , Liu, E. , Li, W. , Meng, X. , & Tan, S. (2009). Nickel/carbon nanofibers composite electrodes as supercapacitors prepared by electrospinning. Journal of Alloys and Compounds, 478(1-2), 371-374.

Peng, S. , Li, L. , Wu, H. B. , Madhavi, S. , & Lou, X. W. (2015). Controlled growth of $NiMoO_4$ nanosheet and nanorod arrays on various conductive substrates as advanced electrodes for asymmetric supercapacitors. Advanced Energy Materials, 5(2), 1401172.

Pope, M. A. , Korkut, S. , Punckt, C. , & Aksay, I. A. (2013). Supercapacitor electrodes produced through evaporative consolidation of graphene oxide-waterionic liquid gels. Journal of the Electrochemical Society, 160(10), A1653.

Stoller, M. D. , Park, S. , Zhu, Y. , An, J. , & Ruoff, R. S. (2008). Graphene-based ultracapacitors. Nano Letters, 8(10), 3498-3502.

Wang, Y. , Shi, Z. , Huang, Y. , Ma, Y. , Wang, C. , Chen, M. , et al. (2009). Supercapacitor devices based on graphene materials. The Journal of Physical Chemistry C, 113(30), 13103-13107.

Wu, H. P. , He, D. W. , Wang, Y. S. , Fu, M. , Liu, Z. L. , Wang, J. G. , et al. (2010). Graphene as the electrode material in supercapacitors. In 2010 8th International Vacuum Electron Sources Conference and Nanocarbon, (pp. 465-466). IEEE.

Zhang, L. L. , Zhou, R. , & Zhao, X. S. (2010). Graphene-based materials as supercapacitor electrodes. Journal of Materials Chemistry, 20(29), 5983-5992.

Experimental investigation on detection of medical image edges using radial basis fuzzy-neural network technique: A comparative analysis

Abadi, A. M. , Wutsqa, D. U. , & Ningsih, N. (2021). Construction of fuzzy radial basis function neural network model for diagnosing prostate cancer. TEL-KOMNIKA (Telecommunication Computing Electronics and Control), 19(4), 1273-1283.

Belderrar, A. , & Hazzab, A. (2021). Real-time estimation of hospital discharge using fuzzy radial basis function network and electronic health record data. International Journal of Medical Engineering and Informatics, 13(1), 75-83.

Bohern, B. F. , Hanley Jr., E. N. (1995). Extracting knowledge from large medical databases: an automated approach. Computers and Biomedical Research, 28, 191-210.

Husein, H. A. , & Zainab, R. M. (2017). Edge detection of medical images using Markov basis. Applied Mathematical Sciences, 11(37), 1825-1833.

Ker, J. , Wang, L. , Rao, J. , & Lim, T. (2018). Deep learning applications in medical image analysis. IEEE Access, 6, 9375-9389.
Li, D. , Wang, X. J. , Sun, J. , & Feng, Y. (2021). Radial basis function neural network model for dissolved oxygen concentration prediction based on an enhanced clustering algorithm and Adam. IEEE Access, 9, 44521-44533.
Mehena, J. , & Mishra, S. (2024). Automatic edge detection model of MR images based on deep learning approach. In Computational Intelligence in Healthcare Informatics. Studies in Computational Intelligence, (pp. 1132). Singapore: Springer.
Mehena, J. , & Adhikary, M. C. (2015). Medical image edge detection based on soft computing approach. International Journal of Innovative Research in computer and communication Engineering, 3(7), 6801-6807.
Yuksel, M. E. (2007). Edge detection in noisy images by neuro-fuzzy processing. AEU International Journal of Electronics and Communications, 61, 82-89.

Hybrid vision transformer and CNN-based model for efficient cotton leaf disease detection

Amin, J. , Anjum, M. A. , Sharif, M. , Kadry, S. , & Kim, J. (2022). Explainable neural network for classification of cotton leaf diseases. Agriculture, 12(12), 2029.
Mary, X. A. , Raimond, K. , Raj, A. P. W. , Johnson, I. , Popov, V. , & Vijay, S. J. (2022). Comparative Analysis of Deep Learning Models for Cotton Leaf Disease Detection. In Disruptive Technologies for Big Data and Cloud Applications - Proceedings of ICBDCC 2021 (pp. 825-834). Springer
Azad, S. M. , Padhy, S. , & Dash, S. (2023). A case study on the multi-hopping performance of IoT network used for farm monitoring. Automatic Control and Computer Sciences, 57, 70-80. https://doi.org/10.3103/S0146411623010029.
Baig, M. D. , Haq, H. B. U. , Asif, M. , & Tanvir, A. (2024). Leaf diseases detection empowered with transfer learning model. Precision Agriculture Journal, 2(1), 2358.
Das, S. K. , Pani, S. K. , Padhy, S. , Dash, S. , & Acharya, A. K. (2023). Application of machine learning models for slope instabilities prediction in open cast mines. International Journal of Intelligent Systems and Applications in Engineering, 11(1), 111-121.
Dash, S. , Das, R. K. , Guha, S. , Bhagat, S. N. , & Behera, G. K. (2021). An interactive machine learning approach for brain tumor MRI segmentation. In Das, S. , & Mohanty, M. N. . (Eds.), Advances in Intelligent Computing and Communication. Lecture Notes in Networks and Systems, (Vol. 202). Singapore: Spring-er.
Dash, A. B. , Dash, S. , Padhy, S. , Mishra, B. , & Singh, A. N. (2022). Analysis of brain function effecting form the tumour disease using the image segmentation technique. In 2022 Second International Conference on Computer Science, Engineering and Applications (ICCSEA), (pp. 1-6). IEEE.
Dash, S. , Padhy, S. , Azad, S. M. A. K. , & Nayak, M. (2022). Intelligent IoT-based healthcare system using blockchain. In Ambient Intelligence in Health Care: Proceedings of ICAIHC 2022, (pp. 305-315). Singapore: Springer Nature Singapore.
Dash, S. , Padhy, S. , Parija, B. , Rojashree, T. , & Patro, K. A. K. (2022). A simple and fast medical image encryption system using chaos-based shifting techniques. International Journal of Information Security and Privacy (IJISP), 16(1), 1-24.
Abouhawwash, M. , & Mostafa, N. N. (2024). Deep Learning for Coffee Leaf Diseases Detection in Precision Agriculture. Optimization in Agriculture, 1, 129-136.
Gülmez, B. (2023). A novel deep learning model with the grey wolf optimization algorithm for cotton disease detection. Journal of Universal Computer Science, 29(6), 595.
Nazeer, R. , Ali, S. , Hu, Z. , Ansari, G. J. , Al-Razgan, M. , Awwad, E. M. , & Ghadi, Y. Y. (2024). Detection of cotton leaf curl disease's susceptibility scale level based on deep learning. Journal of Cloud Computing, 13(1), 50.
Amin, J. , Anjum, M. A. , Sharif, M. , Kadry, S. , & Kim, J. (2022). Explainable neural network for classification of cotton leaf diseases. agriculture, 12(12), 2029.
Iftikhar, M. , Kandhro, I. A. , Kausar, N. , Kehar, A. , Uddin, M. , & Dandoush, A. (2024). Plant disease management: A fine-tuned enhanced CNN approach with mobile app integration for early detection and classification. Artificial Intelligence Review, 57(7), 167.
Kumar, D. , & Dash, S. (2022). Epileptic Seizures Detection Using Hybrid Deep Learning. International Journal of Intelligent Systems, 12, 560-575.
Suganya, P. V. R. , Sathyabama, A. R. , Abirami, K. , & Nalayini, C. M. (2023). Id+E1entification of Leaf Disease Using Machine Learning Algorithm—CNN. In Inventive Computation and Information Technologies (pp. 857-866). Springer, Singapore.
Sarkar, M. S. , Lifat, M. A. S. , Hasan, R. , & Hassan, M. M. (2024, April). Discovering the depths of cotton leaf disease detection: Integrating hypertuned residual networks with GradCAM XAI for enhanced understanding and diagnosis. In 2024 3rd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE) (pp. 1-6). IEEE.
Bahadure, N. B. , Dash, S. , Padhy, S. , Satpathy, A. , & Routray, S. (2023). Rare diseases severity prediction system using a machine learning-based technique. In 2023 International Conference on Artificial Intelligence for Innovations in Healthcare Industries (IC-AIIHI), Raipur, India, (pp. 1-6). doi:10.1109/ICAII-HI57871.2023.10489179.
Nazeer, R. , Ali, S. , Hu, Z. , Ansari, G. J. , Al-Razgan, M. , Awwad, E. M. , & Ghadi, Y. Y. (2024). Detection of cotton leaf curl disease's susceptibility scale level based on deep learning. Journal of Cloud Computing, 13(1), 50.
Naeem, A. B. , Senapati, B. , Chauhan, A. S. , Kumar, S. , Orosco Gavilan, J. C. , & Abdel-Rehim, W. M. F. (2023). Deep Learning Models for Cotton Leaf Disease Detection with VGG-16. International Journal of Intelligent Systems and Applications in Engineering, 11(2), 550-556.
Padhy, S. , Dash, S. , Shankar, T. N. , Rachapudi, V. , Kumar, S. , & Nayyar, A. (2024). A hybrid cryptocompression model for secure brain mri image transmission. Multimedia Tools and Applications, 83(8), 24361-24381.
Padhy, S. , Dash, S. , Shankar, T. N. , Rachapudi, V. , Kumar, S. , & Nayyar, A. (2023). A hybrid crypto-compression model for secure brain mri image trans-mission. Multimedia Tools Application, 83(8), 24361-24381. https://doi.org/10.1007/s11042-023-16359-w.
Padhy, S. , Alowaidi, M. , Dash, S. , Alshehri, M. , Malla, P. P. , Routray, S. , et al. (2023). AgriSecure: a fog computing-based security framework for agriculture 4.0 via blockchain. Processes, 11(3), 757.
Patnaik, R. , Rath, P. S. , Padhy, S. , & Dash, S. (2022). Histopathological colorectal cancer image classification by using inception V4 CNN model. In International Conference on Robotics, Control, Automation and Artificial Intelligence, (pp. 1003-1014). Singapore: Springer Nature Singapore.

Parashar, N. , & Johri, P. (2024). Enhancing apple leaf disease detection: A CNN-based model integrated with image segmentation techniques for precision agriculture. International Journal of Mathematical, Engineering and Management Sciences, 9(4), 943.
Panigrahy, S. , Dash, S. , Padhy, S. , Kumar, N. , & Dash, Y. (2024). Predictive modelling of diabetes complications: insights from binary classifier on chronic diabetic mellitus. In 2024 International Conference on Communication, Computer Sciences and Engineering (IC3SE), Gautam Buddha Nagar, India, (pp. 1912-1920). doi:10.1109/IC3SE62002.2024.10593308.
Padhy, S. , Dash, S. , Routray, S. , Ahmad, S. , Nazeer, J. , & Alam, A. (2022). IoT-based hybrid ensemble machine learning model for efficient diabetes mellitus prediction. Computational Intelligence and Neuroscience, 2022, 2389636. https://doi.org/10.1155/2022/2389636(SCIE-IF-3.633).
Iftikhar, M. , Kandhro, I. A. , Kausar, N. , Kehar, A. , Uddin, M. , & Dandoush, A. (2024). Plant disease management: A fine-tuned enhanced CNN approach with mobile app integration for early detection and classification. Artificial Intelligence Review, 57(7), 167.
Chaitanya, V. S. K. , Rakesh, D. , Dash, S. , Sahoo, B. K. , Padhy, S. , & Nayak, M. (2022). Tomato leaf disease detection using neural networks. In 2022 International Conference on Machine Learning, Computer Systems and Security (MLCSS), Bhubaneswar, India, (pp. 53-58). IEEE. doi: 10.1109/MLCSS57186.2022.00018.
Bhagat, M. , Kumar, D. , & Kumar, S. (2024). Optimized transfer learning approach for leaf disease classification in smart agriculture. Multimedia Tools and Applications, 83(20), 58103-58123.

