

Partha Pratim Ray

Assistant Professor, Senior Scale

Academic Qualifications

- Ongoing **PhD in Computer Applications, Sikkim University**
"Enabling Large Language Model on Resource-Constrained Edge: A Multi-Faceted Approach"; SGPA: 9.29
- 2011 **M.Tech in Electronics and Communication Engineering (Embedded Systems), Haldia Institute of Technology, MAKAUT (formerly WBUT), Kolkata**
DGPA: 9.60
- 2009 **GATE Qualified, Computer Science, India**
Percentile: 91.62
- 2008 **B.Tech in Computer Science and Engineering, B.P. Poddar Institute of Management and Technology, MAKAUT (formerly WBUT), Kolkata**
DGPA: 8.15
- 2004 **Higher Secondary Examination, Jenkins School, WB Council of Higher Secondary Education**
85.80%
- 2002 **Secondary Examination, Jenkins School, WB Board of Secondary Education**
90.25%

Professional Experience

- Total 13+ years in higher education and research.
- Dec 2020–Present **Assistant Professor (Senior Scale), Academic Level 11, Dept. of Computer Applications, Sikkim University (Central University), India**
Teaching, research, curriculum design, and student mentoring.
- Jul 2012–Dec 2020 **Assistant Professor, Academic Level 10, Dept. of Computer Applications, Sikkim University (Central University), India**
Lecturing, project guidance, academic administration.
- Jan 2012–Jun 2012 **Assistant Professor, Surendra Institute of Engineering and Management, Siliguri, WB**
Engaged in core computer science subjects and institutional development.

Google Scholar Citation Metrics

Citations 12,046
h-index 40
i10-index 76

Research Interests

Pervasive Generative AI
Internet of Things
Edge Computing
Pervasive Biomedical Informatics

Publication Metrics

Metric	Count/Details
SCI Journals	122 publications in SCI-indexed journals
SSCI Journals	1 publication in SSCI-indexed journal
Scopus Journals	25 publications in Scopus-indexed journals
IEEE International Conferences	22 International conference proceedings published
Springer International Conferences	5 International conference proceedings published
Scopus International Conferences	5 International conference proceedings published
National Conferences	4 National conference proceedings published
Book Chapters in Elsevier	3 Book chapters published
Book Chapters in Springer	2 Book chapters published
Book Chapters in IEEE Wiley	1 Book chapter published
Books	8 Books published

Awards & Honors

- 2025 Special Award for highest-impact journal publication, Sikkim University
- 2024 Best Paper Award, AICTA-2024 (LNNS Springer), NIT Raipur
- 2020–2024 World's Top 2% Scientist (Stanford University; Career & Annual)
- 2023 University Publication Award – Sikkim University
- 2023 Elevated to Fellow, IETE
- 2020 Top Downloaded Paper, Wiley: Trans. Emerging Telecommunications Tech
- 2020 IEI Young Engineers Award (Computer Engineering Division)
- 2019 Emerald Literati Award: Highly Commended Article, *Sensor Review*
- 2019 Elevated to Senior Member, IEEE
- 2017 Young Scientist Award, Venus International Foundation
- 2017 Bharat Vikas Award, Institute of Self Reliance
- 2017 Best Professor in IT Award, ICBM-AMP
- 2018 Young Achiever Award, IEAE
- 2017 Member, National Innovation Club (invited by Rashtrapati Bhavan)
- 2012 Selected: Science Academies' Summer Research Fellowship (IAS, INSA, NAS)
- 2009–2011 AICTE Postgraduate Scholarship

Professional Memberships

- Fellow, IETE (F 501509)
- Senior Member, IEEE (91152489)
- Member, IET (1100765728)
- Associate Member, IEI (M-1645315)
- Member, ACM (5140889)
- Member, CSI (2010000360)
- Member, ISCA (A2691)
- Member, SCRS (2024-09-16-6328)
- Member, UACEE (AM1010002745)
- Member, AAM (AM-2017-202)
- Member, GISFI
- Member, IACSIT (80346421)
- Member, ICST
- Member, IAE (110263)

Selected Journal Publications

1. Ray. P. P., Pradhan, M., P., “DLUSEdge: Dynamic Load-Unload Scheduling for Localized LLMs on Resource-Constrained Edge”, KI - Künstliche Intelligenz, Springer, 2025, ISSN: 1610-1987, (Scopus) (IF: 3.7) [Accepted]
2. Ray. P. P., “Enhancing Breast Cancer Care Through Reasoning-Aware LLMs: Quality Evaluation and Risk Prediction”, Breast Cancer, Springer, 2025, ISSN: 1880-4233, (Science Citation Index) (IF: 3.4) [Accepted]
3. Ray. P. P., Pradhan, M. P., “AgroMetLLM: An evapotranspiration and agro-advisory system using localized large language models in resource-constrained edge”, Journal of Agrometeorology, Association of Agrometeorologists, vol. 27(3), 2025, ISSN: 2583-2980, DOI: <https://doi.org/10.54386/jam.v> (Scopus) (CF: 1.8)
4. Ray. P. P., “When Brussels Tries to Tell AI How to Think”, AI & Society, Springer, 2025, ISSN: 1435-5655. (Scopus) (IF: 4.9) [Accepted]
5. Ray. P. P., “Letter to Editor: Pushing Large Language Models for Improved Radiomics Study and Research”, European Radiology, Springer, 2025, ISSN: 1432-1084, DOI: 10.1007/s00330-025-11863-z (Science Citation Index) (IF: 5.3)
6. Ray. P. P., “Does linguistic relativity hypothesis apply on ChatGPT responses? Yes, it does”, Computation Intelligence, Wiley, vol. 41, no. 4, 2025, ISSN: 1467-8640, DOI: 10.1111/coin.70103 (Science Citation Index) (CF: 1.7)
7. Ray. P. P., Pradhan, M. P. “P2PLLMEdge: Peer-to-Peer Framework for Localized Large Language Models using CPU only Resource-Constrained Edge”, EAI Endorsed Transactions on AI and Robotics, European Alliance for Innovation (EAI), vol. 4, 2025, ISSN: 2790-7511, DOI: 10.4108/airo.9292 (Scopus) (CF: 6.1)
8. Ray. P. P., “Advancing Digital Pathology with Large Language Models”, Advances in Anatomic Pathology, Wolters Kluwer, 2025, ISSN: 1533-4031, DOI: 10.1097/PAP.0000000000000505 (Science Citation Index) (IF: 5.1)
9. Ray. P. P., “Beyond PlasticSurgeryGPT: The Imperative for Reasoning-Enhanced LLMs in Plastic Surgery”, Aesthetic Surgery Journal, Oxford Academic, 2025, ISSN: 1527-330X, DOI: 10.1093/asj/sjaf122 (Science Citation Index) (IF: 3.0)
10. Ray. P. P., “Should LLMs be Over Empowered for High-Stake Regulatory Research?”, Briefings in Bioinformatics, Oxford Academic, vol. 26, no. 3, 2025, ISSN: 2949-7086 DOI: 10.1093/bib/bbaf299 (Science Citation Index) (IF: 6.8)
11. Ray. P. P., “Privacy preserving of endoscopy documentations with reasoning aware focused large language models”, iGIE: Innovation, Investigation and Insights, Elsevier, 2025, ISSN: 2949-7086. (Scopus) (IF: 0.5) [Accepted]
12. Ray. P. P., “Toward Transparent AI-Enabled Patient Selection in Cosmetic Surgery by Integrating Reasoning and Medical LLMs”, Aesthetic Plastic Surgery, Springer, 2025, ISSN: 1432-5241, DOI: 10.1007/s00266-025-05038-w (Science Citation Index) (IF: 2.4)
13. Ray. P. P., “Comparison of artificial intelligence-enhanced electrocardiography approaches for the prediction of time to mortality using electrocardiogram images: reply”, European Heart Journal – Digital Health, Springer, vol. 6(4), pp. 527–528, 2025, ISSN: 2634-3916, DOI: 10.1093/ehjdh/ztaf052 (Scopus) (IF: 4.0)
14. Ray. P. P., ”Letter to the Editor concerning ”ChatGPT versus NASS clinical guidelines for degenerative spondylolisthesis: a comparative analysis” by Ahmed W, et al. (Eur Spine J [2024]: doi:10.1007/s00586-024-08198-6)”, European Spine Journal, Springer, 2025, ISSN: 1432-0932, DOI: 10.1007/s00586-025-08931-9 (Science Citation Index) (IF: 3.1)
15. Ray. P. P., “Time to Proceed with Higher Reasoning Models for Surgical Academics than General-Purpose LLMs”, Indian Journal of Surgery, Springer, 2025, ISSN: 0973-9793, DOI: 10.1007/s12262-025-04362-4 (Science Citation Index) (IF: 0.4)
16. Ray. P. P., “Endure or Perish with Use of Artificial Intelligence in Clinical Genetics Settings”, European Journal of Human Genetics, Nature, vol. 33, pp. 826–828, 2025, ISSN: 1476-5438, DOI: 10.1038/s41431-025-01852-7 (Science Citation Index) (IF: 4.1)
17. Ray. P. P., “Letter to the Editor regarding “The Need for Balancing ‘Black Box’ Systems and Explainable Artificial Intelligence: A Necessary Implementation in Radiology””, European Journal of Radiology Artificial Intelligence, Elsevier, vol. 2, 2025, ISSN: 3050-5771, DOI: 10.1016/j.ejrai.2025.100

