

# Curriculum Vitae

## Partha Pratim Ray

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Google Scholar: <https://scholar.google.co.in/citations?user=ioplfagAAAAJ&hl=en&oi=ao>

## Academic Qualifications

- Pursuing **PhD** in Sikkim University with SGPA 9.29.
- **Master of Technology (MTech)** in Electronics and Communication Engineering with specialization in Embedded Systems from Haldia Institute of Technology, Maulana Abul Kalam Azad University of Technology (formerly known as West Bengal University of Technology), Kolkata, India in 2011 with 9.60 DGPA.
- **Graduate Aptitude Test in Engineering (GATE)** qualified in Computer Science (CS) in 2009 with 91.62 percentile.
- **Bachelor of Technology (BTech)** in Computer Science and Engineering from B. P. Poddar Institute of Management and Technology, Maulana Abul Kalam Azad University of Technology (formerly known as West Bengal University of Technology), Kolkata, India in 2008 with 8.15 DGPA.
- **Higher Secondary Examination** from Jenkins School, West Bengal Council of Higher Secondary Education in 2004 with 85.80 percent.
- **Secondary Examination** from Jenkins School, West Bengal Board of Secondary Education in 2002 with 90.25 percent.

## Work Experience

- **Total 12+ Years**
- July, 2012 – Present: **Assistant Professor**
  - **Dept. of Computer Applications, Sikkim University (A Central University), India**
- January, 2012 – June, 2012: Assistant Professor
  - Surendra Institute of Engineering and Management, Siliguri, West Bengal, India

## Awards and Fellowships/Achievements

- Recognized as the one of the **World's Top 2%** Scientists by the Stanford University, 2023. Stanford University, USA in both career and yearly database.
- Elevated to **Fellow, IETE**, 2023.
- Awarded with University Publication Awards – 2023 by Sikkim University in the School of Physical Sciences.
- Recognized as the one of the **World's Top 2%** Scientists by the Stanford University, 2022. Stanford University, USA in both career and yearly database.
- Recognized as the one of the **World's Top 2%** Scientists by the Stanford University, 2021. Stanford University, USA in both career and yearly database.
- Recognized as the one of the **World's Top 2%** Scientists by the Stanford University, 2020. Stanford University, USA in both career and yearly database.
- Felicitated with the “Top Downloaded Paper 2018-2019” as one of the most read in the “Transactions on Emerging Telecommunications Technologies” by Wiley, 2020.
- Felicitated with the “IEI Young Engineers Award 2019-20” in the “Computer Engineering Division” for outstanding achievement in research by The Institution of Engineers (India), on Jaipur 15-16<sup>th</sup> February, 2020.
- Winner of the Emerald Literati Awards 2019 as Highly Commended for “Continuous glucose monitoring: A systematic review of sensor systems and prospects” published in Sensor Review.
- Elevated to Senior Member IEEE, February 16, 2019.
- Invited to attend to attend the Meeting of National Innovation Club Members at Rashtrapati Bhavan Cultural Centre, New Delhi on the occasion of Festival of Innovation 2017.
- Felicitated with the “Young Scientist Award” by Venus International Foundation in 2017.
- Felicitated with the “Bharat Vikas Award” by Institute of Self Reliance in 2017.
- Felicitated with the “Best Professor in IT Academic Excellence Awards” by ICBM-AMP in 2017.
- Felicitated with the “Young Achiever Award” by IEAE in 2018.
- Selected as Member of IEEE CSI Chapter Council Executive Body.

- Selected in the Science Academies' Summer Research Fellowship Programme (SRFP) by Indian Academy of Sciences, Bangalore (IAS), Indian National Science Academy, New Delhi (INSA), and The National Academy of Sciences, Allahabad (NAS).
- 2009-11 Post Graduate Scholarship by All India Council for Technical Education (AICTE).

## **Professional Memberships**

- Fellow, The Institution of Electronics & Telecommunication Engineers (FIETE) (F 501509).
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE) (SMIEEE 91152489).
- Member, The Institution of Engineering and Technology (IET) (MIET 1100765728).
- Associate Member, The Institution of Engineers of India (MIE) (M-1645315).
- Member, Computer Society of India (2010000360).
- AM, The Indian Science Congress Association (ISCA) (A2691).
- Universal Association of Computer and Electronics Engineers (UACEE) (AM1010002745).
- Member, Association of Agrometeorologists (AAM) (AM-2017-202).
- Member, Association for Computing Machinery (ACM) (5140889).
- Member, Global ICT Standardisation Forum for India (GISFI).
- Member, International Association of Computer Science and Information Technology (IACSIT) (80346421).
- Member, Institute for Computer Sciences, Social Informatics and Telecommunications Engineering (ICST).
- Member, International Association of Engineers (IAE) (110263).

## **Research Interests**

- Internet of Things
- Edge Computing
- Pervasive Biomedical Informatics
- Pervasive Generative AI