Sensitivity analysis based performance assessment of a MGWO based PID control approach for regulating frequency in an interconnected power system

Gomaa Haroun, A. H. , & Yin-Ya, L. (2020). Ant lion optimized hybrid intelligent PID-based sliding mode controller for frequency regulation of interconnected multi-area power systems. Transactions of the Institute of Measurement and Control, 42(9), 1594–1617.
Arya, Y. (2018). Automatic generation control of twoarea electrical power systems via optimal fuzzy classical controller. Journal of the Franklin Institute, 355(5), 2662–2688.
Das, S. , Nayak, P. C. , Prusty, R. C. , & Panda, S. (2024). Design of fractional order multistage controller for frequency control improvement of a multi-microgrid system using equilibrium optimizer. Multiscale and Multidisciplinary Modeling, Experiments and Design, 7(2), 1357–1373.
Gupta, N. K. , Kar, M. K. , & Singh, A. K. (2022). Design of a 2-DOF-PID controller using an improved sine-cosine algorithm for load frequency control of a three-area system with nonlinearities. Protection and Control of Modern Power Systems, 7(3), 1–18.
Khokhar, B. , Dahiya, S. , & Parmar, K. P. S. (2021). Load frequency control of a microgrid employing a 2D sine logistic map based chaotic sine cosine algorithm. Applied Soft Computing, 109, 107564.
Latif, A. , Hussain, S. M. S. , Das, D.C. , Ustun, T. S. , & Iqbal, A. (2021). A review on fractional order (FO) controllers' optimization for load frequency stabilization in power networks. Energy Reports, 7, 4009–4021.
Mishra, D. , Maharana, M. K. , Kar, M. K. , & Nayak, A. (2023). A modified differential evolution algorithm for frequency management of interconnected hybrid renewable system. International Journal of Power Electronics and Drive Systems, 14(3), 1711–1721.

Real time garbage detection using CNN and YOLO algorithms

Ahmed, M. I. B. , Alotaibi, R. B. , Al-Qahtani, R. A. , AlQahtani, R. S. , Al-Hetela, S. S. , Al-Matar, K. A. , et al. (2023). Deep learning approach to recyclable products classification: Towards sustainable waste management. Sustainability, 15(14), 11138.
Alvarico, E. A. M. , Arricivita, F. A. I. , & Cruz, F. R. G. (2024). Real-time tracking and monitoring system with geofence notification for garbage collection vehicles. In 2024 6th International Conference on Electronics and Communication, Network and Computer Technology (ECNCT), (pp. 363–368). IEEE.
Bhattacharya, S. , Kumar, A. , Krishav, K. , Panda, S. , Vidhyapathi, C. M. , Sundar, S. , et al. (2024). Self-adaptive waste management system: utilizing convolutional neural networks for real-time classification. Engineering Proceedings, 62(1), 5.
Babu, M. M. S. K. , Srevika, M. N. , Sanjana, P. S. , & Lavanya, M. (2024). Geo tracking of waste, triggering alerts and mapping areas with high waste index. International Journal of Information Technology and Computer Engineering, 12(3), 828–836.
Chowdhury, S. , Roy, S. , Chowdhury, D. G. , Chakraborty, S. , Jain, K. P. , & Bhattacharyya, B. (2024). SKIDS: an object classification and smart communication based waste bin. In 2024 3rd International Conference on Artificial Intelligence for Internet of Things (AIIoT), (pp. 1–6). IEEE.
Kunieda, Y. , & Suzuki, H. (2024). A detection method of garbage collection status from sound of garbage trucks. In 2024 IEEE International Conference on Consumer Electronics (ICCE), (pp. 1–6). IEEE.
Kaladevi, R. , Ganesh, K. , Kishore, P. , & Vijaya, R. V. (2024). Time littering detection—using pose estimation and object detection. In Disruptive Technologies for Sustainable Development, (pp. 156–160). CRC Press.
Khan, S. , Anjum, R. , Raza, S. T. , Bazai, N. A. , & Ihtisham, M. (2022). Technologies for municipal solid waste management: current status, challenges, and future perspectives. Chemosphere, 288, 132403.
Kumar, A. , Ziya, Q. , & Abid, K. (2024). IoT-based real-time waste management system with dust segregation & full bin notifications. In 2024 Sixth International Conference on Computational Intelligence and Communication Technologies (CCICT), (pp. 98–105). IEEE.
Kumar, D. (2024). Smart garbage detection system for sustainable waste management using deep learning techniques. In 2024 IEEE International Conference for Women in Innovation, Technology & Entrepreneurship (ICWITE), (pp. 253–257). IEEE.
Manivannan, C. , Virgin, J. , Suseendran, S. , & Vani, K. (2024). Garbage monitoring and management using deep learning. ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 10, 163–168.
Ma, W. , Chen, H. , Zhang, W. , Huang, H. , Wu, J. , Peng, X. , et al. (2024). DSYOLO-trash: an attention mechanism-integrated and object tracking algorithm for solid waste detection. Waste Management, 178, 46–56.
Mehadjbia, A. , & Slaoui-Hasnaoui, F. (2024). Realtime waste detection based on YOLOv8. In 2024 4th Interdisciplinary Conference on Electrics and Computer (INTCEC), (pp. 1–6). IEEE.

Pathak, A. R. , Pandey, M. , & Rautaray, S. (2018). Application of deep learning for object detection. Procedia Computer Science, 132, 1706–1717.
Putra, M. T. D. , Adiwilaga, A. , Munggaran, J. P. , Adhitama, M. A. , As' Ad, R. A. , Alhafidz, A. A. , et al. (2024). Mini prototype of the futuristic bin with an automatic waste sortation system for managing the garbage problems in society. In 2024 10th International Conference on Wireless and Telematics (ICWT), (pp. 1–6). IEEE.
Ren, Y. , Li, Y. , & Gao, X. (2024). An MRS-YOLO model for high-precision waste detection and classification. Sensors, 24(13), 4339.
Reis, D. , Kupec, J. , Hong, J. , & Daoudi, A. (2023). Real-time flying object detection with YOLOv8. arXiv preprint arXiv:2305.09972.
Setyawan, E. B. , Novitasari, N. , & Zahira, A. D. (2024). Development of automatic object detection and IoT for garbage pickup assignment problem. JOIV: International Journal on Informatics Visualization, 8(2), 794–802.
Vijayalakshmi, V. , Gaur, R. , & Singh, R. (2024). Realtime deep learning-based object recognition. In AIP Conference Proceedings, (Vol. 3075, No. 1). AIP Publishing.
Xu, J. , Liao, X. , Zhang, N. , Lin, W. , & Huang, J. (2024). Research on garbage detection and classification based on YOLOv8. In 2024 5th International Conference on Computer Vision, Image and Deep Learning (CVIDL), (pp. 778–781). IEEE.

A novel modified SCA-PID based load frequency control

Ahmed, D. , Ebeed, M. , Kamel, S. , Nasrat, L. , Ali, A. , Shaaban, M. F. , et al. (2024). An enhanced jellyfish search optimizer for stochastic energy management of multi-microgrids with wind turbines, biomass and PV generation systems considering uncertainty. Scientific Reports, 14, 15558. Nature Publishing Group UK. https://doi.org/10.1038/s41598-024-65867-8.
Daraz, A. , Khan, I. A. , Basit, A. , Malik, S. A. , AlQahtani, S. A. , & Zhang, G. (2024). Frequency regulation of interconnected hybrid power system with assimilation of electrical vehicles. Heliyon, 10(6), e28073. https://doi.org/10.1016/j.heliyon.2024.e28073.
Gupta, N. K. , Kar, M. K. , & Singh, A. K. (2021). Load frequency control of two-area power system by using 2 degree of freedom PID controller designed with the help of firefly algorithm. In Control Applications in Modern Power System: Select Proceedings of EPREC 2020 (pp. 57–64). Springer Singapore.
Gupta, N. K. , Kar, M. K. , & Singh, A. K. (2022). Design of a 2-DOF-PID controller using an improved sine–cosine algorithm for load frequency control of a three-area system with nonlinearities. Protection and Control of Modern Power Systems, 7(3), 1–18. https://doi.org/10.1186/s41601-022-00255-w.
Kar, M. K. (2023). Stability analysis of multi machine system using FACTS devices. International Journal of System Assurance Engineering and Management, 14(6), 2136–2145. (0123456789). https://doi.org/10.1007/s13198-023-02044-6.
Kar, M. K. , Kumar, S. , Singh, A. K. , & Panigrahi, S. (2021). A modified sine cosine algorithm with ensemble search agent updating schemes for small signal stability analysis. International Transactions on Electrical Energy Systems, 31(11), e13058.
Memon, A. S. , Laghari, J. A. , Bhayo, M. A. , Khokhar, S. , Chandio, S. , & Memon, M. S. (2023). Tunicate swarm algorithm based optimized PID controller for automatic generation control of two area hybrid power system. Journal of Intelligent and Fuzzy Systems, 45(2), 2565–2578.
Mishra, D. , Maharana, M. K. , Kar, M. K. , Nayak, A. , & Cherukuri, M. (2023). Modified differential evolution algorithm for governing virtual inertia of an isolated microgrid integrating electric vehicles. International Transactions on Electrical Energy Systems, 2023(1), 8950650.
Mishra, D. , Maharana, M. K. , Kar, M. K. , Nayak, A. , Islam, M. M. , & Ustun, T. S. (2024). A metaheuristic algorithm for regulating virtual inertia of a standalone microgrid incorporating electric vehicles. The Journal of Engineering, 2024(5), 1–15.
Mohanty, P. , Sahu, R. K. , Pradhan, P. C. , & Panda, S. (2022). Design and analysis of the 2DOF-PIDN-FOID controller for frequency regulation of the electric power systems. International Journal of Ambient Energy, 43(1), 4463–4476. https://doi.org/10.1080/01430750.2021.1909134.
Pani, S. R. , Kar, M. K. , & Bera, P. K. (2023). Reliability assessment of distribution power network. In 2022 2nd Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON), (pp. 1–5). IEEE.
Pradhan, P. C. , Sahu, R. K. , Kar, M. K. , Mehena, J. , Sethy, S. K. , & Samal, N. R. (2024). Analysis of differential evolution optimization-based cascade controller for frequency regulation of power system. In International Conference on Advanced Computing and Intelligent Engineering, (pp. 227–237). Singapore: Springer Nature Singapore. http://dx.doi.org/10.1007/978-98199-5015-7_20.
Qu, Z. , Younis, W. , Wang, Y. , & Georgievitch, P. M. (2024). A multi-source power system’s load frequency control utilizing particle swarm optimization. Energies, 17(2), 517.
Sharma, A. , & Singh, N. (2024). Load frequency control of connected multi-area multi-source power systems using energy storage and lyrebird optimization algorithm tuned PID controller. Journal of Energy Storage, 100(PB), 113609. https://doi.org/10.1016/j.est.2024.113609.1168.