18. Ray. P. P., "Letter to the editor: Comparing letters written by humans and ChatGPT: A preliminary study", *International Journal of Gynecology & Obstetrics*, Wiley, vol. 169(2), pp. 861-862, 2025, ISSN: 0020-7292, DOI: 10.1002/ijgo.70035 (Science Citation Index) (IF: 2.6)
19. Ray. P. P., "Prompting Large Language Models for Inner Gains in Radiology Studies", *Clinical Imaging*, Elsevier, vol. 120, no. 1, 2025, ISSN: 1873-4499, DOI: 10.1016/j.clinimag.2025.110422 (Science Citation Index) (IF: 1.8)
20. Ray. P. P., "Stepping With Caution: Large Language Models for Consulting Infectious Diseases", *Clinical Infectious Diseases*, Oxford University Press, vol. 80, no. 5, pp. 1166, 2025, ISSN: 1537-6591, DOI: 10.1093/cid/ciae442. (Science Citation Index) (IF: 8.2)
21. Ray. P. P., "Need of Fine-Tuned Radiology Aware Open-Source Large Language Models for Neuroradiology", *Clinical Neuroradiology*, Springer, vol. 35, pp. 405-407, 2025, ISSN: 1869-1447, DOI: 10.1007/s00062-024-01454-8. (Science Citation Index) (IF: 2.6)
22. Ray. P. P., "ChatGPT Enigma: Navigating the Jumble of Surgical Generative AI", *Indian Journal of Surgery*, Springer, vol. 87, pp. 229-230, 2025, ISSN: 0973-9793, DOI: 10.1007/s12262-024-04091-0 (Science Citation Index) (IF: 0.4)
23. Ray. P. P., "Dr. GAI: Significance of Generative AI in Plastic Surgery", *Aesthetic Plastic Surgery*, Springer, vol. 49, pp. 1011-1012, 2025, ISSN: 1432-5241, DOI: 10.1007/s00266-023-03805-1. (Science Citation Index) (IF: 2.8)
24. Ray. P. P., "Is ChatGPT Worthy Enough for Provisioning Clinical Decision Support?", *Journal of the American Medical Informatics Association*, Oxford University Press, vol. 32, no. 1, pp. 258-259, 2025, ISSN: 1527-974X, Doi: 10.1093/jamia/ocae282 (Science Citation Index) (IF: 6.4)
25. Ray. P. P., "Large language models in laparoscopic surgery: A transformative opportunity", *Clinical Neuroradiology*, Springer, vol. 7, no. 4, pp. 174-180, 2024, ISSN: 1869-1447, DOI: 10.1016/j.lers.2024.07.002. (Science Citation Index) (IF: 2.4)
26. Ray. P. P., "Servicing open-source large language models for oncology", *The Oncologist*, Oxford University Press, 2024, ISSN: 1549-490X, DOI: 10.1093/oncolo/oyae264. (Science Citation Index) (IF: 4.2)
27. Ray. P. P., "Letter to the Editor Regarding "Will ChatGPT Be Able To Replace a Spine Surgeon in the Clinical Setting?"", *World Neurosurgery*, Springer, vol. 188, pp. 264, 2024, ISSN: 1878-8769, DOI: 10.1016/j.wneu.2024.05.073. (Science Citation Index) (IF: 2.1)
28. Ray. P. P., "Upgrading Academic Radiology with Open-Source Large Language Models", *Anatomical Academic Radiology*, Association of American Radiology, vol. 31, no. 10, pp. 4291-4292, 2024, ISSN: 1878-4046, DOI: 10.1016/j.acra.2024.06.045 (Science Citation Index) (IF: 3.9)
29. Ray. P. P., "Open-Source Large Language Models in Medical Education: Balancing Promise and Challenges", *Anatomical Sciences Education*, American Association for Anatomy, vol. 17(6), pp. 1361-1362, 2024, ISSN: 1935-9780, DOI: 10.1002/ase.2484 (Science Citation Index) (IF: 7.3)
30. Ray. P. P., "A Deep Introspection into the Role of ChatGPT for Transforming Hospitality, Leisure, Sport, and Tourism Education", *Journal of Hospitality, Leisure, Sport & Tourism Education*, Elsevier, vol. 35, 2024, ISSN: 1473-8376, DOI: 10.1016/j.jhlste.2024.100504 (Social Sciences Citation Index) (IF: 4.1)
31. Ray. P. P., "Opening Doors for Open-Source Large Language Models for Radiology Education", *Radiologia Brasileira*, SciELO, vol. 57:e20240037, 2024, ISSN: 0100-3984, DOI: 10.1590/0100-3984.2024.0037 (Scopus) (CF: 3.0)
32. Ray. P. P., "Generative AI: A Transformative Force in Advancing Research and Care in Metabolic Dysfunction-Associated Fatty Liver Disease", *Liver Research*, Elsevier, vol. 8(2), pp. 127-129, 2024, ISSN: 2542-5684, Doi: 10.1016/j.livres.2024.05.002 (Scopus) (IF: 2.1)
33. Ray. P. P., "Artificial General Intelligence for Neurosurgery and Medicine", *Journal of Clinical Neuroscience*, Elsevier, 2024, ISSN: 1532-2653, DOI: 10.1016/j.jocn.2024.05.018 (Science Citation Index) (IF: 2.1)
34. Ray. P. P., "Embracing the AI Revolution with Open Large Language Models in Anatomy Education", *Surgical and Radiologic Anatomy*, Springer, vol. 46, pp. 949-950, 2024, ISSN: 1279-8517, Doi: 10.1007/s00276-024-03379-w (Science Citation Index) (IF: 1.2)
35. Ray. P. P., "Letter to Editor Regarding "Application of the convolution neural network in determining the depth of invasion of gastrointestinal cancer: a systematic review and meta-analysis", *Journal of Gastrointestinal Surgery*, Springer, vol. 28, no. 7, pp. 1218-1219, 2024, ISSN: 1873-4626, DOI: 10.1016/j.gassur.2024.04.029 (Science Citation Index) (IF: 2.8)

36. Ray. P. P., "Addressing Technical Considerations for Implementing Language Models in Post-colonoscopy Patient Management", *Gastrointestinal Endoscopy*, Elsevier, vol. 100, no. 4, pp. 781-782, 2024, ISSN: 1097-6779, DOI: 10.1016/j.gie.2024.04.2907 (Science Citation Index) (IF: 7.5)
37. Ray. P. P., "Timely Need for Navigating the Potential and Downsides of LLMs in Healthcare and Biomedicine", *Briefings in Bioinformatics*, Oxford University Press, vol. 25, no. 3, 2024, ISSN: 1477-4054, DOI: <https://doi.org/10.1093/bib/bbae214> (Science Citation Index) (IF: 7.7)
38. Ray. P. P., "Integrating AI in Radiology: Insights from GPT-Generated Reports and Multimodal LLM Performance on European Board of Radiology Examinations", *Japanese Journal of Radiology*, Springer, vol. 42, pp. 1083-1084, 2024, ISSN: 1867-108X, DOI: 10.1007/s11604-024-01576-6. (Science Citation Index) (IF: 4.1)
39. Ray. P. P., "Generative AI in Psychiatry: A Potential Companion in the Current Therapeutic Era!", *Asian Journal of Psychiatry*, Elsevier, vol. 94:103929, 2024, ISSN: 1876-2026, DOI: 10.1016/j.ajp.2024.103929 (Science Citation Index) (IF: 4.5)
40. Ray. P. P., "Generative AI and its Impact on Sugarcane Industry: An Insight into Modern Agricultural Practices", *Sugar Tech*, Springer, vol. 26, pp. 325-332, 2024, ISSN: 0974-0740, Doi: 10.1007/s12355-023-01358-w (Science Citation Index) (IF: 2.0)
41. Ray. P. P., Majumder, P., "Re Comment on "The Potential of ChatGPT to Transform Healthcare and Address Ethical Challenges in Artificial Intelligence-Driven Medicine": Author Response", *Journal of Clinical Neurology*, Korean Neurological Association, vol. 20(1), pp. 111-112, 2024, ISSN: 1738-6586, DOI: 10.3988/jcn.2023.0338 (Science Citation Index) (IF: 3.1).
42. Ray. P. P., "How True is the Role of Large Language Models in Nursing?", *European Journal of Cardiovascular Nursing*, Oxford Academic, vol. 23, no. 5, pp. e79-e80, 2024, ISSN: 1873-1953, DOI: 10.1093/eurjcn/zvad123 (Invited) (Science Citation Index) (IF: 3.9)
43. Ray. P. P., "ChatGPT in Transforming Communication in Seismic Engineering: Case Studies, Implications, Key Challenges and Future Directions", *Earthquake Science*, Elsevier, vol. 37(4), pp. 352-367, 2024, ISSN: 1674-4519, DOI: 10.1016/j.eqs.2024.04.003. (Scopus) (IF: 4.1)
44. Ray. P. P., "Can Generative AI Assist Pediatric Inguinal Hernia Issues?", *Hernia*, Springer, vol. 28, pp. 943-944, 2024, ISSN: 1248-9204, DOI: 10.1007/s10029-023-02926-5. (Science Citation Index) (IF: 2.4)
45. Ray. P. P., "Fostering Support for Pediatric Surgery by Generative AI", *Journal of Pediatric Surgery*, Elsevier, vol. 59, no. 3, pp. 542-543, 2024, ISSN: 1531-5037, DOI: 10.1016/j.jpedsurg.2023.10.000 (Science Citation Index) (IF: 2.5)
46. Ray. P. P., "Re: "The credibility of dietary advice formulated by ChatGPT: Robo-diets for people with food allergies"", *Nutrition*, Elsevier, vol. 118, 2024, ISSN: 1873-1244, Doi: 10.1016/j.nut.2023.11228 (Science Citation Index) (IF: 4.4)
47. Ray. P. P., Majumder, P., "Evaluating the Limitations of ChatGPT in Generating Competent Radiology Reports for Distal Radius Fractures", *Current Problems in Diagnostic Radiology*, Elsevier, vol. 53, no. 1, pp. 166-167, 2024, ISSN: 1535-6302, DOI: 10.1067/j.cpradiol.2023.10.010. (Scopus) (IF: 1.4)
48. Ray. P. P., "Comment on: AI am a Rheumatologist: a practical primer to large language models for rheumatologists", *Rheumatology*, Oxford Academic, vol. 63, no. 11, pp. e315-e316, 2024, ISSN: 1462-0332, DOI: 10.1093/rheumatology/kead658 (Science Citation Index) (IF: 5.0)
49. Ray. P. P., "Letter to the editor 'Evaluating ChatGPT responses in the context of a 53-year-old male with a femoral neck fracture: a qualitative analysis'", *European Journal of Orthopaedic Surgery & Traumatology*, Springer, vol. 34, pp. 957-958, 2024, ISSN: 1432-1068, DOI: 10.1007/s00590-023-03766-w (Scopus)
50. Ray. P. P., "Using ChatGPT for Early Career Research Scholarship", *The Clinical Teacher*, vol. 21, no. 3, pp. 1, Wiley, 2024, ISSN: 1743-498X, DOI: 10.1111/tct.13694. (Science Citation Index) (IF: 2.3)
51. Ray. P. P., "Advancing AI in Rheumatology: Critical Reflections and Proposals for Future Research Using Large Language Models", *Rheumatology International*, Springer, vol. 4, pp. 573-574, 2024, ISSN: 1437-160X, DOI: 10.1007/s00296-023-05488-y (Science Citation Index) (IF: 3.0)
52. Ray. P. P., "ChatGPT and Forensic Science: A New Dawn of Investigation", *Forensic Science, Medicine and Pathology*, Springer, vol. 20, pp. 759-760, 2024, ISSN: 1556-2891, DOI: 10.1007/s12024-023-00723-1 (Science Citation Index) (IF: 1.4)

