Dr. Ranjeet Kumar Rout.
Assistant Professor,
Department of Computer Science and Engineering,
Associate Dean Academic Affairs,
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Contact Information

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Persoanl Information

I completed my Ph.D. from the Indian Statistical Institute (ISI), Kolkata, and earns degree from the Indian Institute of Engineering Science and Technology (IIEST) Shibpur, Kolkata, in 2018. The primary focus of my Ph.D. has been on the Classification of Non-Linear Boolean functions and application in visual secret sharing and computational biology. A major portion of my Ph.D. work was dedicated to the development and standardization of non-linear Boolean function classification and application in Visual Secret Sharing. My current research interest lies in contemporary biometrics, Borderline Personality Disorder (BPD) using affective computing and computational biology using Explainable Artificial Intelligence (xAI), ML/DL techniques which encompass advanced devices - their simulation, characterization, and more importantly, modeling for hardware design, areas that I have currently exhaustively worked and also worked on during my doctoral stints at Indian Statistical Institute Kolkata.
Since Oct 2018, I have been with NIT Srinagar as a faculty member where I have been working on affective computing. Here, I have been leading a research group, composed of a few B. Tech and Ph.D. students, working on projects aimed at the characterization and development of compact design-oriented models for advanced affective computing, Security, and Borderline Personality Disorder (BPD) using FER/Emotional AI.

Research Interests

Biometrics, Affective computing, Emotion Recognition using Explanable Artificial Intelligence (xAI), Machine Learning, Deep Learning, Cyber-Physical Systems.

Education

Indian Institute of Engineering Science and Technology(IIEST), Shibpur, Howrah,

Ph.D(*Computer Science and Engineering*), Awarded, 2018,

- Thesis Title: *Classification of Boolean functions and Applications*
- Supervisors: Prof. Santi Prasad Maity, IIEST Shibpur and Prof. Pabitra Pal Choudhury, Indian Statistical Institute(ISI), Kolkata

M.Tech from BPUT Odisha, Computer Science and Engineering, 2010 with 8.62(CGPA)

B.Tech from BPUT, Odisha, Computer Science and Engineering, 2005 with 73%

Research Experience

Applied Statistics Unit,
Indian Statical Institute(ISI), Kolkata
Supervisor: Prof. Pabitra Pal Choudhury

Teaching Experience

Assistant Professor October 2018 to Conn..

Department of Computer Science and Engineering,
National Institute of Technology(NIT) Srinagar,
Hazratbal-190001, J&K.

Assistant Professor January 2015 to Jun 2017
Department of Computer Science and Engineering,
Dr. B. R. Ambedkar National Institute of Technology(NIT), Jalandhar, Punjab-144011

Subject Taught

Post Graduate Level
Artificial Intelligence(AI). Machine Learning(ML), Deep Learning(DL),
(Advance Data structure and Algorithm (ADS)),
Graduate Level
Artificial Intelligence(AI)(CST350), Design and Analysis of Algorithm (DAA),
Data Structures and Algorithms (DSA), Theory of Computation (TOC),
Compiler Design(CD).

Technical Skill

Programming Language
MATLAB 7.11.0(R2010b), C, C++, JAVA(J2SE and J2EE), Python Programming.
Application Package
LaTeX, Kile 2.1.3, MS Office suites.

Academic Visit/ STC Attended

Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab
- One Day Workshop on "Cloud Computing and Big Data Analytics" on May 19, 2015.
- One Week STC on "Recent Trends in Software Engineering and Knowledge Mining" from June 1-5, 2015.
- One Week STC on "Recent Trends in Image and Natural Language Processing" from May 30 to June 3, 2016.
- One Week STC on " Advances in Computer Science and Information Technology Trends " from Jan 2-6, 2017.
- One Day Event under CSI Banner " TECHNO CRACKER: LET's CODIFY " on May 13, 2017.

Indian Institute of Engineering Science and Technology (IIEST), Shibpur
- Research Promotional Workshop on "Digital Geometry" from June 23-25, 2014.

Indian Institute of Science (IISc), Bangalore
- International Indo-US Workshop on *"Statistical Method on Bioinformatics"* from 12^{th} Dec. to 14^{th} Dec. 2013.