Challenges and innovations in EV charging infrastructure: A focus on India's path to electrified transportation

Ahmad, F. , Iqbal, A. , Ashraf, I. , & Marzband, M. (2022). Optimal location of electric vehicle charging station and its impact on distribution network: a review. Energy Reports, 8, 2314–2333.
Barman, P. , & Dutta, L. (2024). Charging infrastructure planning for transportation electrification in India: a review. Renewable and Sustainable Energy Reviews, 192, 114265.
Dharmakeerthi, C. H. , Mithulananthan, N. , & Saha, T. K. (2011). Overview of the impacts of plug-in electric vehicles on the power grid. In 2011 IEEE PES Innovative Smart Grid Technologies, (pp. 1–8). IEEE.
Yong, J. Y. , Ramachandaramurthy, V. K. , Tan, K. M. , & Mithulananthan, N. (2015). A review on the stateof-the-art technologies of electric vehicle, its impacts and prospects. Renewable and sustainable energy reviews, 49, 365–385.

Nasr Esfahani, F. , Darwish, A. , & Williams, B. W. (2022). Power converter topologies for grid-tied solar photovoltaic (PV) powered electric vehicles (EVs)—A comprehensive review. Energies, 15(13), 4648.
Sinha, P. , Paul, K. , Deb, S. , & Sachan, S. (2023). Comprehensive review based on the impact of integrating electric vehicle and renewable energy sources to the grid. Energies, 16(6), 2924.
Pareek, S. , Sujil, A. , Ratra, S. , & Kumar, R. (2020). Electric vehicle charging station challenges and opportunities: a future perspective. In 2020 International Conference on Emerging Trends in Communication, Control and Computing (ICONC3), (pp. 1–6). IEEE.
Saraswathi, V. N. , and Ramachandran, V. P. (2024). A comprehensive review on charger technologies, types, and charging stations models for electric vehicles . He-liyon. 10,(20).

Utilization of areca fibre and bottom ash on geotechnical properties of expansive soil

Abdel-Gawwad, H. A. , Rashad, A. M. , Mohammed, M. S. , & Tawfik, T. A. (2021). The potential application of cement kiln dust-red clay brick waste-silica fume composites as unfired building bricks with outstanding properties and high ability to CO2-capture. Journal of Building Engineering, 1(42), 102479.
Abou-Taleb, A. N. , Musaiger, A. O. , & Abdelmoneim, R. B. (1995). Health status of cement workers in the United Arab Emirates. Journal of the Royal Society of Health, 115(6), 378–381.
Brescia-Norambuena, L. , Gonzalez, M. , Avudaiappan, S. , Flores, E. I. , & Grasley, Z .(2021). Improving concrete underground mining pavements performance through the synergic effect of silica fume, nanosilica, and polypropylene fibers. Construction and Building Materials, 285, 122895.
Chaduvula, U. , Viswanadham, B. V. , & Kodikara, J. (2016). Desiccation cracking behavior of geofiber-reinforced expansive clay. In Geo-Chicag, (pp. 368–377).
Chauhan, M. S. , Mittal, S. , & Mohanty, B. (2008). Performance evaluation of silty sand subgrade reinforced with fly ash and fibre. Geotextiles and Geomembranes, 26(5), 429–435. https://doi.org/10.1016/j.geotex-mem.2008.02.001.
Chethan, B. A. , & Ravi Shankar, A. U. (2022). Areca fiber reinforced alkali-activated black cotton soil using class f fly ash and limestone powder for pavements. In Road and Airfield Pavement Technology: Proceedings of 12th International Conference on Road and Airfield Pavement Technology, (pp. 331–346). Cham: Springer International Publishing.
Choudhary, R. , Gupta, R. , Alomayri, T. , Jain, A. , & Nagar, R. (2021). Permeation, corrosion, and drying shrinkage assessment of self-compacting high strength concrete comprising waste marble slurry and fly ash, with silica fume. In Structures, (Vol. 33, pp. 971–985). Elsevier.
Cheriaf, M. , Rocha J. C. , & Pera, J. (1999). Pozzolanic properties of pulverized coal combustion bottom ash. Cement and Concrete Research, 29(9), 1387–1391. https://doi.org/10.1016/S0008-8846(99)00098-8.
Das, B. , Yen, S. , & Das, R. (1995). Brazilian tensile strength test of lightly cemented sand. Canadian Geotechnical Journal, 32(1), 166–171. https://doi.org/10.1139/t95-013.

Nature-inspired metaheuristic algorithm optimized TIDN controller for frequency management in networked power system with storage device and HVDC link

Abdollahzadeh, B. , Soleimanian Gharehchopogh, F. , & Mirjalili, S. (2021). Artificial gorilla troops optimizer: a new nature-inspired metaheuristic algorithm for global optimization problems. International Journal of Intelligent Systems, 36(10), 5887–5958.
Chen, G. , Li, Z. , Zhang, Z. , & Li, S. (2019). An improved ACO algorithm optimized fuzzy PID controller for load frequency control in multi area interconnected power systems. IEEE Access, 8, 6429–6447.
Lurie, B. J. (1994). Three-parameter tunable tiltintegral-derivative (TID) controller. US Patent 5.
Mohanty, P. , Sahu, R. K. , Pradhan, P. C. , & Panda, S. (2022). Design and analysis of the 2DOF-PIDN-FOID controller for frequency regulation of the electric power systems. International Journal of Ambient Energy, 43(1), 4463–4476.
Mohanty, P. , Sahu, R. K. , Pradhan, P. C. , Samal, N. R. , & Panda, S. (2022). Simulation and hardware-in-theloop real time testing of different controllers for frequency regulation of electrical power systems. International Journal of Ambient Energy, 43(1), 7560–7575.
Naik, A. K. , Jena, N. K. , Sahoo, S. , & Sahu, B. K. (2024). Optimal design of fractional order tilt-integral derivative controller for automatic generation of power system integrated with photovoltaic system. Electrica, 24(1), 140–153.
Prakash, A. , Kumar, K. , & Parida, S. K. (2020). PIDF (1+FOD) controller for load frequency control with SSSC and AC–DC tie-line in deregulated environment. IET Generation, Transmission and Distribution, 14(14), 2751–2762.
Pradhan, P. C. , Sahu, R. K. , & Panda, S. (2021). Comparative performance analysis of hDE-PS technique for frequency control of the electric power system. Journal of Electrical Systems and Information Technology, 8, 1–21.
Pradhan, P. C. , & Sahoo, J. R. (2019). Design and analysis of hybrid fuzzy PID controller for diverse source of power system using DE optimization technique. ARPN Journal of Engineering and Applied Sciences, 14(7), 1309–1316.
Ponnusamy, M. , Banakara, B. , Dash, S. S. , & Veerasamy, M. (2015). Design of integral controller for LFC of SSSC and CES based multi area system consisting of diverse sources of generation employing imperialistic competition algorithm. Electrical Power and Energy Systems, 73, 863–871.
Sariki, M. , Priyesh, S. , Kumar, A. , Ravi, S. , & Parida, S. K. (2024). Improved LSTM-Based load forecasting embedded 3DOF (FOPI)-FOPD controller for proactive frequency regulation in power system. IEEE Transactions on Industry Applications. doi - 10.1109/TIA:3443243.
Sahu, R. K. , Panda, S. , & Pradhan, P. C. (2015). Design and analysis of hFA-PS based fuzzy PID controller for LFC of multi area power systems. International Journal of Electrical Power & Energy Systems, 69, 200–212.

Effect of compression on floating ice-floe with an irregular porous seabed

Jeng, D. S. (2001). Wave dispersion equation in a porous seabed. Ocean Engineering, 28(12), 1585–1599.

Khuntia, S. , & Mohapatra S. (2021). Interaction of oblique waves by base distortion on a permeable bed in an ice-covered sea. In Advances in Fluid Dynamics. Lecture Notes in Mechanical Engineering, (pp. 315–326). Singapore: Springer.

Mohapatra, S. (2014). Scattering of surface waves by the edge of a small undulation on a porous bed in an ocean with ice-cover. Journal of Marine Science and Application, 13(2), 167–172.

Mohapatra, S. , & Sarangi, M. R. (2017). A note on the solution of water wave scattering problem involving small deformation on a porous channel-bed. Journal of Marine Science and Application, 16, 10–19.

Porter, D. , & Porter, R. (2004). Approximations to wave scattering by an ice sheet of variable thickness over undulating topography. Journal of Fluid Mechanics, 509, 145–179.

Smart hotel automation system

Azhari, A. D. , Sulaiman, N. A. , & Kassim, M. (2021). Secured internet office network with the internet of things using packet tracer analysis. In 2021 IEEE 11th International Conference on System Engineering and Technology (ICSET), (pp. 200–205). Shah Alam, Malaysia.

Alfarsi, G. , Jabbar, J. , Tawafak, R. M. , Malik, S. I. , Alsidiri, A. , & Alsinani, M. (2019). Using cisco packet tracer to simulate smart home. International Journal of Engineering Research and Technology (IJERT), 8(12), 670–674.

Ayesha, B. B. , & Murthy, S. (2022). Implementation of network design for universities with IoT.

Ratnala, B. , Anuradha, T. , Maddali, V. , & Chintalapudi, H. V. (2023). Designing smart room using cisco packet tracer simulator. In 2023 5th International Conference on Smart Systems and Inventive Technology (ICSSIT), (pp. 183–188). Tirunelveli, India.

Roy, B. , Nivethika, S. D. , Manju, G. , & Pandian, M. S. (2023). Comprehensive smart home automation: network setup, fire prevention, and network security using cisco packet tracer. In 2023 Intelligent Computing and Control for Engineering and Business Systems (ICCEBS), (pp. 1–4). Chennai, India.

Dogman, A. , & Jewiley, M. (2020). Design and implement IoT smart home via Cisco Packet Tracer: Applications and simulations. Faculty of Information Technology, University of AL-Zintan, AL-Zintan, Libya.

Madhav, G. S. , Kommana, C. , Chandana, B. S. , & Khanna, M. (2023). Design and simulation of a health-care unit. In 2023 IEEE 3rd International Conference on Technology, Engineering, Management for Societal impact using Marketing, Entrepreneurship and Talent (TEMSMET), (pp. 1–6). Mysuru, India.

Gururani, H. , Kumar, A. , Waghamode, D. , Jain, E. , & Garg, A. , (2022). Smart city using IOT simulation design in cisco packet tracer. International Journal for Research in Applied Science and Engineering Technology, 10, 2544–2551.

Duvvuri, K. , Kanisettypalli, H. , Kunisetty, J. , & Khanna, M. (2023). Design and implementation of smart classroom using cisco packet tracer. In 2023 International Conference on Advances in Electronics, Communication, Computing and Intelligent Information Systems (ICAECIS), (pp. 116–120). Bangalore, India.