53. Ray. P. P., "Striking a Balance: Embracing LLMs while Upholding Scientific Integrity", *Japanese Journal of Radiology*, Springer, vol. 42, pp. 208-209, 2024, ISSN: 1867-108X, DOI: 10.1007/s11604-023-01489-w (Science Citation Index) (IF: 4.1)
54. Ray. P. P., "Generative AI and Medical Ethics: A Symbiotic Dance for the Future", *Journal of Oral and Maxillofacial Surgery*, American Association of Oral and Maxillofacial Surgeons, vol. 81, no. 12, pp. 1457-1459, 2023, ISSN: 1531-5053, DOI: 10.1016/j.joms.2023.09.015 (Science Citation Index) (IF: 2.6)
55. Ray. P. P., "Can GPT-4 Direct a New Horizon for Healthcare Academics, Scientific Writing and Research?", *Surgical Innovation*, Sage, vol. 30, no. 6, 2023, ISSN: 1553-3514, DOI: 10.1177/15533506231204827. (Science Citation Index) (IF: 1.7)
56. Ray. P. P., "Letter to the Editor: A critical evaluation on the use of large language model for radiology research", *European Radiology*, Springer, vol. 33, 2023, ISSN: 1432-1084. (Science Citation Index) (IF: 5.9)
57. Ray. P. P., "ChatGPT's Competence in Addressing Urolithiasis: Myth or Reality?", *International Urology and Nephrology*, Springer, vol. 56, pp. 149-150, 2024, ISSN: 1573-2584, Doi: 10.1007/s11255-023-03802-y (Science Citation Index) (IF: 2.0)
58. Ray. P. P., "Can LLMs Improve Existing Scenario of Healthcare?", *Journal of Hepatology*, EASL, vol. 80, no. 1, pp. E28-E29, 2024, ISSN: 1600-0641, DOI: 10.1016/j.jhep.2023.08.006 (Science Citation Index) (IF: 33.0)
59. Ray. P. P., "Bridging the Gap: Integrating ChatGPT into Obstetrics and Gynecology Research - A Call to Action", *Archives of Gynecology and Obstetrics*, vol. 309, pp. 1111-1113, 2024, ISSN: 1432-0711, DOI: 10.1007/s00404-023-07129-y (Science Citation Index) (IF: 2.5)
60. Ray. P. P., Majumder, P., "Beyond the Hype: A Comprehensive Critique of ChatGPT's Applicability in Genetics", *European Journal of Human Genetics*, Nature, vol. 32, pp. 375-376, 2024, ISSN: 1476-5438, DOI: 10.1038/s41431-023-01442-5. (Science Citation Index) (IF: 5.2)
61. Ray. P. P., "ChatGPT: A Game Changer in Academic Medicine's Artificial Intelligence Revolution", *Academic Medicine*, Walters Kluwer, vol. 99, no. 1, pp. 8, 2024, ISSN: 1040-2446, DOI: 10.1097/ACM.00000000000005486 (Science Citation Index) (IF: 7.4)
62. Ray. P. P., Das. P. K., "ChatGPT and Societal Dynamics: Navigating the Crossroads of AI and Human Interaction", *AI & Society: Knowledge, Culture and Communication*, Springer, vol. 39, pp. 2595-2596, 2024, ISSN: 1435-5655, DOI: 10.1007/s00146-023-01713-1 (Scopus) (IF:4.9).
63. Ray. P. P., Majumder, P., "Impact of ChatGPT on Surgical Practice and Research: Embracing AI's Transformative Potential", *Indian Journal of Surgery*, Springer, vol. 86, pp. 479-481, 2024, ISSN: 0973-9793, DOI: 10.1007/s12262-023-03861-6 (Science Citation Index) (IF: 0.4).
64. Ray. P. P., Majumder, P., "Letter to the editor - Dr ChatGPT in cardiovascular nursing: a deeper dive into trustworthiness, value, and potential risks", *The European Journal of Cardiovascular Nursing*, Oxford Academic, vol. 23, no. 1, pp. e11-e12, 2024, ISSN: 1873-1953, DOI: 10.1093/eurjcn/zvad047 (Science Citation Index) (IF: 3.593).
65. Ray. P. P., "Generative AI: In Rescue of Healthcare Reformation", *World Journal of Urology*, Springer, vol. 41, pp. 3391-3392, 2023, ISSN: 1433-8726, Doi: 10.1007/s00345-023-04622-6 (Science Citation Index) (IF: 3.2)
66. Ray. P. P., "Can ChatGPT Truly Overcome Other Large Language Models?", *Canadian Association of Radiologists Journal*, Sage, vol. 75, no. 2, 2023, ISSN: 1488-2361, DOI: 10.1177/084653712311994 (Science Citation Index) (IF: 3.7)
67. Ray. P. P., "Generative AI: A New Dawn in Cardiovascular Study and Research", *Indian Journal of Thoracic and Cardiovascular Surgery*, Springer, vol. 39, pp. 654-655, 2023, ISSN: 0973-7723, Doi: 10.1007/s12055-023-01592-7 (Scopus) (IF: 0.8)
68. Ray. P. P., "Can We Depend on LLMs to Persuade Myopia Related Issues?", *Ophthalmic and Physiological Optics : the Journal of the British College of Ophthalmic Opticians (Optometrists)*, Wiley, vol. 44(1), pp. 231-232, 2023, ISSN: 1475-1313, Doi: 10.1111/opo.13226 (Science Citation Index) (IF: 2.9)
69. Ray. P. P., "An Overview on WebAssembly for IoT: Background, Tools, State-of-the-art, Challenges and Future Direction", *Future Internet*, MDPI, vol. 15, no. 8, 2023, ISSN: 1999-5903, Doi: 10.3390/fi15080275 (Scopus) (IF: 3.6)
70. Ray. P. P., "RE: Artificial intelligence chatbots will revolutionize how cancer patients access information: ChatGPT represents a paradigm-shift", *JNCI Cancer Spectrum*, Oxford University