Indian Statistical Institute (ISI), Bangalore
- Course on *"Mathematical Morphology and fractal Informatics from image"* from 29^{th} June to 15^{th} July, 2012.
- International Workshop *"Spatial Statistical Tools in Data Processing and Analysis"* from 26^{th} Nov. to 30^{th} Nov. 2012.
- Course on *"Mathematical Morphology and Spatial Informatics from image"* from 30^{th} Nov. to 8^{th} Dec, 2012.

Indian Statistical Institute (ISI), Kolkata and others
- 3^{rd} International Symposium on Complex Dynamical Systems and Applications (CDSA -2014)" on 10^{th} Mar 2014 to 12^{th} Mar 2014.
- 6^{th} Workshop on "Nano-Electronics and Biochips" on 22^{nd} December 2012.
- Workshop on "Experiencing Data Mining using Statistica" from 25^{th} to 26^{th} March 2013.
- National Conference cum Workshop on Bioinformatics and Computational Biology, SMIT, Sikkim $14^{th} - 15^{th}$ March 2014.
- Attended a short term course on "Artificial Intelligence" organized by NITTR, Kolkata from 10^{th} to 14^{th} December 2007.

- Attended a Staff Development Program on "Data Mining" organized by CSE department of SONA COLLEGE OF TECHNOLOGY, Salem, Tamilnadu, from 12^{th} to 23^{rd} November 2007.

SUPERVISING EXPERIENCE

B.Tech.

. For each year 4-5 groups of final year B. Tech projects for the years 2018, 2019, 2020, and 2021 have been completed.

. In the years 2015 and 2016 six(Pass Out) and eight(Final Year) students in two different projects at NIT, Jalandhar have been supervised for their final year project under my guidance.

. Supervised more than 10 projects for bachelor's students of Biju Patnaik University and Technology (BPUT) for their Bachelor Project. **Technology:** - Java (J2SE and J2EE) and Oracle.

M.Tech. Students Details as Supervisor

Sl No.	Name of Student	Title of The Thesis	Status	Supervisors
1.	Parveen kumar	Reconstruction of DNA Sequence using Cellular Automata for Identification of Features	Completed (2016)	Dr.Renu Dhir, Ranjeet Kumar Rout
2.	Jaiprakash Dhakar	A Pattern Classification Model for vowel data using Fuzzy Nearest Neighbor	Completed (2016)	Dr.Renu Dhir, Ranjeet Kumar Rout
3.	Pranay Sakhare	Identification of Olfactory Receptors using a Parametric model	Completed (2016)	Dr.Rajneesh Rani, Ranjeet Kumar Rout
4.	Shubham Jain	A Competent Algorithm to Detect Attractors in Gene Regulatory Networks (GRNs) Based On Divide and Conquer	Completed (2016)	Dr.Geeta Sikka, Dr. Paramveer Singh Ranjeet Kumar Rout
5.	Santosh Punase	Identification of singleton attractors of Boolean Network using graph isomorphism	Ongoing (2017)	Dr. Harsh K. Verma, Ranjeet Kumar Rout
6.	Sagar Mal Nitharwal	A Boolean Based Multi –Secret Image Sharing scheme using bit-reversal	Ongoing (2017)	Dr. Harsh K. Verma, Ranjeet Kumar Rout

Ph.D Student Details as Supervisor

Sl No.	Name of Student	Research Area	Status	Supervisors
1	Venkata Mahalakshmi (2019PHSCSE005)	E-Health Care System	Submitted	Dr. R. K. Rout
2	Amardeep Gupta (2019PHSCSE006)	Meta-Huristic algorithms for Energy Harvesting in WSN	Submitted	Dr. R. K. Rout
3	Nazir Shabbir (2019PHACSE008)	Affective Computing, Object Detection	Conn..	Dr. R. K. Rout
4	Irfan Rashid Pukhta (2019PHACSE012)	Classification/Detection essential genes from micro-array data.	Conn.	Dr. R. K. Rout
5	Monika Khandelwal (2021PHACSE001)	Artificial Intelligence/Machine Learning in Computational Biology	Criteria full filled, in the verge of Submission	Dr. R. K. Rout
6	Ishrat Nazeer (2023PHACSE004) (JRF)	Artificial Intelligence/Machine Learning in Agriculture	Conn..	Dr. R. K. Rout