Shemsi, I. (2018). Implementing smart home using cisco packet tracer simulator. International Journal of Engineering Science Invention Research and Development, 4(VII).

A novel hybridized method for moving object detection based on optical flow and edge detection technique in a dynamic scene environment

Choi, H. , Kang, B. , & Kim, D. (2022). Moving object tracking based on sparse optical flow with moving window and target estimator. Sensors, 22(8), 2878.

Fan, L. , Zhang, T. , & Du, W. (2021). Optical-flow-based framework to boost video object detection performance with object enhancement. Expert Systems with Applications, 170, 114544.

Luo, X. , Wang, Y. , Cai, B. , & Li, Z. (2021). Moving object detection in traffic surveillance video: new MODAT method based on adaptive threshold. ISPRS International Journal of Geo-Information, 10(11), 742.

Chen, C. , & Li, D. (2021). [Retracted] Research on the detection and tracking algorithm of moving object in image based on computer vision technology. Wireless Communications and Mobile Computing, 2021(1), 1127017.

Luiten, J. , Zulfikar, I. E. , & Leibe, B. (2020). Unovost: unsupervised offline video object segmentation and tracking. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision, (pp. 2000–2009).

Swalaganata, G. , & Affriyenni, Y. (2018). Moving object tracking using hybrid method. In 2018 International Conference on Information and Communications Technology (ICOIACT), (pp. 607–611). IEEE.

Sharma, L. , & Yadav, D. K. (2017). Histogram-based adaptive learning for background modelling: moving object detection in video surveillance. International Journal of Telemedicine and Clinical Practices, 2(1), 74–92.

Vijayakumar, P. , & Senthilkumar, A. V. (2016). Thresh-old based filtering technique for efficient moving ob-ject detection and tracking in video surveillance. In-ternational Journal of Research in Engineering and Technology, 5(2), 303–310.

YOLO & ML based crack detection and strength prediction for structural health monitoring of bridges

Ha, H. , Manh, L. V. , Pham, B. T. , Hiep, L. V. , & Nguyen, D. D. (2024). Using machine learning algorithms for predicting bridge vertical deflection. Proceedings of the Institution of Civil Engineers - Engineering and Computational Mechanics, 177.1, 15–21. https://doi.org/10.1680/jencm.23.00016.

Shah Mansouri, T. , Lubarsky, G. , Finlay, D. , & Mclaughlin, J. (2024). Machine learning-based structural health monitoring technique for crack detection and localization using Bluetooth strain gauge sensor network. Journal of Sensor and Actuator Networks, 13(6), 79. https://doi.org/10.20944/pre-prints202409.1639.v1.

Zhang, Y. , Huang, J. , & Cai, F. (2020). On bridge surface crack detection based on an improved YOLO v3 algorithm. IFAC-Papers OnLine, 53(2), 8205–8210. https://doi.org/10.1016/j.ifacol.2020.12.1994.

Zhang, J. , Tan, C. , & Qian, S. (2022). Automated bridge crack detection method based on lightweight vision models. Complex and Intelligent Systems, 9(2), 1639–1652. https://doi.org/10.1007/s40747-022-00876-6.

Real-time vehicle accident detection using computer vision and deep learning

Jegan, J. , Suguna, M. R. , Shobana, M. , Azath, H. , Murugan, S. , & Rajmohan, M. (2024). IoT-Enabled black box for driver behavior analysis using cloud computing. In 2024 International Conference on Advances in Data Engineering and Intelligent Computing Systems (ADICS), (pp. 1–6). IEEE.

Langa, R. M. , Moeti, M. N. , & Kgoete, S. F. (2024). An automated smartphone-capable road traffic accident notification system. Journal of Advanced Computational Intelligence and Intelligent Informatics, 28(4), 939–952.

Mohanty, R. K. , Sahoo, S. P. , & Kabat, M. R. (2024). Thermal-energy-efficient-secured-link reliable and delay-aware routing protocol (TESLDAR) for wireless body area networks. International Journal of Computers and Applications, 46(9), 715–727.

Mohanty, R. K. , Sahoo, S. P. , & Kabat, M. R. (2023). Sustainable remote patient monitoring in wireless body area network with Multi-hop routing and scheduling: a four-fold objective based optimization approach. Wireless Networks, 29(5), 2337–2351.

Mohanty, R. K. , Sahoo, S. P. , & Kabat, M. R. (2023). A network reliability based secure routing protocol (NRSRP) for secure transmission in wireless body area network. In 2023 8th International Conference on Communication and Electronics Systems (ICCES), (pp. 663–668). IEEE.

Mohanty, R. K. , Kumar, A. P. , Padmaja, R. , & Prashanthi, V. (2024). Deep learning for analyzing user and entity behaviors: techniques and applications. In Consumer and Organizational Behavior in the Age of AI, (pp. 219–250). IGI Global.

Sahoo, S. , Sahoo, S. P. , Barik, R. C. , & Kabat, M. R. (2023). A fault-tolerant technique for future Social IoV using evolutionary computation -based whale optimization model. In 2023 OITS International Conference on Information Technology (OCIT), (pp. 334–339). IEEE.

Sahoo, S. , Sahoo, S. P. , & Kabat, M. R. (2024). A pragmatic review of QoS optimization in IoT driven networks. Wireless Personal Communications, 137(1), 325–366.

Verma, A. , & Khari, M. (2024). Vision-based accident anticipation and detection using deep learning. IEEE Instrumentation and Measurement Magazine, 27(3), 22–29.

Heuristic traffic management and load balancing techniques for wireless body area networks

Samanta, A. , Bera, S. , & Misra, S. (2015). Link-quality-aware resource allocation with load balance in wireless body area networks. IEEE Systems Journal, PP(99), 1–8.

Samanta, A. , Misra, S. , & Obaidat, M. S. (2015). Wire-less body area networks with varying traffic in epidemic medical emergency situation. In Proceedings of IEEE International Conference on Communications, (pp. 6929–6934).

Yi, C. , & Cai, J. (2017). A priority-aware truthful mechanism for supporting multi-class delay-sensitive medical packet transmissions in e-health networks. IEEE Transactions on Mobile Computing, 16(9), 2422–2435.

Yi, C. , Alfa, A. S. , & Cai, J. (2016). An incentive-compatible mechanism for transmission scheduling of delay-sensitive medical packets in e-health networks. IEEE Transactions on Mobile Computing, 15(10), 2424–2436.

Yi, C. , Zhao, Z. , Cai, J. , de Faria, R. L. , & Zhang, G. M. (2016). Priority-aware pricing-based capacity sharing scheme for beyond-wireless body area networks. Computer Networks, 98, 29–43.

Kurunathan, J. H. (2015). Study and overview on WBAN under IEEE 802.15.6. U. Porto Journal of Engineering, 1, 11–21.

Fourati, H. , Idoudi, H. , & Saidane, L. A. (2016). Overview of four emerging mechanisms for e-health communications. International Journal of Sysems Control and Communication, 7, 337–359.

Samal, T. , & Kabat, M. R. (2019, July). Energy efficient real time reliable mac protocol for wireless body area network. In 2019 10th International Conference on Computing, Communication and Networking Technologies (ICCCNT) (pp. 1-6). IEEE.

Zhou, L. , Yang, Z. , Wang, H. , & Guizani, M. (2014). Impact of execution time on adaptive wireless video scheduling. IEEE Journal on Selected Areas in Communications, 32(4), 760–772.

Ambigavathi, M. , & Sridharan, D. (2018). Energy efficient and load balanced priority queue algorithm for wireless body area network. Future Generation Computer Systems, 88, 586–593.

Chen, M. , Gonzalez, S. , Vasilakos, A. , Cao, H. , & Leung, V. C. (2011). Body area networks: a survey. Mobile Network Applications, 16, 171–193.

Torabi, N. , Kaur, C. , & Leung, V. (2012). Distributed dynamic scheduling for body area networks. In Proceedings of IEEE Wireless Communications and Networking Conference, (pp. 3177–3182).

Samal, T. , & Kabat, M. R. (2022). A prioritized traffic scheduling with load balancing in wireless body area networks. Journal of King Saud University-Computer and Information Sciences, 34(8), 5448–5455.

Cheng, S. H. , & Huang, C. Y. (2013). Coloring-based inter-WBAN scheduling for mobile wireless body area networks. IEEE Transactions on Parallel and Distributed Systems, 24(2), 250–259.

Xie, Z. , Huang, G. , He, J. , & Zhang, Y. (2014). A clique-based WBAN scheduling for mobile wireless body area networks. Procedia Computer Science, 31(0), 1092–1101.
Yan, Z. , Liu, B. , & Chen, C. W. (2012). QoS-driven scheduling approach using optimal slot allocation for wireless body area networks. In Proceedings of IEEE International Conference on e-Health Networking, Applications and Services, (pp. 267–272).

Deep learning based optimized diagnostic model for diabetic retinopathy detection

Al-Ahmadi, R. , Al-Ghamdi, H. , & Hsairi, L. (2024). Classification of diabetic retinopathy by deep learning. International Journal of Online and Biomedical Engineering, 20(1), 74.
Alam, M. , Zhao, E. J. , Lam, C. K. , & Rubin, D. L. (2023). Segmentation-assisted fully convolutional neural network enhances deep learning performance to identify proliferative diabetic retinopathy. Journal of Clinical Medicine, 12(1), 385.
Bilal, A. , Imran, A. , Baig, T. I. , Liu, X. , Long, H. , Al-Zahrani, A. , et al. (2024). Improved Support Vector Machine based on CNN-SVD for vision-threatening diabetic retinopathy detection and classification. Plos One, 19(1), e0295951.
Das, P. K. , & Pumrin, S. (2024). Diabetic retinopathy classification: performance evaluation of pre-trained lightweight CNN using imbalance dataset. Engineering Journal, 28(7), 13–25.
Ebrahimi, B. , Le, D. , Abtahi, M. , Dadzie, A. K. , Lim, J. I. , Chan, R. P. , et al. (2023). Optimizing the OCTA layer fusion option for deep learning classification of diabetic retinopathy. Biomedical Optics Express, 14(9), 4713–4724.
Gadekallu, T. R. , Khare, N. , Bhattacharya, S. , Singh, S. , Maddikunta, P. K. R. , & Srivastava, G. (2023). Deep neural networks to predict diabetic retinopathy. Journal of Ambient Intelligence and Humanized Computing, 14, 1–14.
Mishra, R. , Satpathy, R. , Pati, B. , Mohapatra, D. , Mishra, P. , & Palai, G. (2024). Diabetic retinopathy image classification and blindness detection using deep learning techniques. Machine Intelligence Research, 18(1), 1056–1077.
Saha, A. (2024). Deep learning for the early detection of diabetic retinopathy. Journal of Advances in Computational Intelligence Theory, 6(2), 50–67.
Shekhar, S. , & Thakur, N. (2024). Deep learning framework for forecasting diabetic retinopathy: an innovative approach. International Journal of Innovative Research in Computer Science and Technology, 12(1), 17–20.
Singh, S. P. , Gupta, P. , & Dung, R. (2024). Diabetic retinopathy detection by fundus images using fine tuned deep learning model. Multimedia Tools and Applications, 83, 1–23.
Thanikachalam, V. , Kabilan, K. , & Erramchetty, S. K. (2024). Optimized deep CNN for detection and classification of diabetic retinopathy and diabetic macular edema. BMC Medical Imaging, 24(1), 227.
Upreti, K. , Kapoor, A. , Hundekari, S. , Upreti, S. , Kaul, K. , Kapoor, S. , et al. (2024). Deep dive into diabetic retinopathy identification: a deep learning approach with blood vessel segmentation and le-sion detection. Journal of Mobile Multimedia, 20(2), 495–524.