- Press, vol. 7, no. 5, 2023, ISSN: 2515-5091, DOI: 10.1093/jncics/pkad053. (Science Citation Index) (IF: 4.4)
71. Ray. P. P., "Benchmarking, Ethical Alignment, and Evaluation Framework for Conversational AI: Advancing Responsible Development of ChatGPT", *BenchCouncil Transactions on Benchmarks, Standards and Evaluations, KeAI*, vol. 3, no. 3, 2023, ISSN: 2772-4859, DOI: 10.1016/j.tbench.2023.1001 (Scopus) (CS: 16.0)
 72. Ray. P. P., "Revisiting the Need of the Use of GPT in Surgery and Medicine", *Techniques in Coloproctology, Springer*, vol. 27, pp. 959-960, 2023, ISSN: 1123-6337, DOI: 10.1007/s10151-023-02847-6 (Science Citation Index) (IF: 3.1)
 73. Ray. P. P., "A Critical Analysis of Use of ChatGPT in Orthopedics", *International Orthopaedics, Springer*, vol. 47, pp. 2617-2618, 2023, ISSN: 1432-5195, Doi: 10.1007/s00264-023-05916-5. (Science Citation Index) (IF: 2.8)
 74. Ray. P. P., "A Critical Perspective on Large Language Model to Obtain Clinical Information about Fertility Research", *Fertility and Sterility, ASRM*, vol. 120, no. 5, pp. 1084, 2023, ISSN: 1556-5653, DOI: 10.1016/j.fertnstert.2023.07.016 (Science Citation Index) (IF: 7.1)
 75. Ray. P. P., "A Critical Examination and Suggestions for Large Language Models for Structured Reporting in Radiology", *La radiologia medica, Springer*, vol. 128, pp. 1441-1442, 2023, ISSN: 1826-6983, DOI: 10.1007/s11547-023-01688-5 (Science Citation Index) (IF: 4.8)
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 10. Jain, R. K., Gupta, B., Ansari, M., Ray, P. P., “IOT Enabled Smart Drip Irrigation System using Web/Android Applications”, 11th IEEE International Conference on Computing Communication and Networking Technologies, IIT Kharagpur, West Bengal, India Kharagpur, India, July 1-3, 2020, 2020, DOI: 10.1109/ICCCNT49239.2020.9225345.
 11. Jain, R. K., Saikia, B. J., Rai, N. P., Ray, P. P., “Development of Web-based Application for Mobile Robot using IOT Platform”, 11th IEEE International Conference on Computing Communication and Networking Technologies, IIT Kharagpur, West Bengal, India Kharagpur, India, July 1-3, 2020, 2020, DOI: 10.1109/ICCCNT49239.2020.9225467.
 12. Ray, P. P., Chowhan B., Sharma P. K., Lepcha, A. W., Sharma, K., Chattopadhyay, A., “Abstract: nCoVCBC: A Consortium Blockchain Architecture for EHR Transmission of Novel Coronavirus”, Evener 6th International Conference on Mathematics & Computing (ICMC 2020), Gangtok, India, 2020 (Earlier: 18-20 March, 2020, Revised 23-25 September, 2020).
 13. Chaer, A., Salah, K., Lima, C., Ray, P. P., Sheltami, T., “Blockchain for 5G: Opportunities and Challenges”, IEEE Workshop on Telecommunications and Blockchain, IEEE GLOBECOM 2019, Hawaii, United States, 9-13 Dec. 2019, DOI: 10.1109/GCWkshps45667.2019.9024627, 2019.
 14. Ray, P. P., L. Chettri, N. Thapa, “IoRCar: IoT Supported Autonomic Robotic Movement and Control”, IEEE 7th International Conference on Computation of Power, Energy, Information and Communication, ICCPEIC-2018, Melmaruvathur, India, 28-29 March 2018, DOI: 10.1109/IC-CPEIC.2018.8525216, 2018.
 15. Ray, P. P., “Digital India: Perspective, Challenges, and Future Direction”, IEEE 4th International Conference on Power Signals Control & Computation (EPSCICON), Thrissur, Kerala, India, 6-10 June, 2018, DOI: 10.1109/EPSCICON.2018.8379594, 2018.
 16. Ray, P. P., Pradhan, S., Sharma, R. K., Rasaily, A., Swaraj, A., Pradhan, A., “IoT Based Fruit Quality Measurement System”, IEEE International Conference on Green Engineering and Technologies (IC-GET), Coimbatore, India, 19 November, 2016, DOI: 10.1109/GET.2016.7916620, 2016.
 17. Ray, P. P., “Towards Internet of Things based Society”, IEEE International Conference on Signal Processing, Communication & Embedded Systems (SCOPEs), Paralakhemundi, Odisha, India, pp. 345-352, 3-5 October, 2016. DOI: 10.1109/SCOPEs.2016.7955849.
 18. Ray, P. P., “Internet of Things Cloud Based Smart Monitoring of Air Borne PM2.5 Density Level”, IEEE International Conference on Signal Processing, Communication & Embedded

- Systems (SCOPES), Paralakhemundi, Odisha, India, pp. 995 – 999, 3-5 October, 2016. DOI: 10.1109/SCOPES.2016.7955590.
19. Ray, P., P., Agarwal, S., “Bluetooth 5 and Internet of Things: Potential and Architecture”, IEEE International Conference on Signal Processing, Communication & Embedded Systems (SCOPES), Paralakhemundi, Odisha, India, pp. 1461-1465, 3-5 October, 2016. DOI: 10.1109/SCOPES.2016.7955682.
 20. Ray, P., P., Rai, R., Chettri, L., Bishunkey, K., “B4Heal: Bio-Inspired Biopolymer based Bio-compatible Biosensor for Smart Healthcare”, 1st International Conference on Nanocomputing & Nanobiotechnology (NanoBioCon), (Abstract), ISBN: 9789380813493, pp. 74 , 2016.
 21. Ray, P., P., “An Internet of Things based Approach to Thermal Comfort Measurement and Monitoring”, IEEE International Conference on Advances in Computing and Communications (ICACCS), pp. 1-7, 22-23 January, Coimbatore, India, 2016, DOI: 10.1109/ICACCS.2016.7586398, 2016.
 22. Ray, P., P., “Towards an Internet of Things based Architectural Framework for Defence”, IEEE International Conference on Control, Instrumentation, Communication and Computational Technologies (ICCICCT), Kumaracoil, pp. 411-416, 18-19 December, 2015, DOI: 10.1109/ICCICCT.2015.7472015.
 23. Ray, P., P., “A Generic Internet of Things Architecture for Smart Sports”, IEEE International Conference on Control, Instrumentation, Communication and Computational Technologies (ICCICCT), Kumaracoil, pp. 405-410, 18-19 December, 2015 DOI: 10.1109/ICCICCT.2015.7475313, 2015.
 24. Ray, P., P., “Internet of Things based Smart Measurement and Monitoring of Wood Equilibrium Moisture Content”, IEEE International Conference on Smart Structures and Systems (ICSSS), 21-23 December, 2015, Bangalore, India, DOI: 10.1109/SMARTSENS.2015.7873612, 2015.
 25. Ray, P. P., Home Health Hub Internet of Things (H3IoT): An Architectural Framework for Monitoring Health of Elderly People”, IEEE International Conference on Science Engineering and Management Research (ICSEMR), Chennai, India, pp. 1-4, 27-29 November, 2014, DOI: 10.1109/ICSEMR.2014.7043542, 2014.
 26. Ray, P. P., “Internet of Things based Physical Activity Monitoring (PAMIoT): An Architectural Framework to Monitor Human Physical Activity”, In Proceeding of IEEE CALCON, Kolkata, pp-32-34, 7-8 November, 2014.
 27. Ray, P. P., “Nano Computer Design Based on Intra Body Nanoscale Neuro-Spike Communication: a Nanonetwork Paradigm”, ISBN 978-1-4673-4698-6. In proceeding of IEEE International Conference on Communications, Devices and Intelligent Systems (CODIS), JU, Kolkata, pp. 314-317, 28-29 December, 2012, DOI: 10.1109/CODIS.2012.6422199, 2012.
 28. Ray, P. P., Banerjee, A., “Debugging Memory Issues in Embedded Linux: A Case Study”, ISBN: 978-1-4244-8942-8. In proceeding of IEEE Technological Symposium (TechSym), IIT Kharagpur, pp. 23-28, 14-16 January, 2011, DOI: 10.1109/TECHSYM.2011.5783857, 2011.

Selected National Conference Publications

1. Sebastian S., Ray, P. P., Development of IoT Invasive Architecture for Complying with Health of Home, In Proceeding of International Conference on Computing and Communication Systems (I3CS) 2015, Shillong, pp-79-83, 9-10 April, 2015.
2. Sebastian S., Ray, P. P., When Soccer Gets Connected to Internet, In Proceeding of International Conference on Computing and Communication Systems (I3CS) 2015, Shillong, pp-84-88, 9-10 April, 2015.
3. Ray, P. P., Sharma, A., Rai, R., “MDTRM: Abstraction to Model Driven Tree Reference Model of Internet of Things”, In proceeding of National Conference on Applied Electronics (NCAE), AIT Kolkata, pp-61-64, 25-26 October, 2013.
4. Rai, R., Lepcha, C., Ray, P. P., Chettri, P., “GDMA: Generalized Domain Model Architecture of Internet of Things”, In proceeding of National Conference on Applied Electronics (NCAE), AIT Kolkata, pp. 65-68, 25-26 October, 2013.