Institutional and Departmental Activities/ Responsibilities

Sl No.	Assignment (Coordinator/Member)	From (Date)	To (Date)	No. of Semester
1.	In-charge GEM Purchase	Jan, 2019	Conn..	2
2.	Up gradation of Teaching and Learning Process of the Institute	June, 2019	Conn..	2
3.	Plagiarism S/W Committee Member	Jun, 2019	Conn..	2
4.	Wi-Fi Monitoring Committee Member	Jun, 2019	Conn..	2
5.	Website Coordinator	Nov, 2019	Conn..	2
6.	Institutional accreditation Process	July, 2019	Conn..	1
7.	Time Table In-charge	Nov, 2019	Conn..	2
8.	MIS TEQIP-III Coordinator	Nov, 2019	Conn..	2
9.	EK BHARAT SHRESHTHA BHARAT (EBSB) Nodal Officer	Feb, 2022	Conn..	3
10.	Semeter Coordinator	Jan, 2019	Conn..	8
11.	Departmental NBA Coordinator	July, 2020	Conn..	6
12.	Convener DUGC	Mar, 2022	Conn..	5
13.	Warden	Dec, 2020	Conn..	2
14.	Associate Dean Academic Affairs	Oct, 2023	Conn..	1

Journal Publications

1. Saiyed Umer; Sardar, Alamgir; Ranjeet Kumar Rout; Tanveer, Muhammad; Razzak, ImranIoT-Enabled Multimodal Biometric Recognition System in Secure Environment" **IEEE Internet of Things Journal** (DOI: 10.1109/JIOT.2023.3299465)

2. A. Sardar, S. Umer, **R. K. Rout** and M. K. Khan, "A Secure and Efficient Biometric Template Protection Scheme for Palm print Recognition System," in **IEEE Transactions on Artificial Intelligence**, 2022, doi: 10.1109/TAI.2022.3188596.

3. **Rout, Ranjeet Kumar**, SK Sarif Hassan, SANCHIT SINDHWANI, HARI MOHAN PANDEY, and Saiyed Umer. "Intelligent Classification and Analysis of Essential Genes Species Using Quantitative Methods." **IEEE/ACM Transactions on Mulitmedia Computing, Communications, and Applications (TOMM) (2019)**: TOMM-2019.(SCI,IF-3.144), JUL, 2019.

4. Sardar, Alamgir, Saiyed Umer, **Ranjeet Kr Rout**, Shui-Hua Wang, and M. Tanveer. "A Secure Face Recognition for IoT-Enabled Healthcare System." **IEEE/ACM Transactions on Sensor Networks (TOSN) (2022)**.

5. Shabbir, Nazir, and **Ranjeet Kumar Rout**. "FgbCNN: A unified bilinear architecture for learning a fine-grained feature representation in facial expression recognition." **Image and Vision Computing (2023): 104770**.

6. **Ranjeet Kumar Rout**, Saiyed Umer, Monika Khandelwal, Smitarani Pati, Saurav Mallik, Bunil Kumar Balabantaray, and Hong Qin. "Identification of discriminant features from stationary pattern of nucleotide bases and their application to essential gene classification." **Frontiers in Genetics 14** (2023): 1154120.

7. MahaLakshmi, N.V., **Rout, Ranjeet Kumar**. Effective heart disease prediction using improved particle swarm optimization algorithm and ensemble classification technique. **Soft Computing (2023)**. https://doi.org/10.1007/s00500-023-08388-2.

8. Hossain, Sanoar, Saiyed Umer, **Ranjeet Kr Rout,** and M. Tanveer. "Fine-grained image analysis for facial expression recognition using deep convolutional neural networks with bilinear pooling." **Applied Soft Computing (2023): 109997.**

9. Umer, S. and Rout, R.K., 2023. Descriptive and inferential analysis of features for Dysphonia and Dysarthria Parkinson's disease symptoms. Health Services and Outcomes Research Methodology, pp.1-23.

10. Venkata MahaLakshmi, N. and Rout, R.K., 2023. An intelligence method for heart disease prediction using integrated filter-evolutionary search based feature selection and optimized ensemble classifier. Multimedia Tools and Applications, pp.1-25.

11. Khandelwal, Monika, and Ranjeet Kumar Rout. "PRMxAI: protein arginine methylation sites prediction based on amino acid spatial distribution using explainable artificial intelligence." BMC bioinformatics 24, no. 1 (2023): 376.

12. Sardar, Alamgir, Saiyed Umer, Ranjeet Kumar Rout, and Chiara Pero. "Face recognition system with hybrid template protection scheme for Cyber–Physical-Social Services." Pattern Recognition Letters 174 (2023): 17-24.