Analyzing PM2.5 levels across diverse zones in Cuttack, Odisha

Balashanmugam, P. , Ramanathan, A. R. , & Kumar, V. N. (2012). Ambient air quality monitoring in Puducherry. International Journal of Engineering Research and Applications (IJERA), 2(2), 300–307. ISSN: 2248-9622.
Bhuyan, P. K. , Samantray, P. & Rout, S.P. (2021). Ambient air quality status in choudwar area of Cuttack District. International Journal of Environmental Sciences, 1(3). ISSN 0976–4402.
Dash, S. K. , & Dash, A. K. (2015). Determination of air quality index status near bileipada, joda area of Keonjhar, Odisha, India. Indian Journal of Science and Technology, 8(35), 1–7. DOI: 10.17485/ijst/2015/v8i35/81468.
Mahapatra, P. S. , Ray, S. , Das, N. & Mohanty (2012). Urban air-quality assessment and source apportionment studies for Bhubaneshwar, Odisha. Theoretical and Applied Climatology, 112, 243–251.
Panigrahi T. , Das, K. K. , Dey, B. S. , Mishra, M. , & Panda, R. B. (2012). Air pollution tolerance index of various plants species found in F.M. university campus, Balasore, Odisha, India. Journal of Applicable Chemistry, 1(4), 519–523.
Sarella, G. , & Khambete, A. K. (2015). Ambient air quality analysis using air quality index – a case study of Vapi. JIRST - International Journal for Innovative Research in Science and Technology, 1(10), 1–4.
Shukla, V. , Dalal, P. , & Chaudhry, D. (2010). Impact of vehicular exhaust an ambient air quality of Rohtak city, India. Journal of Environmental Biology, 31, 929–932.

Smart fitness tracker for exercise monitoring integrated with voice assistant

Curone, D. , Bertolotti, G. M. , Cristiani, A. , Secco, E. L. , & Magenes, G. (2010). A real-time and self-calibrating algorithm based on triaxial accelerometer signals for the detection of human posture and activity. IEEE Transactions on Information Technology in Biomedicine, 14(4), 1098-1105.
Estrada, J. E. , & Vea, L. A. (2016). Real-time human sitting posture detection using mobile devices. In 2016 IEEE Region 10 Symposium (TENSYMP), (pp. 140-144). IEEE.
Gu, Y. , Pandit, S. , Saraee, E. , Nordahl, T. , Ellis, T. , & Betke, M. (2019). Home-based physical therapy with an interactive computer vision system. In Proceedings of the IEEE/CVF International Conference on Computer Vision Workshops, (pp. 0-0).
Nagarkoti, A. , Teotia, R. , Mahale, A. K. , & Das, P. K. (2019). Realtime indoor workout analysis using machine learning & computer vision. In 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), (pp. 1440-1443). IEEE.

Panini, L. , & Cucchiara, R. (2003). A machine learning approach for human posture detection in domotics applications. In 12th International Conference on Image Analysis and Processing, 2003. Proceedings, (pp. 103-108). IEEE.
Sacchetti, R. , Teixeira, T. , Barbosa, B. , Neves, A. J. , Soares, S. C. , & Dimas, I. D. (2018). Human body posture detection in context: the case of teaching and learning environments. In SIGNAL 2018: The Third International Conference on Advances in Signal, Image and Video Processing, (Vol. 87, pp. 79-84).
Subasi, A. , Fllatah, A. , Alzobidi, K. , Brahimi, T. , & Sarirete, A. (2019). Smartphone-based human activity recognition using bagging and boosting. Procedia Computer Science, 163, 54-61.
Xi, C. , & Shi, D. (2019). Analysis of moving human body detection and recovery aided training in the background of multimedia technology. Multimedia Tools and Applications, 82, 1-21.

A systematic literature review of public sentiments on health initiatives: A case study of COVID-19

Alvarado-Socarras, J. L. , Vesga-Varela, A. L. , QuinteroLesmes, D. C. , Fama-Pereira, M. M. , Serrano-Diaz, N. C. , Vasco, M. , et al. (2021). Perception of COVID-19 vaccination amongst physicians in Colombia. *Vaccines* , 9(3), 287.
Baj-Rogowska, A. (2021). Mapping of the COVID-19 vaccine uptake determinants from mining Twitter data. *IEEE Access* , 9, 134929-134944.
Cotfas, L. A. , Delcea, C. , Roxin, I. , Ioanas, C. , Gherai, D. S. , & Tajariol, F. (2021). The longest month: analyzing COVID-19 vaccination opinions dynamics from tweets in the month following the first vaccine announcement. IEEE Access, 9, 33203-33223.
El-Deeb, R. , El-Gamal, F. E. Z. , Sakr, N. , Elhishi, S. , & El-Metwally, S. (2021). Unlocking the public perception of covid-19 vaccination process on social media. In 2021 Tenth International Conference on Intelligent Computing and Information Systems (ICICIS), (pp. 327-334). IEEE.
Elhadad, M. K. , Li, K. F. , & Gebali, F. (2020). Detecting misleading information on COVID-19. IEEE Access, 8, 165201-165215.
Mahdin, H. , Ahmad, M. , Darman, R. , Haw, S. C. , Shaharudin, S. M. , & Arshad, M. S. (2023). Sentiment analysis on COVID-19 vaccine tweets using machine learning and deep learning algorithms. International Journal of Advanced Computer Science and Applications, 14(5), 32-41.
Page, M. J. , McKenzie, J. E. , Bossuyt, P. M. , Boutron, I. , Hoffmann, T. C. , Mulrow, C. D. , et al. (2021). The prisma 2020 statement: an updated guideline for reporting systematic reviews. *International Journal of Surgery* , 88, 105906.
Naseem, U. , Razzak, I. , Khushi, M. , Eklund, P. W. , & Kim, J. (2021). COVIDSenti: a large-scale benchmark Twitter data set for COVID-19 sentiment analysis. IEEE Transactions on Computational Social Systems, 8(4), 1003-1015.
Nyawa, S. , Tchuente, D. , & Fosso-Wamba, S. (2024). COVID-19 vaccine hesitancy: a social media analysis using deep learning. Annals of Operations Research, 339(1), 477-515.
Rzymski, P. , Zeyland, J. , Poniedziałek, B. , Małecka, I. , & Wysocki, J. (2021). The perception and attitudes toward COVID-19 vaccines: a cross-sectional study in Poland. Vaccines, 9(4), 382.
Sohrabi, C. , Alsafi, Z. , O'Neill, N. , Khan, M. , Kerwan, A. , Al-Jabir, A. , et al. (2020). World health organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery* , 76, 71-76.
Tiwari, S. , Chanak, P. , & Singh, S. K. (2022). A review of the machine learning algorithms for COVID-19 case analysis. IEEE Transactions on Artificial Intelligence, 4(1), 44-59.
Yu, X. , Ferreira, M. D. , & Paulovich, F. V. (2021). Senti-COVID19: an interactive visual analytics system for detecting public sentiment and insights regarding COVID-19 from social media. IEEE *Access* , 9, 126684-126697.

High-quality image generation from text descriptions using stable diffusion: A machine learning approach

Guo, R. , Wei, J. , Sun, L. , Yu, B. , Chang, G. , Liu, D. , et al. (2023). A survey on image-text multimodal models. arXiv preprint arXiv:2309.15857.
Jadhav, B. , Jain, M. , Jajoo, A. , Kadam, D. , Kadam, H. , & Kakkad, T. (2024). Imagination made real: stable diffusion for high-fidelity text-to-image tasks. In 2024 2nd International Conference on Sustainable Computing and Smart Systems (ICSCSS), (pp. 773-779). IEEE.
Ma, Y. , Yang, H. , Wang, W. , Fu, J. , & Liu, J. (2023). Unified multi-modal latent diffusion for joint subject and text conditional image generation. arXiv preprint arXiv:2303.09319.
Li, X. , Hou, X. , & Loy, C. C. (2024). When stylegan meets stable diffusion: a w+ adapter for personalized image generation. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, (pp. 2187-2196).
Mohanty, R. K. , Sahoo, S. P. , & Kabat, M. R. (2023). A network reliability based secure routing protocol (NRSRP) for secure transmission in wireless body area network. In 2023 8th International Conference on Communication and Electronics Systems (ICCES), (pp. 663-668). IEEE.
Mohanty, R. K. , Sahoo, S. P. , & Kabat, M. R. (2023). Sustainable remote patient monitoring in wireless body area network with multi-hop routing and scheduling: a four-fold objective based optimization approach. Wireless Networks, 29(5), 2337-2351.
Mohanty, R. K. , Kumar, A. P. , Padmaja, R. , & Prashanthi, V. (2024). Deep learning for analyzing user and entity behaviors: techniques and applications. In Consumer and Organizational Behavior in the Age of AI, (pp. 219-250). IGI Global.
Rao, S. B. , Shetty, S. S. , Singh, C. , & Bekal, A. (2023). Text to image generation using attentional generative adversarial network. In International Conference on Advanced Computing, Machine Learning, Robotics and Internet Technologies, (pp. 70-82). Cham: Springer Nature Switzerland.
Sharma, A. , Sharma, G. , Asiri, F. A. , Bhutto, J. K. , & Barnawi, A. B. (2024). Optimized mirror generative adversarial network with BERT Neural architecture for text caption to image conversion. SN Computer Science, 5(4), 334.

Qin, J. , Wu, J. , Chen, W. , Ren, Y. , Li, H. , Wu, H. , et al. (2024). Diffusiongpt: LLM-driven text-to-image generation system. arXiv preprint arXiv:2401.10061.

Test scenario generation and optimization from UML behavioural diagrams

Jena, A. , Swain, S. , & Mohapatra, D. (2014). A novel approach for test case generation from UML activity diagram. In 2014 International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT), (pp. 621-629). IEEE.
Mohamad, A. B. , Zain, A. M. , & Bazin, N. E. N. (2014). Cuckoo search algorithm for optimization problems a literature review and its applications. Applied Artificial Intelligence, 28(5), 419-448.
Sarma, M. , Kundu, D. , & Mall, R. (2007). Automatic test case generation from UML sequence diagram. In 15th International Conference on Advanced Computing and Communications (ADCOM 2007), (pp. 60-67). IEEE Computer Society.
Khari, M. , Kumar, P. , Burgos, D. & Crespo, R. G. (2018). Optimized test suites for automated testing using different optimization techniques. Soft Computing, 22(24), 8341-8352.
Mareli, M. , & Twala, B. (2017). An adaptive cuckoo search algorithm for optimisation. Applied Computing and Informatics, 14(2), 107-115.
Khurana, N. , & Chillar, R. (2015). Test case generation and optimization using UML models and genetic algorithm. Procedia Computer Science, 57, 996-1004.
Ammann, P. , & Offutt, J. (2017). Introduction to Software Testing. Cambridge University Press.
Jain, P. , & Soni, D. (2020). A survey on generation of test cases using UML diagrams. In 2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE), (pp. 1-6).
Shunkun Yang, T. M. , & Xu, J. (2014). Improved ant algorithms for software testing cases generation. The Scientific World Journal, Hindawi Publishing Corporation, 2014, 1-9.