Book Chapters

1. Ray. P. P., “AI-Enabled IoMT for Smart Cancer Care: Plausible Use Cases, Key Challenges and Future Road Map”, Blockchain and Digital Twin for Smart Hospitals, Elsevier, pp. 377-397, Eds

- (Tuan Anh Nguyen), 2025, ISBN: 978-0-443-34226-4, DOI: 10.1016/B978-0-443-34226-4.00020-4
2. Ray. P. P., “Federated Learning for Intelligent IoT Systems: Background, Frameworks, and Optimization Techniques”, *Model Optimization Methods for Efficient and Edge AI: Federated Learning Architectures, Frameworks and Applications*, Wiley-IEEE Press, pp. 241-280, Eds (Pethuru Raj, Amir Masoud Rahmani, Rob Colby, Gayathri Nagasubramanian, Sunku Ranganath), 2024, ISBN: 978-1-394-21922-3, DOI: 10.1002/9781394219230.ch13
 3. Ray. P. P., “An Introduction to Necrobotics”, *Necrobotics for Healthcare Applications and Management*, Elsevier, pp. 1-59, Eds (Hemachanda K, Raul V. Rodriguez, Murugappan M, Sivaramakrishnan Rajaraman, Rajesh Kumar KV), 2025, ISBN: 978-0-443-24832-0, DOI: 10.1016/B978-0-443-24832-0.00001-5
 4. Ray. P. P., “A Review on IoT Energy Storage with Nanocarbon Materials: Requirements, State-of-the-Art, Challenges, and Future Scope”, *NanoCarbon: A Wonder Material for Energy Applications*, Springer, pp. 41–69, Eds (Ram K. Gupta), 2024, DOI: 10.1007/978-981-99-9931-6_3
 5. Majumder. P., Ray. P. P., “Estimation of Basic Reproduction Number and Herd Immunity for COVID-19 in India”, *Artificial Intelligence for Information Management: A Healthcare Perspective*, Springer, pp. 265-282, Eds (Srinivasa K.G., G. M. S., Sekhar S.R.M), ISBN: 978981160415-7, 2021, DOI: 10.1007/978-981-16-0415-7_13
 6. Ray. P. P., Dash, D. “Blockchain for IoT-based Medical Delivery drones: State of the Art, Issues, and Future Prospects”, *Blockchain Technology for Emerging Applications: A Comprehensive Approach - A volume in Hybrid Computational Intelligence for Pattern Analysis*, Academic Press, Elsevier, pp. 137-176, Eds (SKH Islam, AK Pal, D Samanta, S Bhattacharyya), ISBN: 978-0-323-90193-2, 2021, DOI: 10.1016/B978-0-323-90193-2.00002-8

Books

1. Ray. P. P., “A Guide to Indian Knowledge Systems”, Rajmangal Publishers, ISBN: 9788197782299, 2024.
2. Ray. P. P., “The Great Mathematicians of Bharat”, Rajmangal Publishers, ISBN: 9788119251841, 2023.
3. Ray. P. P., “Metaverse Unbound: Exploring Infinite Possibilities in the Digital Frontier”, Notion Press, ISBN: 979-8890265005, 2023.
4. Ray. P. P., Ray, A., “A Handbook on Community Based Participatory Research”, New Delhi Publishers, ISBN: 978-93-93878-30-4, 2022.
5. Ray. P. P., “Getting Started with PHPoC for Internet of Things”, Ane Books Pvt. Ltd., ISBN: 9390658608, October 2021.
6. Ray. P. P., “A Guide to Research and Publication Ethics”, New Delhi Publishers, ISBN: 9789391012212, November 2021.
7. Ray. P. P., “Open Source Hardware: An Introductory Approach”, Lap Lambert Publishing, ISBN: 9783659465918, 2013.
8. Ray. P. P., “Automated Bug Localization in Embedded Softwares”, Lap Lambert Publishing, ISBN: 9783848444397, March, 2012.

National Patents Filed

1. Novel Development of Decentralized Light-Weight SPV Client for Trustless Blockchain-IoT Assisted e-Healthcare in Resource-Constrained Environment. (Application Number: 201931008732), Inventor: Ray. P. P., Dash Dinesh, De Debashis, 2019.
2. Real-Time Monitoring of Non-Invasive Intravenous Fluid Level for Pervasive and Assistive E-Healthcare using IoT. (Application Number: 201831049716), Inventor: Ray. P. P., Thapa Nishant, 2019.
3. A System for Writing and Reading of Human Understood Study Materials. (Application Number: 1083/KOL/2015), Inventor: Ray. P. P., Kumar Shailendra, 2015.
4. IoT Physical Activity Monitoring. (Application Number: 599/KOL/2015), Inventor: Ray. P. P., Chettri. L., Rai. R., Bishunkey. K, 2015.
5. An Automated Missenard Index Measurement System. (Application Number: 566/KOL/2015), Inventor: Ray. P. P., 2015.
6. Internet of Things based Environment Heat Index Measurement. (Application Number: 549/KOL/2015)

Inventor: Ray. P. P., 2015.

7. API-CRIEM : An API based Cloud Platform Supported Real Time Smart Device for Indoor Environment Monitoring with Triggering Mechanism. (Application Number: 531/KOL/2015)
Inventors: Ray. P. P., Bishunkey. K., Rai. R., Chettri, L., Khawas, C, 2015.

Science Popularization

1. Published an article on “Madhava’s Achievement in Mathematics: Milestones Reached Before Leibniz, Gregory and Newton” at Dream 2047, 2024, ISSN: 0972-169X.
2. Published an article on “The Promise and Challenges of Brain-Computer Interfaces: Neuralink’s Journey” at Dream 2047, 2024, ISSN: 0972-169X.
3. Published an article on “ChatGPT: A Revolution in Digital Domain” at Dream 2047, February – March, 2024, ISSN: 0972-169X.

Talks/Invited Lectures/Training/Hands-On Delivered

1. Delivered talk on “Rise of Single Board Computers and IoT” at Sikkim Professional University, Gangtok on 25 April, 2024.
2. Delivered talk on “An Introspection to Internet of Things” at ECE Department, SR University, Warangal on 24 April, 2021.
3. Delivered talk and hands-on on “Internet of Things using Raspberry Pi” on occasion of Winter Training course at NIELIT, Gangtok during 30 December 2019 to 3 January, 2020.
4. Delivered talk on “Blockchain Storm: An IoT based Cumulative Perspective” at Department of Computer Applications, Sikkim University with EICT Academy, IIT Guwahati on 29th March, 2019.
5. Delivered talk and hands-on “LaTeX” on the occasion of 2 days Hands-on Workshop using LaTeX (TeX-2014) on 15th-16th November, 2014 at Department of Computer Applications, Sikkim University.

Projects/Consultancy

1. IoT-Based Plant Temperature Monitoring Systems, 1 Lakh Rupees, Funded by Sikkim University, 2024-25.
2. Received Intel Galileo kits from Intel® India to set up Intel IoT Center 2015-16.

Masters Project/Thesis Guidance

1. Retrieval Augmented Question-Answering on Indian Constitution and Indian Penal Code by Mayel Lyangten Lepcha, Pratiksha Phukon, Yogesh Lokhar, 2023 Odd.
2. Integration of Sensor based Circuit for Monitoring Leaf Temperature by Pinju Priyam Gogoi, Ridhiman Bora, Rizuwana Sultana Hussain (MCA), 2022 Odd.
3. Web Based Information System for Medicinal and Aromatic Plants of Sikkim by Adarsh Sharma, Neeraj Anand, Nirmal Gupta (MCA), 2021 Even.
4. A Study of Time Series Database for IoT-Based Applications by Manita Rai, Yojana Thapa (MCA), 2021 Odd.
5. Development of Web-based Application for Pipeline Inspection Robot using IoT Platform by Bhaskar Jyoti Saikia, Nitant Pilmo Rai (MCA), 2020 Even with co-supervisor Dr. Ravi Kant Jain, CSIR-CMERI, India.
6. Smart Drip Irrigation System using IOT Platform by Bikash Gupta, MD Mustaq Ansari (MCA), 2020 Even with co-supervisor Dr. Ravi Kant Jain, CSIR-CMERI, India.
7. Development of Web-Based Application for Graphical Data Visualization by Bikash Gupta, Nitant Pilmo Rai (MCA), 2020 Odd.
8. Boilerplate as a Service for IoT Edge Based e-Healthcare Service by Bhumika Sharma and Sunita Pradhan (MCA), 2019 Even.
9. Implementation of Dual layer Private Blockchain for Secure HER Transmission by Biky Chowhan, Keshang Sherpa, and Abhishek Mukhia (MCA), 2019 Even.
10. Implementation of Decentralized Autonomous Network using Blockchain by Biky Chowhan and Keshang Sherpa (MCA), 2018 Odd.
11. A study on Rating Algorithms by Robin Gurung and Ashish Pradhan (MCA), 2018 Odd.