13. Sharma, Vipul, Pankaj Dhiman, and **Ranjeet Kumar Rout.** "Improved traffic sign recognition algorithm based on YOLOv4-tiny." **Journal of Visual Communication and Image Representation (2023)**: 103774.

14. Sharma, Vipul, Roohie Naaz Mir, and **Ranjeet Kumar Rout**. "Towards secured image steganography based on content-adaptive adversarial perturbation." **Computers and Electrical Engineering 105 (2023): 108484.**

15. Khandelwal M, **R K Rout**, S Umer, S Mallik, A Li (2022). Multifactorial feature extraction and site prognosis model for protein methylation data, **Briefings in Functional Genomics**, **Oxford University Press**, https://doi.org/10.1093/bfgp/elac034.

16. Shabbir, Nazir, and **Ranjeet Kumar Rout**. "Variation of deep features analysis for facial expression recognition system." **Multimedia Tools and Applications (2022)**: 1-16.

17. **Ranjeet Kumar Rout**, Sk Sarif Hassan, Sabha Sheikh, Saiyed Umer, Kshira Sagar Sahoo, and Amir H. Gandomi. "Feature-extraction and analysis based on spatial distribution of amino acids for SARS-CoV-2 Protein sequences." **Computers in Biology and Medicine 141 (2022): 105024**.

18. Saiyed Umer, Alamgir Sardar, Bibhas Chandra Dhara, **Ranjeet Kumar Rout**, Hari Mohan Pandey," Person Identification using Fusion of Iris and Periocular Deep Features" **Neural Network** (Elsevier (IF-8.050)) Manuscript ID-NEUNET-D-19-00350., NOV, 2019.

19. Saiyed Umer, Ranjan Mondal, Hari Mohan Pandey, **Ranjeet Kumar Rout**, "Deep features based convolutional neural network model for text and non-text region segmentation from document images", **Applied Soft Computing**, Volume 113, Part A, 107917, ISSN 1568-4946, https://doi.org/10.1016/j.asoc.2021.107917.(SCI, IF- 6.725), SEP, 2021.

20. Ghosh, Anay, Saiyed Umer, Muhammad Khurram Khan, R**anjeet Kumar Rout**, and Bibhas Chandra Dhara. "Smart sentiment analysis system for pain detection using cutting edge techniques in a smart healthcare framework." **Cluster Computing (2022)**: 1-17.

21. Khandelwal, Monika, Sabha Sheikh, **Ranjeet Kumar Rout**, Saiyed Umer, Saurav Mallik, and Zhongming Zhao. "Unsupervised Learning for Feature Representation Using Spatial Distribution of Amino Acids in Aldehyde Dehydrogenase (ALDH2) Protein Sequences." **Mathematics 10**, no. 13 (2022): 2228.

22. **Ranjeet Kumar Rout**, Saiyed Umer, Sabha Sheikh, Sanchit Sindhwani & Smitarani Pati (2021) EightyDVec: a method for protein sequence similarity analysis using physicochemical properties of amino acids, **Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, DOI: 10.1080/21681163.2021.1956369**

23. Sanoar Hossain, Saiyed Umer , Vijayan Asari, **Ranjeet Kumar Rout,**" A Unified Framework of Deep Learning Based Facial Expression Recognition System for Diversified Applications", **Applied Science**, (SCI, IF-2.679)

24. Hassan, S. S., **Rout, R. K**., Sahoo, K. S., Jhanjhi, N., Umer, S. et al. (2021). A Vicenary Analysis of SARS-CoV-2 Genomes. **CMC-Computers, Materials & Continua,** Vol.69, No.3, 2021, pp.3477-3493, doi:10.32604/cmc.2021.017206 (IF-3.772), AUG, 2021

25. **Ranjeet Kumar Rout**, Saiyed Umer, Sabha Sheikh, Sanchit Sindhwani & Smitarani Pati (2021) EightyDVec: a method for protein sequence similarity analysis using physicochemical properties of amino acids, **Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, DOI: 10.1080/21681163.2021.1956369, AUG, 2021**

26. Saiyed Umer, **Ranjeet kumar Rout**, C. Pero, et al. Facial expression recognition with trade-offs between data augmentation and deep learning features. **J Ambient Intell Human Comput (2021)**. https://doi.org/10.1007/s12652-020-02845-8 (IF-7.104) , JAN, 2021