Hybrid CNN-LSTM approach for sentiment analysis on IMDB movie reviews

Adak, A. , Pradhan, B. , Shukla, N. , & Alamri, A. (2022). Unboxing deep learning model of food delivery service reviews using explainable artificial intelligence (XAI) technique. Foods, 11(14), 2019.
Bosques Palomo, B. , Velarde, F. , Cantu-Ortiz, F. , & Ceballos, H. (2024). Sentiment analysis of IMDb movie reviews using deep learning techniques. In Proceedings of the 2024 International Conference, (pp. 421-434). DOI: 10.1007/978-981-99-3236-8_33.
Charitha, N. S. L. S. , Yasaswi, K. , Rakesh, V. , Varun, M. , Yeswanth, M. , & Kiran, J. S. (2023). Comparative study of algorithms for sentiment analysis on IMDb movie reviews. In 2023 9th International Conference on Advanced Computing and Communication Systems (ICACCS), (pp. 824-828). DOI: 10.1109/ICACCS57279.2023.10113113.
Devlin, J. , Chang, M.-W. , Lee, K. , & Toutanova, K. (2018). BERT: pre-training of deep bidirectional transformers for language understanding. arXiv preprint arXiv:1810.04805.
Hossain, S. , Sumon, J. , Alam, M. I. , Kamal, K. M. A. , Sen, A. , & Sarker, I. (2022). Classifying sentiments from movie reviews using deep neural networks. In Proceedings of the 2022 International Conference, (pp. 399-409). DOI: 10.1007/978-3-031-19958-5_37.
Jadia, H. (2023). Comparative analysis of sentiment analysis techniques: SVM, logistic regression, and TFIDF feature extraction. *International Research Journal of Modernization in Engineering Technology and Science* .
Kim, Y. (2014). Convolutional neural networks for sentence classification. arXiv preprint arXiv:1408.5882.
Kovács, Á. , & Tajti, T. (2023). Enhancing sentiment analysis accuracy on IMDb reviews through ensemble machine learning techniques. In 2023 IEEE 21st Jubilee International Symposium on Intelligent Systems and Informatics (SISY), (pp. 289-294). DOI: 10.1109/SISY60376.2023.10417873.
Liu, Y. , Ott, M. , Goyal, N. , Du, J. , Joshi, M. , Chen, D. , et al. (2019). RoBERTa: a robustly optimized BERT pretraining approach. arXiv preprint arXiv:1907.11692.
Lundberg, S. M. , & Lee, S.-I. (2017). A unified approach to interpreting model predictions. Advances in Neural Information Processing Systems (NeurIPS), 30, 4765-4774.
Munandar, D. , Rozie, A. , & Arisal, A. (2021). A multidomain short message sentiment classification using hybrid neural network architecture. Indonesian Journal of Electrical Engineering and Informatics. 9(3), 621-629.
Ribeiro, M. T. , Singh, S. , & Guestrin, C. (2016). 'Why should I trust you?' explaining the predictions of any classifier. In Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, (pp. 1135-1144).
Saeed, M. Q. (2020). Sentiment analysis of IMDb movie reviews using long short-term memory. In 2020 2nd International Conference on Computer and Information Sciences (ICCIS), (pp. 1-4). IEEE. DOI: 10.1109/ICCIS49240.2020.9257657.
Talibzade, R. (2023). Sentiment analysis of IMDb movie reviews using traditional machine learning techniques and transformers. In Proceeding 2nd International Conference Computer and Information Science (ICCIS), (pp. 1-4). DOI: 10.13140/RG.2.2.29464.16644.
Venkatesan, D. , Kannan, S. , Arif, M. , Atif, M. , & Ganeshan, A. (2022). Sentimental analysis of industry 4.0 perspectives using a graph-based Bi-LSTM CNN model. *Mobile Information Systems* , 2022(1), 5430569.
Venkatesh, S. , Hegde, S. U. , Zaiba, A. , S., & Nagaraju, Y. (2021). Hybrid CNN-LSTM model with GloVe word vector for sentiment analysis on football specific tweets. In Proceedings of the 2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT).
Yang, Z. , Dai, Z. , Yang, Y. , Carbonell, J. , Salakhutdinov, R. R. , & Le, Q. V. (2019). XLNet: generalized autoregressive pretraining for language understanding. Advances in Neural Information Processing Systems (NeurIPS), 32, 5754-5764.

An Internet of Things system application for monitoring and control of underground mine environment

Somov, A. , Baranov, A. , Savkin, A. , Ivanov, M. , Calliari, L. , Passerone, R. , et al. (2012). Energy-aware gas sensing using wireless sensor networks. In Wireless Sensor Networks: 9th European Conference, EWSN 2012, Trento, Italy, February 15-17, 2012. Proceedings 9, (pp. 245-260). Springer.

Walsh, P. , Evans, P. , Lewis, S. , Old, B. , Greenham, L. , Gorce, J.-P. , et al. (2016). Technical guide on directreading devices for airborne and surface chemical contaminants. OSHwiki networking Knowledge.

Qin, J. , Qingdong, Q. , & Guo, H. (2017). CFD simulations for longwall gas drainage design optimisation. International Journal of Mining Science and Technology, 27(5), 777-782.

Lin, R. , Wang, Z. , & Sun, Y. (2004). Wireless sensor networks solutions for real time monitoring of nuclear power plant. In Fifth World Congress on Intelligent Control and Automation (IEEE Cat. No. 04EX788), (Vol. 4, pp. 3663-3667). IEEE.

Chaulya, S. , Bandyopadhyay, L. , & Mishra, P. (2008). Modernization of Indian coal mining industry: vision 2025, Csir,(pp. 28-35).

Liu, T. , Wei, Y. , Song, G. , Hu, B. , Li, L. , G. Jin , et al. (2018). Fibre optic sensors for coal mine hazard detection. *Measurement* , 124, 211-223.

Kim, Y. W. , Lee, S. J. , Kim, G. H. , & Jeon, G. J. (2009). Wireless electronic nose network for real-time gas monitoring system. In 2009 IEEE International Workshop on Robotic and Sensors Environments, (pp. 169-172). IEEE.

A novel U-Net with fine tuned VGG16 backbone model for ulcer detection and classification using 2-D endoscopy images

Aoki, T. , Yamada, A. , Aoyama, K. , Saito, H. , Tsuboi, A. , Nakada, A. , et al. (2019). Automatic detection of erosions and ulcerations in wireless capsule endoscopy images based on a deep convolutional neural network. Gastrointestinal Endoscopy, 89(2), 357-363. e2.Epub 2018 Oct 25. PMID: 30670179.

Kumar, A. , Upadhyayula, S. , Kodamana, H. (2023). A convolutional neural network-based gradient boosting framework for prediction of the band gap of photoactive catalysts. *Digital Chemical Engineering* , 8, 100109. ISSN 2772-5081.

Charisis, V. , Tsiligiri, A. , Hadjileontiadis, L. J. , Liatsos, C. N. , Mavrogiannis, C. C. , & Sergiadis, G. D. (2010). Ulcer detection in wireless capsule endoscopy images using bidimensional nonlinear analysis. In Bamidis, P. D. , & Pallikarakis, N . (Eds.), XII Mediterranean Conference on Medical and Biological Engineering and Computing 2010. IFMBE Proceedings, vol 29. Berlin, Heidelberg: Springer.

Ronneberger, O. , Fischer, P. , & Brox, T. (2015). UNet: convolutional networks for biomedical image segmentation. In Medical Image Computing and Computer-Assisted Intervention (MICCAI). Cham: Springer.

Rustam, F. , Siddique, M. A. , Rehman, H. U. , Ullah, S. , Mehmood, A. , Ashraf, I. , et al. (2021). Wireless capsule endoscopy bleeding images classification using CNNbased model. *IEEE Access* , 9, 33675-33688.

Vallée, R. , de Maissin, A. , Coutrot, A. , Normand, N. , Bourreille, A. , & Mouchère, H. (2019). Accurate small bowel lesions detection in wireless capsule endoscopy images using deep recurrent attention neural network. In 2019 IEEE 21st International Workshop on Multimedia Signal Processing (MMSP), (pp. 1-5). Kuala Lumpur, Malaysia.

A literature review of mental health assessment using social media post for depression

Shaik, S. , & Bharathi, V. C. (2024). A literature review on the detection of mental illness. In 2024 5th International Conference on Electronics and Sustainable Communication Systems (ICESC), (pp. 1413-1417). IEEE.

Yao, Z. (2024). A multi-model approach to detection of depression in the Chinese social media entries. In 2024 5th International Seminar on Artificial Intelligence, Networking and Information Technology (AINIT), (pp. 2148-2151). IEEE.

Saleem, M. , & Afzal, H. (2024). A review of mental health analysis through social media using machine learning and deep learning approaches. In 2024 International Conference on Engineering and Computing Technologies (ICECT), (pp. 1-7). IEEE.

Sundaram, A. , Subramaniam, H. , Ab Hamid, S. H. , & Nor, A. M. (2024). A three-step procedural paradigm for domain-specific social media slang analytics. In 2024 International Conference on Trends in Quantum Computing and Emerging Business Technologies, (pp. 1-7). IEEE.

Supriya, M. S. , Aniket, A. , Aakanksha, J. , & Peter, K. (2024). AI-powered mental health diagnosis: a comprehensive exploration of machine and deep learning techniques. In 2024 International Conference on Distributed Computing and Optimization Techniques (ICDCOT), (pp. 1-6). IEEE.

Philip, A. T. , Iyer, R. R. , & Nitha, L. (2024). Analysing depression in social media: a study of basic deep learning algorithms and transformer model with a comparative approach. In 2024 Third International Conference on Smart Technologies and Systems for Next Generation Computing (ICSTSN), (pp. 1-6). IEEE.

Bhavya, R. , Ramani, R. , Royal, G. L. G. , Manideep, G. , & Sridhar, G. (2024). Exploring depression through social media: a textual analysis. In 2024 International Conference on Knowledge Engineering and Communication Systems (ICKECS), (Vol. 1, pp. 1-7). IEEE.

Pourkeyvan, A. , Safa, R. , & Sorourkhah, A. (2024). Harnessing the power of hugging face transformers for predicting mental health disorders in social networks. IEEE Access, 12, 28025-28035.

Al Meqbaali, M. , Ouhbi, S. , Jan, R. K. , Amiri, L. , Al Mugaddam, F. , Serhani, M. A. , et al. (2024). Mental health professionals' insights on digital health solutions for anxiety in the UAE. In 2024 IEEE 32nd International Requirements Engineering Conference Workshops (REW), (pp. 362-369). IEEE.