12. Development of Edgenet enabled Edge Computing System for IoT based Scenario by Arun Subba (MCA), 2018 Even.
13. Design and development of IoT based Interoperable gateway by Nishant Thapa (MCA), 2018 Even.
14. Design and Development of Wearable Galvanic Skin Response Systems by Shubham Pradhan, R. K. Sharma, Animesh Chettri (BCA-MCA Integrated), 2018 Odd.
15. Intravenous Bag Fluid Measurement System by Nishant Thapa (MCA), 2018 Odd.
16. Design and Development of Cloud Enabled Internet of Robotic Things (IoR) by Nishant Thapa, (BCA-MCA Integrated), 2016, Even.
17. Prep Your Self Quiz: An Android Based Applications, Ashish Sharma & Kiran Regmi (BCA-MCA Integrated), 2015 Even.

Conference Technical Committee Member

1. Technical Program Committee Member in The 3rd International Conference on Foundation and Large Language Models (FLLM2025), 25–28 December, 2025, Vienna, Austria.
2. Technical Program Committee Member in 17th International Symposium on Evaluation Science and Engineering (Bench 2025), 3–4 December, 2025, Chengdu, China.
3. Technical Program Committee Member in IEEE The 24th IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology, 15-18 November, 2025, London, United Kingdom.
4. Technical Program Committee Member in IEEE 11th International Workshop on Mobile Applications 2025 (MobiApps 2025), co-located with The 12th International Conference on Future Internet of Things and Cloud (FiCloud 2025) and the 21st International Conference on Mobile Web and Intelligent Information Systems (MobiWIS 2025), 11-13 August, 2025, Istanbul, Turkey.
5. Technical Program Committee Member in IEEE Gaming, Entertainment and Media (GEM), 16-18 July, 2025, Kaohsiung, Taiwan.
6. Technical Program Committee Member in 5th IEEE Middle East & North Africa Communications Conference (MENACOMM 2025), 20-22 February, 2025, Lebanese American University (LAU), Byblos, Lebanon.
7. Technical Program Committee Member in 2nd International Conference on Foundation and Large Language Models (FLLM2024), 26-29 November, 2024, Dubai, UAE.
8. Technical Program Committee Member in The 30th IEEE International Conference on Telecommunications (IEEE ICT) 2024, 24-27 June, 2024, Deadsea, Jordan.
9. Technical Program Committee Member in The IEEE International Conference on Consumer Electronics (IEEE ICCE-TW) 2024, 9-11 July 2024, Taichung, Taiwan.
10. Technical Program Committee Member in The 1st International Conference on Environment and Smart Education (ICENSE) 2024, 7-8 August 2024, Universitas Muhammadiyah Yogyakarta, Indonesia.
11. Technical Program Committee Member in The International Conference on Foundation and Large Language Models (FLLM2023), 13-14 December, 2023, Dubai, UAE.
12. Technical Program Committee Member in 22nd IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology, 26-29 October, 2023, Venice, Italy.
13. Technical Program Committee Member in 2023 IEEE CTSoc Gaming, Entertainment and Media (GEM), 19-22 November, 2023, Barbados.
14. Technical Program Committee Member in 2023 IEEE 13TH International Conference on Consumer Technology (ICCE), 2-5 September, 2023, City Cube, Messe Berlin (IFA).
15. Technical Program Committee Member in 2021 ICNBST, 2-4 December, 2021, Kolkata, India.
16. Technical Program Committee Member in 2021 45th IEEE COMPSAC, 12-16 July, 2021, USA.
17. Technical Program Committee Member in 2021 10th International Conference on Communication Systems and Network Technologies (CSNT-2021), 24-25 April, 2021, Bhopal, India.
18. Technical Program Committee Member in 2020 1st International Conference on Artificial Intelligence & Modern Assistive Technology (ICAEMAT' 2020), 24-26 September, 2020, Riyadh, Saudi Arabia.
19. Technical Program Committee Member in 2020 12th International Conference on Computational Intelligence and Communication Networks (CICN' 2020), 25-26 September, 2020, Nainital, India.

20. International Program Committee Member in 2020 2nd IFSA Frequency & Time Conference (IFTC' 2020), 23-25 September, 2020, Porto, Portugal.
21. Technical Program Committee Member in 2020 7th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI), 23-25 September, 2020, Royal Ambarrukmo, Yogyakarta, Indonesia.
22. Technical Program Committee Member in 2020 Ahmad Dahlan International Conference Series on Engineering and Science (ADICS-ESIT 2020), 26-27 August, 2020, Yogyakarta, Indonesia.
23. Technical Program Committee Member in 2019 2nd International Conference of Computer Science and Information Technology (ICoSNIKOM), 28-29 November, 2019, Medan, Indonesia.
24. Technical Program Committee Member in 2020 3rd IEEE International Conference on Computer Applications & Information Security (ICCAIS' 2020), 19-21 March, 2020, Holiday Inn Izdehar area, Riyadh, Saudi Arabia.
25. Technical Program Committee Member in 2019 IEEE Middle East & North Africa COMMUNICATIONS Conference (MENACOMM 2019), 19-21 November, 2019, Kingdom of Bahrain.
26. Technical Program Committee Member in 2019 IEEE International Symposium on Innovation and Entrepreneurship (TEMS-ISIE), 24-26 October, 2019, Hangzhou, China.
27. Technical Program Committee Member in IEEE/WIC/ACM International Conference on Web Intelligence (WI'19), Demo Track, 14-17 October, 2019, Thessaloniki, Greece.
28. Technical Program Committee Member in 5th International Conference on Computer Science, Information Technology (CSITEC 2019), 24-25 August, 2019, Vienna, Austria.
29. Technical Program Committee Member in 2nd IEEE Middle East and North Africa COMMUNICATIONS Conference (MENACOMM), 19-21 November, Kingdom of Bahrain, 2019.
30. Technical Program Committee Member in AnSWer19: 3rd International Workshop on the Applications of Knowledge Representation and Semantic Technologies in Robotics (AnSWer19), Co-located with IROS 2019 (IEEE/RSJ International Conference on Intelligent Robots and Systems), 4-8 November, Macau, China, 2019.
31. Technical Program Committee Member in Fifth International Conference on Image Information Processing (ICIIP -2019), 15-17 November, Wagnaghat, India, 2019.
32. Technical Program Committee Member in First IFSA Frequency & Time Conference (IFTC' 2019), 23-25 October, Barcelona, Spain, 2019.
33. Technical Program Committee Member in International Conference on Computer Science, Information Technology, and Electrical Engineering (ICOMITEE 2019), 16-17 October, Jember, Indonesia, 2019.
34. Technical Program Committee Member in 2nd International Conference on Computer Applications & Information Security (ICCAIS), 19-21 March, Saudi Computer Society, Riyadh, Saudi Arabia, 2019.
35. Technical Program Committee Member in International Conference on Data and Smart Systems Engineering (DSSE 2018), 09-12 July, American University of Beirut (AUB), Beirut, Lebanon, 2018.
36. Technical Program Committee Member in International Conference on Information Society and Smart Cities (ISC 2018), 06-07 June, Oxford city, United Kingdom, 2018.
37. International Advisory Committee Member, International Conference on Chip, Circuitry, Current, Coding, Combustion and Composites (I7C-17), 16-17 November, Anekal, Bengaluru, 2017.
38. Technical Program Committee Member in International Conference on Education and Social Development (ESD-17), 20-22 October, Xiamen, China, 2017.
39. International Advisory Committee Member in International Conference on Ubiquitous Computing (ICUC-17), 19-20 June, Sinhgad College of Engineering, Pune, India, 2017.
40. Technical Program Committee Member in Second International Conference on Advanced Wireless Information and Communication Technologies (AWICT'2018), 13-14 November, Université De Paris-Saclay, Paris, France, 2017.
41. Technical Program Committee Member in World Symposium on Computer Applications & Research (WSCAR'2017), 02-04 April, Istanbul, Turkey, 2017.
42. Technical Program Committee Member in International Conference on Internet of Things and Machine Learning (IML 2017), Liverpool John Moores University, Liverpool, United Kingdom, October, 2017.
43. Technical Program Committee Member in 10th International Conference on Theory and Practice

- of Electronic Governance (ICEGOV), New Delhi, 7-9 March, 2017.
44. Technical Program Committee Member in 2nd International Conference on Modelling, Simulation and Applied Mathematics 2017 (MSAM 2017), Bangkok, 26-27 March, 2017.
 45. International Conference on Informatics, Robotics, Network, Control and Systems (IRONCONS) 2016, Bandung, Indonesia, 23-25 November, 2016.
 46. Technical Program Committee Member in International Conference on Geoinformatics 2016 (ICGWC 2016), Suzhou, China, 15-16 October, 2016.
 47. Technical Program Committee Member in International Conference on Internet of Things and Applications (IOTA' 2016), Maharashtra Institute of Technology, Pune, India, 22-24 January 2016.
 48. Technical Program Committee Member in 7th International Conference on Computational Intelligence and Communication Networks (CICN), MIR Labs, Gwalior, and GGITS, Jabalpur, India, 12-14 December, 2015.
 49. Technical Program Committee Member in 1st International Conference on Computing and Communication Systems (I3CS), NEHU, Shillong, India, 9-10 April, 2015.