27. Umer, Saiyed, Partha Pratim Mohanta, **Ranjeet Kumar Rout,** and Hari Mohan Pandey. "Machine learning method for cosmetic product recognition: a visual searching approach." Multimedia Tools and Applications (2020): 1-27., JUN, 2020

28. Hassan, Sk Sarif, Moole Parameswar Reddy, and **Ranjeet Kumar Rout.** "Dynamics of the Modified n-Degree Lorenz System." Applied Mathematics and Nonlinear Sciences 4, no. 2 (2019): 315-330., MAY, 2019

29. **R. K. Rout,** S. P. Maity, P. Pal. Choudhury, J.K. Das, Sk. Hassan and H. M. Pandey, "Analysis of Boolean functions based on Interaction graphs Properties and their

influence in System Biology" DOI: 10.1007/s00521-019-04102-2, Neural Computing and Applications, Springer(SCI, IF-5.606))., FEB, 2019

30. **R. K. Rout,** P. Pal. Choudhury, S. P. Maity, B. S. Daya Sagar and Sk. Sarif Hassan, Fractal and Mathematical Morphology in Intricate Comparison between Tertiary Protein Structures, Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization 1-12. (Taylor & Francis) DOI:10.1080/21681163.2016.1214850. , , 2017

31. T. Bhattacharjee, **R. K. Rout**, and Santi P. Maity. "Affine Boolean classification in secret image sharing for progressive quality access control." Journal of Information Security and Applications Vol. 33 Issue C, Pages 16-29 (Elsevier(SCI, IF-3.872)). DOI:10.1016/j.jisa.2017.01.001, 2017

32. **R. K. Rout**, P. Pal. Choudhury and S. Sahoo, Classification of Boolean Functions Where Affine functions are uniformly Distributed,Journal of Discrete Mathematics, vol.2013,Article ID 270424, 12 pages. doi:10.1155/2013/270424., , 2014

33. **R. K. Rout** P. Pal Choudhury, S. Sahoo and Camellia Ray, Partitioning 1- variable Boolean functions for various Classification on n-variable Boolean Functions, (2014), International Journal of Computer Mathematics, (doi = 10.1080/00207160.2014.975418, Taylor and Francis (SCI, IF-1.954)). 2014

Conference Publications

1. Saiyed Umer , Singh Shubham Sarvadeo , Vikram Kangotra , and **Ranjeet Kumar Rout**, A Deep Face Antispoofing System With Hardware Implementation for Real-time Applications, Accepted in **8th IAPR International Conference on Computer Vision and Image Processing (CVIP-2023), 2023. IIT Jammu**.

2. Nazeer Shabbir, **Ranjeet Kumar Rout**, Umer, Saiyed, Partha Pratim Mohanta, Fine grained attribute-object feature representation in Compositional Zero-Shot Learning, Accepted for publication in 10th **International Conference on Pattern Recognition and Machine Intelligence (PReMI'23), at ISI Kolkata**.

3. Sardar, Alamgir, Saiyed Umer, and **Ranjeet Kumar Rout.** "Face Recognition System Using Multicolor Image Analysis and Template Protection with BioCryptosystem." In Image and Vision Computing: 37th International Conference, IVCNZ 2022, Auckland, New Zealand, November 24–25, 2022, Revised Selected Papers, pp. 457-473. Cham: Springer Nature Switzerland, 2023.

4. Ali, Akbar, **Ranjeet Kumar Rout**, and Saiyed Umer. "Descriptive Predictive Model for Parkinson's Disease Analysis." In **Computational Intelligence: Select Proceedings of InCITe 2022**, pp. 105-118. Singapore: Springer Nature Singapore, 2023.

5. Venkata Maha Lakshmi, N., and Ranjeet Kumar Rout. "An 8-Layered MLP Network for Detection of Cardiac Arrest at an Early Stage of Disease." In Artificial Intelligence and Data Science: First International Conference, ICAIDS 2021, Hyderabad, India, December 17–18, 2021, Revised Selected Papers, pp. 306-320. Cham: Springer Nature Switzerland, 2022.

6. Khandelwal, M., Rout, R. K., & Umer, S. (2022, January). Protein-protein interaction prediction from primary sequences using supervised machine learning algorithm. In 2022 12th International Conference on Cloud Computing, Data Science & Engineering (Confluence) (pp. 268-272). IEEE.