Kokane, V. , Abhyankar, A. , Shrirao, N. , & Khadkikar, P. (2024). Predicting mental illness (depression) with the help of NLP transformers. In 2024 Second International Conference on Data Science and Information System (ICDSIS), (pp. 1-5). IEEE.
Ajmal, S. , Shoaib, M. , & Iqbal, F. (2024). RSTFusionX: leveraging rhetorical structure theory and ensemble models for depression prediction in social media posts. IEEE Access, 12, 118389-118404.
Choudhary, J. , Awasthi, D. , Bhatt, B. , Narang, H. , Vats, S. , & Sharma, V. (2024). SentiSense: pioneering mental health application through advanced technology. In 2024 International Conference on Electronics, Computing, Communication and Control Technology (ICECCC), (pp. 1-5). IEEE.
Mobin, M. I. , Akhter, A. S. , Mridha, M. F. , Mahmud, S. H. , & Aung, Z. (2024). Social media as a mirror: reflecting mental health through computational linguistics. IEEE Access, 12, 130143-130164.

Convolutional neural network approach to emotion recognition in speech

Wani, T. M. , Gunawan, T. S. , Qadri, S. A. A. , Kartiwi, M. , & Ambikairajah, E. (2021). A comprehensive review of speech emotion recognition systems. IEEE Access, 9, 47795–47814.
An, H. , Lu, X. , Shi, D. , Yuan, J. , Li, R. , & Pan, T. (2019). Mental health detection from speech signal: a convolution neural networks approach. In 2019 International Joint Conference on Information, Media and Engineering (IJCIME), (pp. 436–439). IEEE.
Aouani, H. , & Ayed, Y. B. (2020). Speech emotion recognition with deep learning. Procedia Computer Science, 176, 251–260.
Barros, P. , Jirak, D. , Weber, C. , & Wermter, S. (2015). Multimodal emotional state recognition using sequence-dependent deep hierarchical features. Neural Networks, 72, 140–151.
Deshmukh, G. , Gaonkar, A. , Golwalkar, G. , & Kulkarni, S. (2019). Speech based emotion recognition using machine learning. In 2019 3rd International Conference on Computing Methodologies and Communication (ICCMC). IEEE.
Maji, B. , Swain, M. , & Panda, R. (2022). A feature selection based parallelized CNN- BiGRU network for speech emotion recognition in Odia language.
Low, D. M. , Bentley, K. H. , & Ghosh, S. S. (2020). Automated assessment of psychiatric disorders using speech: a systematic review. Laryngoscope Investigative Otolaryngology, 5(1), 96–116.
Nema, B. M. , & Abdul-Kareem, A. A. (2018). Preprocessing signal for speech emotion recognition. AlMustansiriyah Journal of Science, 28(3), 157–165.
Pandey, S. K. , Shekhawat, H. S. , & Prasanna, S. M. (2019). Deep learning techniques for speech emotion recognition: a review. In 2019 29th International Conference Radioelektronika. IEEE.
Busso, C. , Bulut, M. , Lee, C. C. , Kazemzadeh, A. , Mower, E. , Kim, S. , et al. (2008). IEMOCAP: interactive emotional dyadicmotion capture database. Language Resources and Evaluation, 42, 335–359.

Review of solar power generation forecasting using deep learning techniques

Aslam, M. , Lee, S. J. , Khang, S. H. , & Hong, S. (2021). Two-stage attention over LSTM with Bayesian optimization for day-ahead solar power forecasting. IEEE Access, 9, 107387–107398.
Du Plessis, A. A. , Strauss, J. M. , & Rix, A. J. (2021). Short-term solar power forecasting: investigating the ability of deep learning models to capture low-level utility-scale Photovoltaic system behaviour. Applied Energy, 285, 116395.
Elizabeth Michael, N. , Mishra, M. , Hasan, S. , & AlDurra, A. (2022). Short-term solar power predicting model based on multi-step CNN stacked LSTM technique. Energies, 15(6), 2150.
Elsaraiti, M. , & Merabet, A. (2022). Solar power forecasting using deep learning techniques. IEEE Access, 10, 31692–31698.
Heo, J. , Song, K. , Han, S. , & Lee, D. E. (2021). Multichannel convolutional neural network for integration of meteorological and geographical features in solar power forecasting. Applied Energy, 295, 117083.
Khan, W. , Walker, S. , & Zeiler, W. (2022). Improved solar photovoltaic energy generation forecast using deep learning-based ensemble stacking approach. Energy, 240, 122812.
Koprinska, I. , Wu, D. , & Wang, Z. (2018). Convolutional neural networks for energy time series forecasting. In 2018 International Joint Conference on Neural Networks (IJCNN), (pp. 1–8). IEEE.
Lim, S. C. , Huh, J. H. , Hong, S. H. , Park, C. Y. , & Kim, J. C. (2022). Solar power forecasting using CNNLSTM hybrid model. Energies, 15(21), 8233.
Lin, Y. , Koprinska, I. , & Rana, M. (2020). Temporal convolutional neural networks for solar power forecasting. In 2020 International Joint Conference on Neural Networks (IJCNN), (pp. 1–8). IEEE.
Mellit, A. , Pavan, A. M. , & Lughi, V. (2021). Deep learning neural networks for short-term photovoltaic power forecasting. Renewable Energy, 172, 276–288.
Iskandar, M. A. , Abd Aziz, M. A. S. , Sivaraju, S. S. , Borhan, N. , Wan, W. A. A. Q. I. , & Ahmad, N. (2024). Long-term solar power generation forecasting in the eastern coast region of Malaysia using artificial neural network (ANN) method. Journal of Advanced Research in Fluid Mechanics and Thermal Sciences, 117(2), 60–70.
Rana, M. , Koprinska, I. , & Agelidis, V. G. (2016). Solar power forecasting using weather type clustering and ensembles of neural networks. In 2016 International Joint Conference on Neural Networks (IJCNN), (pp. 4962–4969). IEEE.
Thipwangmek, N. , Suetrong, N. , Taparugssanagorn, A. , Tangparitkul, S. , & Promsuk, N. (2024). Enhancing short-term solar photovoltaic power forecasting using a hybrid deep learning approach. IEEE Access, 12, 108928–108941.
Wang, Y. , Feng, B. , Hua, Q. S. , & Sun, L. (2021). Shortterm solar power forecasting: a combined long shortterm memory and gaussian process regression method. Sustainability, 13(7), 3665.
Muhammad, A. I. , Muhammad Azfar Shamil Abd Aziz , S. S. Sivaraju , Nurdiyana Borhan , Wan Abd Al-Qadr Imad Wan Mohtar , and Nurfadzilah Ahmad . (2024). Long-Term Solar Power Generation Forecasting in the Eastern Coast Region of Malaysia Using Artificial Neural Network (ANN) Method. Journal of Advanced Research in Fluid Mechanics and Thermal Sciences. 117 (2): 60–70.

A comparative analysis of breast cancer predictive intelligent model using machine learning techniques

Rasool, A. , Bunterngchit, C. , Tiejin, L. , & Islam, M. R. (2022). Improved machine learning-based predictive models for breast cancer diagnosis. International Journal of Environmental Research and Public Health, 19(6), 3211. https://doi.org/10.3390/ijerph19063211.

Fatima, A. , Shabbir, A. , Janjua, J. I. , Ramay, S. A. , Bhatty, R. A. , Irfan, M. , et al. (2024). Analyzing breast cancer detection using machine learning & deep learning techniques. Journal of Computing and Biomedical Informatics, 7(2), 1–11. ISSN: 2710–1606, Research Article https://doi.org/10.56979/702/2024.

Atashi, A. , Sohrabi, S. , & Dadashi, A. (2018). Applying two computational classification methods to predict the risk of breast cancer: a comparative study. Multidisciplinary Cancer Investigation, 2(2), 8–13. DOI: 10.30699/acadpub.mci.2.2.8.

Venkatesan, E. , & Velmurugan, T. (2015). Performance analysis of decision tree algorithms for breast cancer classification. Indian Journal of Science and Technology, 8(29), 1–18. IPL0625.

Harsha Latha, P. , Ravi, S. , & Saranya, A. (2024). Breast cancer detection using machine learning in medical imaging – a survey. Procedia Computer Science, 239, 2235–2242.

Dewangan, K. K. , Janghel, R. , Dewangan, D. K. , & Sahu, S. P. (2022). Breast cancer diagnosis in an early stage using novel deep learning with hybrid optimization technique. Multimedia Tools and Applications, 81, 13935–13960. https://doi.org/10.1007/s11042022-12385-2.

Al-Imran, M. , Akter, S. , Mozumder, M. A. S. , Bhuiyan, R. J. , Rahman, T. , Ahmmed, M. J. , et al. (2024). Evaluating machine learning algorithms for breast cancer detection: a study on accuracy and predictive performance. The USA Journals the American Journal of Engineering and Technology, 6(9), 22. (ISSN – 2689–0984). https://www.theamericanjournals.com/index.php/tajet PUBLISHED DOI: - https://doi.org/10.37547/tajet/Volume06Issue09-04.

Rahman, M. M. , Jahangir, M. Z. B. , Gupta, K. D. , George, R. , Rahman, A. , Akter, M. , et al. (2024). Breast cancer detection and localizing the mass area using deep learning. Big Data and Cognitive Computing, 8, 80. https://doi.org/10.3390/bdcc8070080.

Prerita, Sindhwani, N. , Rana, A. , & Chaudhary, A. (2024). Breast cancer detection using machine learning algorithms. In 2021 9th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO). IEEE. 10.1109/ICRITO51393.2021.9596295.

Rabiei, R. , Ayyoubzadeh, S. M. , Sohrabei, S. , Esmaeili, M. , & Atashi, A. (2022). Prediction of breast cancer using machine learning approaches. Journal of Biomedical Physics and Engineering, 12(3), 297–308. doi: 10.31661/jbpe.v0i0.2109-1403.

Priyadarshni, V. , Sharma, S. K. , Rahmani, M. K. I. , Kaushik, B. , & Almajalid, R. (2024). Machine learning techniques using deep instinctive encoder-based feature extraction for optimized breast cancer detection. Computers, Materials and Continua, 78(2), 2441–2468.

An efficient CNN based hybrid model for cataract classification on ODIR dataset

Babaqi, T. , Jaradat, M. , Yildirim, A. E. , Al-Nimer, S. H. , & Won, D. (2023). Eye disease classification using deep learning techniques. arXiv preprint arXiv:2307.10501.

Dash, J. , & Bhoi, N. (2017). Detection of retinal blood vessels from ophthalmoscope images using morphological approach. ELCVIA: Electronic Letters on Computer Vision and Image Analysis, 16(1), 1–14.

Mahmood, S. S. , Chaabouni, S. , & Fakhfakh, A. (2023). A new technique for cataract eye disease diagnosis in deep learning. Periodicals of Engineering and Natural Sciences, 11(6), 14–26.

Weni, I. , Utomo, P. E. P. , Hutabarat, B. F. , & Alfalah, M. (2021). Detection of cataract based on image features using convolutional neural networks. Indonesian Journal of Computing and Cybernetics Systems, 15(1), 75–86.

An assessment of vibration in non-prismatic Timoshenko beams with multiple transverse splits

Aabid, A. , Parveez, B. , Raheman, M. A. , Ibrahim, Y. E. , Anjum, A. , Hrairi, M. , & Mohammed Zayan, J. (2021, May). A review of piezoelectric material-based structural control and health monitoring techniques for engineering structures: Challenges and opportunities. In Actuators, 10(5), 101.