Guest Editor/Workshop Chair/Reviewer/Advisory

1. Special Session on “Innovations in Embedded Lightweight Machine Learning Models: Enabling TinyML at the Edge for Practical Applications”, 18th International Work-Conference on Artificial Neural Networks (IWANN 2025), Springer-Verlag, 16-18 June, 2025, A Coruña, Spain.
2. Chair in Special Session on “Deployment and Applications of Large Language Models in Edge-IoT Ecosystem”, IEEE GEM 2025, 16-18 July 2025, Kaohsiung, Taiwan.
3. Track Chair in The 2nd IEEE 43rd International Conference on Consumer Electronics (IEEE ICCE 2025), 11-14 January 2025, Las Vegas, NV, USA.
4. Workshop Chair on “Designing Metaverse using Next Generation Internet of Things” in The 2nd International Conference on Computing, Communication, Perception and Quantum Technology (CCPQT 2023), August 4-7, 2023, Xiamen, China.
5. Lead Guest Editor in Special issue on “Security and Computing on IoT”, Computers, Materials & Continua, Science Citation Index Expanded, Impact Factor 3.024, along with Dr. Nour Moustafa, The University of New South Wales, Australia and Kien Nguyen, Chiba University, Japan, 2020-2021.
6. Guest Editor in Special issue on “Blockchain and IoT Enabled Sensing for Smart City”, MDPI Journal: Sensors, Science Citation Index Expanded, Impact Factor 3.031, along with Vidyasagar Potdar, Curtin University, Australia 2018-2019.
7. Advisory Board Member of the European Union project DewSyS: Dew-Oriented Platform for Cyber-Physical Systems of Systems, 2019.
8. Lead Guest Editor in Special issue on “Dew Computing: A Key Enabler of Future Internet of Things”, Elsevier Journal: Internet of Things Engineering: Cyber Physical Human Systems, along with Marc Frincu, West University of Timisoara, Romania, Yingwei Wang, University of Prince, Edward Island Canada, SC. Karolj Skala, Ruder Bošković Institute, Zagreb, Croatia in 2018-2019.
9. Reviewer of 9th International Conference on Electronics, Communications and Networks (Oct. 18-21, Kitakyushu City, Japan, 2019).
10. Editor in the journal of ICT Express, Elsevier, Impact Factor: 4.317, Indexed in Science Citation Index Expanded, Scopus, Emerging Sources Citation Index, ISSN: 2405-9595.
11. Editorial Advisory Board Member of the Edited Volume on the Cryptographic Security Solutions for the Internet of Things, IGI Global, 2018.
12. 3rd International Conference on Computing Methodologies and Communication (ICCMC 2019).
13. 27th Irish Signals and Systems Conference 2016.
14. 1st Annual International Conference of the IEEE Technology and Engineering Management Society 2017 (IEEE TEMSCON), Silicon Valley (Santa Clara), California USA.
15. International Conference on Informatics, Robotics, Network, Control and Systems (IRONCONS) 2016, Bandung, Indonesia, 2016.
16. 10th International Conference on Theory and Practice of Electronic Governance (ICEGOV), New Delhi, India, 2017.

17. Evener International Conference on Computational Intelligence & Data Engineering (ICCIDE), Mylavaram, Krishna District, Andhra Pradesh, India, 2017.
18. Reviewer of IEEE Transaction on Industrial Informatics, IEEE Transaction on Instrumentation and Measurement, IEEE Systems Journal, IEEE Access, Journal, Measurement, Journal of Medical Systems, etc.

Training Programs, Workshops, Conferences Organized

1. Coordinated Online Faculty Development Program on LaTeX from 24th May to 30th May, 2024 at Sikkim University.
2. Organizing member of International Workshops on Research Frontiers in Data Science and Modelling held on October 13-14, 2023 at Sikkim University.
3. Coordinated Online Faculty Development Program on Moodle LMS from 6th June to 12th June, 2022 at Sikkim University.
4. Organizing Chair, 6th International Conference on Mathematica and Computing (ICMC 2020) held on 18-20th March, 2020 at Sikkim University.
5. Organized Three-day Workshop on Block Chain Technology (BCT-2019) with EICT Academy, IIT Guwahati held on 28-30th March, 2019 at Sikkim University.
6. Organized Innovation and Entrepreneurship Awareness Workshop and Contest-2018 held on 6th March, 2018 at Sikkim University.
7. Organized 1-day Seminar on Green Computing on 28th August, 2015 at Sikkim University.
8. Coordinated 2 days Hands-on Workshop using LaTeX (TeX-2014) on 15th-16th November, 2014 at Sikkim University.
9. Organized 5 days workshop on ISI-SU Autumn School on Machine Intelligence and Applications (ASMIA) jointly with Indian Statistical Institute (ISI), Kolkata on 22th-26th September, 2014 at Sikkim University.
10. Organized 5 days workshop on Theory and Tools for Language and Document Analysis and Research (TTLDAR) jointly with Indian Statistical Institute (ISI), Kolkata on 24th-28th March, 2014 at Sikkim University.

Training Programs and Workshops Attended

1. Attended Faculty Development Programme on "Smart Biomedical Signal Processing: Leveraging IoT, Edge Computing, and ML" In association with ABV-IIITM Gwalior by EICT Academy IIT Roorkee on July 12 – 16, 2025.
2. Attended AI For All program and completed AI Appreciate Stage by CBSE and Intel on 31 May, 2025.
3. Attended AI For All program and completed AI Aware Stage by CBSE and Intel on 31 May, 2025.
4. Attended one-week International Faculty Development Programme by Abacus Institute of Engineering and Management on "Disruptive Technologies (IoT, Quantum Computing, Biomedical, 6G, AI)" from 2 May – 7 May, 2025.
5. Attended Faculty Development Programme by O. P. Jindal University, Raigarh on "AI-Driven Robotics and Industrial Automation for Industry 4.0 Transformation" from 14 April – 18 April, 2025.
6. Attended 7-day Cloud Computing Course, by Turnip Innovations Private Limited, from 4 May – 10 May, 2023.
7. Attended Joint Online One Week Certificate Program Social Robotics & AI, by PDPM IITDM, Jabalpur, MNIT Jaipur, NIT Patna, from 28 June – 4 July, 2021.
8. Attended Faculty Induction Programme (FIP) 4 Weeks Orientation Programme by Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), Teaching Learning Centre, Ramanujan College, University of Delhi from 10 November – 9 December, 2020.
9. Attended Faculty Development Programme Research Methodology by Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), Teaching Learning Centre, Ramanujan College, University of Delhi from 1-15th October, 2020.
10. Attended One Week Faculty Development Programme on "Introduction to Machine Learning in Research (Concepts and Practical)" by Pandit Madan Mohan Malaviya National Mission on

Teachers and Teaching (PMMMNMSTT), Teaching Learning Centre, Ramanujan College, University of Delhi and Department of Computer Science, Ram Lal Anand College, University of Delhi from 10-18th October, 2020.

11. Attended One Week International Webinar on Industry4.0: Artificial Intelligence and Related Technology by Integral University, India from 6-10th July, 2020.
12. Attended online Faculty Development Program (FDP) on Quantum Computing organized by AICTE Training and Learning (ATAL) Academy, NITTTR Chandigarh, India from 15-19th June, 2020.
13. Attended One Week Online National Workshop on E-Learning Resources – Best Practices In E Learning In The Modern Era and Future organized by St. Joseph's College, Darjeeling, India from 22-27th June, 2020.
14. Attended online Faculty Development Program (FDP) on Artificial Intelligence & Machine Learning and Its Application organized by E & ICT Academy, NIT Patna from 18-24th May, 2020.
15. Attended online Faculty Development Program (FDP) on Blockchain and its Application organized by E & ICT Academy, NIT Patna from 4-10th May, 2020.
16. Attended workshop on Xilinx FPGA Architecture and Design flow organized by Indian Institute of Technology-Guwahati, Guwahati on 22nd – 23rd November, 2013.
17. Attended workshop on Advances in Document Analysis and Retrieval jointly organized by Indian Statistical Institute, Kolkata at Gauhati University, Gauhati on 7th - 11th March, 2013.
18. Attended workshop on i-Robotics at Haldia Institute of Technology, Haldia, on 15th - 16th February, 2011.
19. Attended workshop on Hawk-Board at Indian Institute of Technology Kharagpur, Kharagpur on 16th January, 2011.
20. Attended short term course on Advance DSP design techniques at Indian Institute of Technology Kharagpur, Kharagpur on 28th Jun - 2nd July, 2010.
21. Attended training program on Infosys campus connect jointly organized by Infosys Inc. at B. P. Poddar Institute of Management and Technology in the year 2008-2009.
22. Attended industrial training program on Switching, GSM mobile and OFC at BSNL, Cooch Behar on 2nd - 24th July, 2007.

Courses/Certifications Completed

1. Completed Mastering Digital Twins, accredited by Coursera, June 2019.
2. Completed Annual Refresher Programme in Teaching (ARPIT) by UGC SWAYAM course on “Fundamentals of Outcome-based Curriculum in Engineering Education” from 28th January–23rd February, 2019.
3. Certified Blockchain Expert-V2, accredited by the Blockchain Council, October 2018.
4. Completed Blockchain and Bitcoin Fundamentals, accredited by Udemy, October 2018.
5. Completed Blockchain Advanced Level: Uses Beyond Bitcoin 2018, accredited by Udemy, October 2018.