7. Gupta, A. D., & Rout, R. K. (2021, November). An Effective Optimization Method for Energy Efficient Clustering in EH Wireless Sensor Networks. In 2021 International Conference on Technological Advancements and Innovations (ICTAI) (pp. 699-702). IEEE.

8. Alamgir Sardar, Saiyed Umer, **Ranjeet Kumar Rout**, A Novel Template Protection Scheme for Cancelable Face Recognition System, CAMSE 2021, NIT Jalandhar., JUL, 2021

9. Sindhwani S., Sheikh S., Umer S., **Rout R.K.** (2021) Encryption and Decryption Scheme for IoT Communications Using Multilevel Encryption. Information and Communication Technology for Competitive Strategies (ICTCS 2020). Lecture Notes in Networks and Systems, vol 190. Springer, Singapore. https://doi.org/10.1007/978-981-16-0882-7-81, JUL, 2021.

10. Nailah Afshan and **Ranjeet Kumar Rout**, Machine Learning Techniques for IoT Data Analytics", (Book Chapter) https://onlinelibrary.wiley.com/ doi/10.1002/9781119740780.ch3, APR, 2021

11. Sudhakar Sahoo, Suryakanta Pal and **Ranjeet Kumar Rout**, Visual Effects of Second Order Recurrence Equations through Space-Time Diagrams, Accepted, CIMS-2020, NIT Jalandhar., OCT, 2020

12. Sahoo, Biswa Mohan, **Ranjeet Kumar Rout**, Saiyed Umer, and Hari Mohan Pandey. "ANT Colony Optimization based Optimal Path Selection and Data Gathering in WSN." In 2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM), pp. 113-119. IEEE, 2020., APR, 2020

13. P. D. Upadhayay, R. Ch. Agarwal , **R. K. Rout**, A P. Agrawal Mathematical Characterization of Membrane Protein Sequences of Homo-sapiens, DOI: 10.1109/CONFLUENCE.2019.8776919, JAN, 2019

14. S. Punase and **R. K. Rout,** Isomorphic Sub graph for identification of singleton attractors of Boolean Networks, Accepted for publication in Soft Computing: Theories and Applications 2018 (SoCTA2018) at NIT, Jalandhar., DEC, 2018

15. **R. K. Rout**, Shubham, J. K. Das and P. Pal Choudhury, Solution of 16-Queens Problem using 3-variable Affine Boolean functions (2^n+1), IEEE Xplore archived Confluence 2018.

16. P. Sakhare, R. Rani and **R. K. Rout,** Identification of Olfactory Receptors using a Parametric model, Proceeding IEEE Xplore archived ICACCI 2016 at LMNIT Jaipur, AUG, 2016

17. J. K. Das, S. Ghosh, **R. K. Rout** and P. Pal Choudhury, A study of P53 gene and its regulatory genes network, Proceeding IEEE Xplore archived Confluence 2018 at Amity University, Noida., FEB, 2018.

18. B. M. Sahoo, R. K. Rout and M. K. Sah, Morphological Approach for detection of protein spots from 2D-Gel Image, Accepted in the Proceeding IEEE Xplore archived ICICCS 2016 at Amity University, Greater Noida., AUG, 2016

19. **R. K. Rout,** J. K. Das, and P Pal Choudhury, Analysis of Boolean functions based on Interaction graphs and their influence in System Biology, Presented on Indo- US workshop on Statistical Methods for Bioinformatics (Indian Institute of Science (IISc), Bangalore))., DEC, 2014

20. **R. K. Rout,** P. Pal. Choudhury, B. S. Daya Sagar and Sk. Sarif Hassan, Fractal and Mathematical Morphology in Intricate Comparison between Tertiary Protein Structures, Dynamics Days Asia Pacific 08 conference, July 21-24, 2014 at IIT Madras, JUL, 2014

21. **R. K. Rout,** S. Ghosh and P Pal Choudhury, Classification of Mer Proteins in a Quantitative Manner. (Published in NCWBCB-2014-SMIT)., APR, 2014

22. **R. K. Rout,** J. K. Das, and P Pal Choudhury, Determination of network interactions in Gene regulatory networks: using interaction graph and Boolean functions.(Presented in International Symposium - Complex Dynamical Systems and Applications (11th Mar 2014) (Indian Statistical Institute (ISI) Kolkata))., APR, 2014

Sponsored Research Projects

1. Design and Development of Agriculture-Artificial Intelligence Based Techniques for Saffron Production in India, grant in aid by DST iHub - AWaDH (Agriculture & Water Technology Development Hub) IIT ROPAR, Amount Rs. 20,40, 240/-(for 3years).
2. Development of Computational tools for analysis and prediction of diseases relevant mutations in essential genes, Research Grant Scheme TEQIP-III, Amount Rs. 3,00,000/-(1yr).