Abdullah, A. (2024). Review of vibration-based damage assessment in wind turbines. Diss. Politecnico di Torino.

Balduzzi, G. , Aminbaghai, M. , Sacco, E. , Füssl, J. , Eberhardsteiner, J. , & Auricchio, F. (2016). Non-prismatic beams: a simple and effective Timoshenko-like model. International Journal of Solids and Structures, 90, 236–250.

Ebrahimi, A. , Heydari, M. , & Behzad, M. (2017). Forced vibration analysis of rotors with an open edge crack based on a continuous vibration theory. Archive of Applied Mechanics, 87, 1871–1889.

French, C. , Eppers, L. , Le, Q. , & Hajjar, J. F. (1999). Transverse cracking in concrete bridge decks. Transportation Research Record, 1688(1), 21–29.

Ke, W. U. , Qibo, P. E. N. G. , Xinfeng, W. U. , Pengbo, L. I. U. , & Yajun, K. O. U. (2024). Analytical method for vibration analysis of multi-cracked Timoshenko beam structures with elastic foundations. Acta Aeronautica et Astronautica Sinica, 45(22).

Kim, H. , & Melhem, H. (2004). Damage detection of structures by wavelet analysis. Engineering Structures, 26(3), 347–362.

Manoach, E. , Warminski, J. , Kloda, L. , Teter, A. (2017). Numerical and experimental studies on vibration based methods for detection of damage in composite beams. Composite Structures, 170, 26.

Muttillo, M. , Stornelli, V. , Alaggio, R. , Paolucci, R. , Di Battista, L. , de Rubeis, T. , & Ferri, G. (2020). Structural health monitoring: An IoT sensor system for structural damage indicator evaluation. Sensors, 20(17), 4908.

Navadeh, N. , Sareh, P. , Basovsky, V. , Gorban, I. , & Fallah, A. S. (2021). Nonlinear vibrations in homogeneous nonprismatic timoshenko cantilevers. Journal of Computational and Nonlinear Dynamics, 16(10), 101002.

Rezaiee-Pajand, M. , & Gharaei-Moghaddam, N. (2019). Vibration and static analysis of cracked and non-cracked non-prismatic frames by force formulation. Engineering Structures, 185, 106–121.

Saavedra, P. N. , & Cuitino, L. A. (2001). Crack detection and vibration behavior of cracked beams. Computers & Structures, 79(16), 1451–1459.
Sekhar, A. S. (2008). Multiple cracks effects and identification. Mechanical Systems and Signal Processing, 22(4), 845–878.
Singh, R. , & Sharma, P. (2022). Vibration analysis of an axially functionally graded material non-prismatic beam under axial thermal variation in humid environment. Journal of Vibration and Control, 28(23–24), 3608–3621.
Zhang, Y. , Ruiz, C. , Rohal, S. , Pan, S. (2023). Cyberphysical augmentation for vibration sensing in autonomous retails. In Proceedings of the 24th International Workshop on Mobile Computing Systems and Applications (8–14).

Predictive analytics in healthcare systems

Aci, M. , Inan, C. , & Avci, M. (2010). A hybrid classification method of k nearest neighbor, Bayesian methods, and genetic algorithm. Expert Systems with Ap plications, 37(7), 5061–5067.
Kavitha, M. , Gnaneswar, G. , Dinesh, R. , Sai, Y. R. , & Suraj, R. S. (2021). Heart disease prediction using hybrid machine learning model. In 2021 6th internation al conference on inventive computation technologies (ICICT) (pp. 1329–1333). IEEE.
Kumar, S. L. (2021). Predictive analytics of Covid-19 pandemic: statistical modelling perspective. Walailak Journal of Science and Technology (WJST), 18(16), 15583–14.
Lal, A. , & Kumar, C. R. S. (2017, April). Hybrid classifier for increasing accuracy of fitness data set. In 2017 2nd International Conference for Convergence in Technology (I2CT) (pp. 1246–1249). IEEE.
Liu, X. , Wang, X. , Su, Q. , Zhang, M. , Zhu, Y. , Wang, Q. , & Wang, Q. (2017). A hybrid classification system for heart disease diagnosis based on the RFRS method. Computational and Mathematical Methods in Medicine, 8272091
Mohan, Senthilkumar , Chandrasegar Thirumalai , and Gautam Srivastava . Effective heart disease prediction using hybrid machine learning techniques. IEEE access. 7 (2019): 81542–81554.
Nilashi, M. , Ibrahim, O. , Ahmadi, H. , Shahmoradi, L. and Farahmand, M. , 2018. A hybrid intelligent system for the prediction of Parkinson's Disease progression using machine learning techniques. Biocybernetics and Biomedical Engineering, 38(1), pp.1–15.
Gupta, M. , Phan, T.L.T. , Bunnell, H.T. and Beheshti, R. , 2022. Obesity Prediction with EHR Data: A deep learning approach with interpretable elements. ACM Transactions on Computing for Healthcare (HEALTH), 3(3), pp.1–19.
Ma, R. , Zheng, X. , Wang, P. , Liu, H. and Zhang, C. , 2021. The prediction and analysis of COVID-19 epidemic trend by combining LSTM and Markov method. Scientific Reports, 11(1), p.17421.

Electromagnetic interference shielding of Zn-50%-Al alloy-coated polypropylene flexible conducting film

Alibakhshi, E. , E. Ghasemi , M. Mahdavian , B. Ramezanzadeh , & Farashi, S. (2016). Fabrication and characterization of PO_4^{3-} intercalated Zn-Al-layered double hydroxide nanocontainer. Journal of The Electrochemical Society, 163(8), C495.
Awad, S. , Chen, H. , Chen, G. , Gu, X. , Lee, J. L. , Abdel-Hady, E. E. , & Jean, Y. C. (2011). Free volumes, glass transitions, and cross-links in zinc oxide/waterbornepolyurethanenanocomposites. Macromolecules, 44(1), 29–38.
Cao, M.-S. , Shi, X.-L. , Fang, X.-Y. , Jin, H. B. , Hou, Z. L. , Zhou, W. , & Chen, Y. J. (2007). Microwave absorption properties and mechanism of cagelike ZnO/SiO_2 nanocomposites. Applied Physics Letters, 91(20), 203110.
Das, D. , Samal, R. R. , Dikshit, A. P. , Parashar, K. , & Parashar, S. K. S. (2024). Design and electromagnetic shielding of $Bi_{0.5}Na_{0.5}TiO_3$ ceramics as meta-surface absorber for high-frequency microwave application. Ceramics International, 50(22), 46621–46631.
Dikshit, A. P. , Das, D. , Samal, R. R. , Parashar, K. , Mishra, C. , & Parashar, S. K. S. (2024). Optimization of $(Ba_{1-x}Ca_x)(Ti_{0.9}Sn_{0.1})O_3$ ceramics in X-band using machine learning. Journal of Alloys and Compounds, 982, 173797.
Dikshit, A. P. , Das, D. , Samal, R. R. , Tyagi, A. , Parashar, K. , & Parashar, S. K. S. (2024). Structural and electromagnetic shielding of ZnO ceramics in X-band. Journal of Materials Science: Materials in Electronics, 35(13), 933.
Jiang, C. , Tan, D. , Li, Q. , Huang, J. , Bu, J. , Zang, L. , Ji, R. , Bi, S. , & Guo, Q. (2021). High-performance and reliable silver nanotube networks for efficient and large-scale transparent electromagnetic interference shielding. ACS Applied Materials & Interfaces, 13(13), 15525–15535.
Kaushal, A. , & Singh, V. (2020). Melt-processed graphite-polypropylene composites for EMI shielding applications. Journal of Electronic Materials, 49(9), 5293–5301.
Kim, S.-K. , Kim, J. T. , Kim, H. C. , Rhee, K. Y. , & Kathi, J. (2012). Thermal and mechanical properties of epoxy/carbon fiber composites reinforced with multiwalled carbon nanotubes. Journal of Macromolecular Science, Part B, 51(2), 358–367.
Luo, J. , Huo, L. , Wang, L. , Huang, X. , Li, J. , Guo, Z. , Gao, Q. , Hu, M. , Xue, H. , & Gao, J. (2020). Superhydrophobic and multi-responsive fabric composite with excellent electro-photo-thermal effect and electromagnetic interference shielding performance. Chemical Engineering Journal, 391, 123537.
Shi, F. , Chen, H. , & MacLaren, S. (2004). Wafer-bonded semiconductors using In/Sn and Cu/Ti metallic interlayers. Applied physics letters, 84(18), 3504–3506.
Huang, W. , Dai, K. , Zhai, Y. , Liu, H. , Zhan, P. , Gao, J. , Zheng, G. , Liu, C. , & Shen, C. (2017). Flexible and lightweight pressure sensor based on carbon nanotube/thermoplastic polyurethane-aligned conductive foam with superior compressibility and stability. ACS Applied Materials Interfaces, 9(48), 42266–42277.
Zhou, Z. , Chu, L. , & Hu, S. (2006). Microwave absorption behaviors of tetra-needle-like ZnO whiskers. Materials Science and Engineering, 126(1), 93–96.

Robust digital image watermarking using hybrid optimization technique

Barnouti, N. H. , Zaid, S. S. , & Khaldoun, L. H. (2018). Digital watermarking based on DWT (discrete wavelet transform) and DCT (discrete cosine transform). International Journal of Engineering & Technology, 7(4), 4825–4829.

Deeba, F. , She, K. , Dharejo, F. A. , & Zhou, Y. (2020). Lossless digital image watermarking in sparse domain by using K-singular value decomposition algorithm. IET Image Processing 14(6), 1005–1014.

Devi, K. J. , Singh, P. , Thakkar, H. K. , & Kumar, N. (2022). Robust and secured watermarking using Ja-Fi optimization for digital image transmission in social media. Applied Soft Computing, 131, 109781.

Jain, C. (2014). Watermarking algorithm using bacterial foraging optimization. Image, 256, 256.

Kaushik, P. , & Dua, S. (2014). Digital image watermarking using BFO optimized DWT and DCT & comparison between DWT, DWT+ DCT, DWT+ DCT+ BFO. International Journal of Recent Research Aspects, 1(3), 13–16.

Kumar, A. , Parmar, G. , & Bhatt, R. (2018). IWT-SVD based image watermarking under various attacks. International Journal of Computer Sciences and Engineering, 6(6), 437–441.

Sharma, S. , Chauhan, U. , Khanam, R. , & Singh, K. (2021). Digital watermarking using grasshopper optimization algorithm. Open Computer Science, 11(1), 330–336.

Verma, V. , Srivastava, V. K. , & Thakkar, K. (2016). DWT-SVD based digital image watermarking using swarm intelligence. 2016 International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT). IEEE, 2016.

Yadav, M. , & Jain, N. (2017). An invisible, robust and secure DWT-SVD based digital image watermarking technique with improved noise immunity. IOSR Journal of Electronics and Communication Engineering, 12, 7–11.

Yildiz, S. , Üstünsoy, F. , and Sayan, H. H. (2023). Digital image watermarking with hybrid structure of DWT, DCT, SVD techniques and the optimization with BFO algorithm. Politeknik Dergisi, 1–1.