Professional Activities (Administrative)

1. Departmental Purchase Committee: Served as member of departmental purchase committee during 2025-.
2. Judge of Debate Competition of SUSA: Judge of debate competition on “This House Rejects Artificial Intelligence Genitaed Art” organized by SUSA, Sikkim University, April 13, 2013.
3. Member of IEEE Technical Committee: Member of IEEE CTSoc Internet of Things (IoT) Technical Committee (TC) IEEE CTSoc, 2023 -.
4. Member of Working Committee: Nominated by the Vice Chancellor of Sikkim University as the Admission Working Committee member to see in admission process at Sikkim University, 2023.
5. Member of Technical Committee: Nominated by the Vice Chancellor of Sikkim University as the SWAYAM member to review MOOC courses in department of Computer Applications at Sikkim University, 2022-.
6. Member of Technical Committee: Nominated by the Vice Chancellor of Sikkim University as the member of technical committee to review all lab equipment in all departments at Sikkim University, 2022-.

7. Member of procurement of professional audio-video online meeting software Committee: Nominated by the Vice Chancellor of Sikkim University as the member to buy online AV software for online meet at Sikkim University, 2022-.
8. Member of College Inspection Committee: Nominated by the Vice Chancellor of Sikkim University as the member to assess college for affiliation extension/revision at Sikkim University, 2021-.
9. Member of ICT Policy Committee: Nominated by the HoD, Department of Computer Applications for acting as coordinator “Compulsory Audit Paper on National Services (NSS)” Sikkim University, 2021-.
10. Member of ICT Policy Committee: Nominated by the Vice Chancellor of Sikkim University as the member to prepare ICT policy at Sikkim University, 2021-.
11. Member of Board of Studies Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of BOS of Dept. of Computer Applications at Sikkim University, 2019-.
12. Member of School Board Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of School Board of School of Physical Sciences at Sikkim University, 2019-.
13. Member of Project Purchase Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of project purchase committee of NETRA lab of Dept. of Computer Applications at Sikkim University, 2019-.
14. Member of Project Appointment Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of project appointment committee of NETRA lab of Dept. of Computer Applications at Sikkim University, 2019-.
15. Micro-Observer of Lok Sabha Poll: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of micro-observer of Lok Sabha Poll in 2019-.
16. Member of B.Voc Syllabus Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of drafting B.Voc syllabus committee at Sikkim University, 2019-.
17. Member of Oracle Software Scrutiny Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform scrutiny of Oracle software procurement at Sikkim University, 2017-.
18. Member of Review Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform review of Dept. of Computer Applications activities at Sikkim University, 2017-.
19. Member of IT Skill Course Chief Coordinator: Nominated by the Vice Chancellor of Sikkim University as the Chief Coordinator of IT Skill Courses at Sikkim University, 2016-.
20. Member of Language Laboratory Setup Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform review of language laboratory setup procedure at Sikkim University, 2016-.
21. Member of IED Cell Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform regular activities of Innovation and Entrepreneurship Development cell at Sikkim University, 2016-.
22. Member of Purchase Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform review of purchase activities at Sikkim University, 2016-.
23. Member of Innovator’s Club: Nominated by the Vice Chancellor of Sikkim University as the member of innovator’s club to establish incubator cell at Sikkim University, 2015-.
24. Member of B.Sc. Computer Science Syllabus Committee: Nominated by the Vice Chancellor of Sikkim University as the member to draft syllabus of B.Sc. Computer Science at Sikkim University, 2015-.
25. Member of MCA Entrance Exam Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform MCA entrance exam conduct at Sikkim University, 2015-.
26. Member of Meeting with General Managers of Industries: Nominated by the Vice Chancellor of Sikkim University as the member to meet and discuss about the job prospects in Sikkim industries at Sikkim University, 2015-.
27. Member of Technical Sub-Committee for Center of Endangered Languages (CEL) Committee: Nominated by the Vice Chancellor of Sikkim University as the member of Technical Sub-Committee for Center of Endangered Languages (CEL) Committee to seek for infrastructure needed for

- smooth running of the center in Sikkim University, 2014-.
28. Member of Training and Placement Committee: Nominated by the Vice Chancellor of Sikkim University as the member of Training and Placement Committee to provide job and training opportunities for students in Sikkim University, 2014-.
 29. Member of NAAC Criterion Search Committee: Nominated by the Vice Chancellor of Sikkim University as the member of NAAC Criteria Search Committee to search the Infrastructure and Learning Resources in Sikkim University, 2014-.
 30. Member of IEEE CSI (Chapter Council) Executive Body: Selected as member for executive body of the IEEE CSI as the member, 2014-.
 31. Member of Board of Studies (BOS): Nominated by the Vice Chancellor of Sikkim University as the member of BOS of the Department of Computer Sciences and Applications, Sikkim University, 2013-.
 32. Member of Convocation Committee: Nominated by the Vice Chancellor of Sikkim University as the member to perform volunteer activities in the convocation at Sikkim University, 2013-.
 33. Member of Admission Committee: Served admission committee for the Integrated BCA-MCA 5 years course admission for the year 2013-.
 34. Syllabus Drafting Committee: Served as syllabus drafting committee member for BCA-MCA, 2013-.
 35. Department Library Committee: Served as library committee member for BCA-MCA, 2013-.
 36. Question Moderation Committee: Served as library committee member for BCA-MCA, 2013-.
 37. Departmental Purchase Committee: Served as purchase committee member for BCA-MCA, 2013-15.

Professional Activities (Academic)

1. Adjunct Faculty: Served as Adjunct Faculty at Various Departments (Chinese, Hindi, Music, Psychology), Sikkim University during March-August 2023, taught Introduction to Cyber Security as per UG-NEP 2020 mandatory course.
2. Adjunct Faculty: Served as Adjunct Faculty at the Department of Horticulture, Sikkim University during February-July 2018, taught Statistics and Computer Applications.
3. Adjunct Faculty: Served as Adjunct Faculty at the Department of Management, Sikkim University during August-December 2013, taught Computer Applications in Management.
4. Adjunct Faculty: Served as Adjunct Faculty at the Department of Management, Sikkim University during February-June 2014, taught Operation Research.

Teaching Activities

2025-26 (PG)

Odd Semester (Monsoon / July-Dec):

- Discrete Mathematics

Even Semester (Spring / Feb-June):

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2024-25 (PG)

Odd Semester (Monsoon / July-Dec):

- Discrete Mathematics
- Web Programming Laboratory

Even Semester (Spring / Feb-June):

- Object Oriented Programming in C++ & Java (C++ Only)

2023-24 (PG)

Odd Semester:

- Discrete Mathematics
- Even Semester:*
 - Object Oriented Programming in C++ & Java (C++ Only)

2022-23 (PG/UG (NEP))

- Odd Semester:*
 - Data Structure and Algorithm
 - Formal Language and Automata Theory
- Even Semester:*
 - Introduction to Cyber Security
 - Object Oriented Programming in C++ & Java

2021-22 (PG)

- Odd Semester:*
 - Computer Organization and Architecture
 - Mathematics II
- Even Semester:*
 - Discrete Mathematics
 - Introduction to Computer Systems

2020-21 (PG)

- Odd Semester:*
 - Mathematics I
 - Digital Logic
 - Digital Logic Laboratory
- Even Semester:*
 - Discrete Mathematics

2019-20 (PG)

- Odd Semester:*
 - Digital Logic
 - Digital Logic Laboratory
 - Elective II
- Even Semester:*
 - Computer Organization and Architecture
 - Data Structure Laboratory

2018-19 (PG/Integrated)

- Odd Semester:*
 - Elective II
 - Digital Logic Laboratory
 - Formal Language and Automata Theory
- Even Semester:*
 - Mathematics-II
 - Computer Organization and Architecture

2017-18 (PG/Integrated)

- Odd Semester:*
 - Digital Logic
 - Digital Logic Laboratory
 - Microprocessor and Microcontroller
 - Hardware Design Laboratory
- Even Semester:*
 - Elective II

- Computer Organization and Architecture

2016-17 (PG/Integrated)

Odd Semester:

- Microprocessor and Microcontroller
- Hardware Design Laboratory
- Computer Organization & Architecture
- Computer Organization & Architecture Laboratory

Even Semester:

- Object Oriented Analysis and Design
- Advanced Java Laboratory
- Elective II

2015-16 (PG/Integrated)

Odd Semester:

- Computer Organization
- Microprocessors
- Computer Organization Laboratory
- Mathematics III

Even Semester:

- Formal Language & Automata Theory
- Microprocessors Laboratory

2014-15 (UG/PhD Coursework)

Odd Semester:

- Basic Electronics
- PhD Research Methodology (Statistics)

Even Semester:

- Microprocessors
- Microprocessors Laboratory

2013-14 (UG)

Odd Semester:

- Computer System Architecture
- Data Structures
- Basic Electronics
- Mathematical Foundation -I
- Computer Application in Management

Even Semester:

- Mathematics - II
- Computer Organization & Architecture

2012-13 (UG)

Odd Semester:

- Basic Electronics
- Lab: Basics of Computing
- Computer System Architecture

Even Semester:

- Computer Organization

2011-12 (UG) SIEM, Siliguri

Even Semester:

- C Programming and Laboratory (at B.Tech. level)