Books

1. Ranjeet Kumar Rout, Saiyed Umer, Sabha Sheikh and Amrit Lal Sangal," Artificial Intelligence Technologies for Computational Biology" CRC Press(Taylor & Francis)(In Production House). https://www.routledge.com/Artificial-Intelligence-Technologies-for-Computational-Biology/Rout-Umer-Sheikh-Sangal/p/book/9781032160009.
2. Roohie Naaz Mir, Vipul Kumar Sharma, Ranjeet Kumar Rout, Saiyed Umer," Advancement of Deep Learning and its Applications in Object Detection and Recognition" to be published in" IEEE Publisher, River Publishers Group (In Production House)"

   $https://www.riverpublishers.com/book_details.php?book_id = 1021$

Patents

1. Ranjeet Kumar Rout, Saiyed Umer, and Amrit Lal Sangal,**"Implementation of facial emotion recognition system using deep neural network approaches and its application thereof"** Application No.-202111012711 (Published),Issue no.-15/2021., 2021. **(FER Report Submitted (Minor Revision)**
2. Ranjeet Kumar Rout, Saiyed Umer, Sabha Sheikh, Harveeer Singh Pali And Ratikanta Sahoo, "**Implementation of Affine Boolean Function for 16 Queen Problem and Its Application Thereof**", Application No. 202111035066(published), 2021
3. A. Sardar, S. Umer, R. K. Rout and M. K. Khan, **SYSTEMS AND METHODS FOR FACILITATING BIOMETRIC RECOGNITION**, Application Number or Control Number- 18096206 (USA Patent)

Outreach Activities(Some of Invited Speaker Details)

- Special Lecture on "**ARTIFICIAL INTELLIGENCE AND AGRICULTURE (THE FISHERIES SECTOR)** " on 8^{th} August 2023, 7- Day Workshop cum Training Programme on "Fishing Technologies for Sustainable Fisheries" 3^{rd} to 9^{th} August 2023, ORGANIZED BY DIVISION OF FISHERY ENGINEERING, FACULTY OF FISHERIES, SKUAST-KASHMIR, Jammu and Kashmir, India.
- Special Lecture on "**Fine-grained Image Analysis for affective computing using Deep CNNs in IoT Environment** " on a SERB-DST sponsored for an off-line Workshop on "An Integrated Approach for Computing Resources: Cloud with Internet of Things (CIoT-2023) (8^th June 2023), at Bennett University, Greater Noida, India
- Delivered an Expert lecture on **"Fine-grained image analysis for emotion recognition using deep convolutional neural networks with bilinear pooling "** on FDP "Artificial Intelligence Techniques for Healthcare Applications (AITHA-2023)" Dated: 22/02/023 to 27/02/2023" sponsored by SERB. on 24/02/2023, **NIT Delhi**.
- Delivered an Expert lecture on **Computer Vision and Applications** on Linux Applications in Engineering Education at NITTTR Chandigarh Organizes STC 28.11.2022 to 02.12.2022.

- Delivered an Expert lecture on **Fine-grained image analysis for facial expression recognition using deep convolutional neural networks.** at NITTTR Chandigarh Organizes STC on Advanced Deep Learning from 27.02.2023 to 03.03.2023.
- Delivered an Expert lecture on **"Current Efforts and Future Applications of Machine Learning in Genomics."** at DIVISION OF ANIMAL GENETICS & BREEDING FACULTY OF VETERINARY SCIENCES & ANIMAL HUSBANDRY, SHUHAMA SKUAST-K 190006, Organizes Seven Days Online Training Program on Use of Artificial Intelligence and Machine Learning for Revamping the Existing Animal Breeding Systems from 22-28 March 2022.
- Delivered an Expert lecture on **A machine learning approach for Bio-metric Reorganization and Security** at ITS Engineering College, Greater Noida, Organizes Webinar on **Machine Learning** 22nd – 26th February 2021

Academic Membership

- IEEE Member (Membership No.-94128392)
- ISTE Life Member (Membership No.- LM 70058)
- CSI Life Member (Membership No. F8003883)

References

Prof. Pabitra Pal Choudhury,
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