## Selected List of Publications

- SCI Journals: 106
- SSCI Journals: 1
- Scopus Journals: 20

## Journals

- (1) **Ray. P. P.**, "Large language models in laparoscopic surgery: A transformative opportunity", Laparoscopic, Endoscopic and Robotic Surgery, Elsevier, 2024, ISSN: 1878-4046. **(Scopus Index) (IF: 1.4)**
- (2) **Ray. P. P.**, "Upgrading Academic Radiology with Open-Source Large Language Models", Anatomical Academic Radiology, Association of American Radiology, 2024, ISSN: 1878-4046. **(Science Citation Index) (IF: 4.8)**
- (3) **Ray. P. P.**, "Open-Source Large Language Models in Medical Education: Balancing Promise and Challenges", Anatomical Sciences Education, American Association for Anatomy, 2024, ISSN: 1935-9780. **(Science Citation Index) (IF: 7.3)**
- (4) **Ray. P. P.**, "ChatGPT Enigma: Navigating the Jumble of Surgical Generative AI", Indian Journal of Surgery, Springer, 2024, ISSN: 0973-9793. **(Science Citation Index) (IF: 0.4)**
- (5) **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, 2024, ISSN: 1473-8376. **(Social Sciences Citation Index) (IF: 3.7)**
- (6) **Ray. P. P.**, "Opening Doors for Open-Source Large Language Models for Radiology Education", Radiologia Brasileira, SciELO, 2024, ISSN: 0100-3984. **(Scopus) (CF: 3.0)**
- (7) **Ray. P. P.**, "Generative AI: A Transformative Force in Advancing Research and Care in Metabolic Dysfunction-Associated Fatty Liver Disease", Liver Research, Elsevier, 2024, ISSN: 2542-5684. **(Scopus) (CF: 5.9)**
- (8) **Ray. P. P.**, "Artificial General Intelligence for Neurosurgery and Medicine", Journal of Clinical Neuroscience, Elsevier, 2024, ISSN: 1532-2653. **(Science Citation Index) (IF: 2)**
- (9) **Ray. P. P.**, "Letter to the Editor Regarding Depending on Tailor Made Medical Large Language Models for Clinical Setting", World Neurosurgery, Elsevier, 2024, ISSN: 1878-8769. **(Science Citation Index) (IF: 2)**
- (10) **Ray. P. P.**, "Embracing the AI Revolution with Open Large Language Models in Anatomy Education", Surgical and Radiologic Anatomy, Springer, 2024, ISSN: 1279-8517. **(Science Citation Index) (IF: 1.4)**

- (11) **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, 2024, ISSN: 1873-4626. **(Science Citation Index) (IF: 3.2)**
- (12) **Ray. P. P.**, "Addressing Technical Considerations for Implementing Language Models in Postcolonoscopy Patient Management", *Gastrointestinal Endoscopy*, Elsevier, 2024, ISSN: 1097-6779. **(Science Citation Index) (IF: 7.7)**
- (13) **Ray. P. P.**, "Timely Need for Navigating the Potential and Downsides of LLMs in Healthcare and Biomedicine", *Briefings in Bioinformatics*, Oxford University Press, 2024, ISSN: 1477-4054. **(Science Citation Index) (IF: 9.5)**
- (14) **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, 2024, ISSN: 1867-108X. **(Science Citation Index) (IF: 2.3)**
- (15) **Ray. P. P.**, "Generative AI in Psychiatry: A Potential Companion in the Current Therapeutic Era!", *Asian Journal of Psychiatry*, Elsevier, 2024, ISSN: 1876-2026. **(Science Citation Index) (IF: 9.5)**
- (16) **Ray. P. P.**, "Generative AI and its Impact on Sugarcane Industry: An Insight into Modern Agricultural Practices", *Sugar Tech*, Springer, 2024, ISSN: 0974-0740. **(Scopus) (IF: 1.9)**
- (17) **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, ISSN: 1738-6586. **(Science Citation Index) (IF: 3.701)**.
- (18) **Ray. P. P.**, "RE: Dr. GAI: Significance of generative AI in plastic surgery", *Aesthetic Plastic Surgery*, Springer, 2023, ISSN: 1432-5241. **(Science Citation Index) (IF: 2.4)**
- (19) **Ray. P. P.**, "How True is the Role of Large Language Models in Nursing?", *European Journal of Cardiovascular Nursing*, Oxford Academic, 2023, ISSN: 1873-1953. (Invited) **(Science Citation Index) (IF: 2.9)**
- (20) **Ray. P. P.**, "ChatGPT in Transforming Communication in Seismic Engineering: Case Studies, Implications, Key Challenges and Future Directions", *Earthquake Science*, Elsevier, 2023, ISSN: 1674-4519. **(Scopus) (CS: 1.1)**
- (21) **Ray. P. P.**, "Can Generative AI Assist Pediatric Inguinal Hernia Issues?", *Hernia*, Springer, 2023, ISSN: 1248-9204. **(Science Citation Index) (IF: 2.9)**
- (22) **Ray. P. P.**, "Fostering Support for Pediatric Surgery by Generative AI", *Journal of Pediatric Surgery*, Elsevier, 2023, ISSN: 1531-5037. **(Science Citation Index) (IF: 2.4)**
- (23) **Ray. P. P.**, "Dr. Robo-dietitian: Can ChatGPT Assist in Dietetics?", *Nutrition*, Elsevier, 2023, ISSN: 1873-1244. **(Science Citation Index) (IF: 4.4)**

- (24) **Ray. P. P.**, "Evaluating the Limitations of ChatGPT in Generating Competent Radiology Reports for Distal Radius Fractures", *Current Problems in Diagnostic Radiology*, Elsevier, 2023, ISSN: 1535-6302. **(Scopus) (IF: 1.4)**
- (25) **Ray. P. P.**, "Comment on: AI am a Rheumatologist: a practical primer to large language models for rheumatologists", *Rheumatology*, Oxford Academic, 2023, ISSN: 1462-0332. **(Science Citation Index) (IF: 6.2)**
- (26) **Ray. P. P.**, "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, 2023, ISSN: 1432-1068. **(Scopus)**
- (27) **Ray. P. P.**, "Using ChatGPT for Early Career Research Scholarship", *The Clinical Teacher*, Wiley, 2023, ISSN: 1743-498X. **(Science Citation Index) (IF: 1.8)**
- (28) **Ray. P. P.**, "Advancing AI in Rheumatology: Critical Reflections and Proposals for Future Research Using Large Language Models", *Rheumatology International*, Springer, 2023, ISSN: 1437-160X. **(Science Citation Index) (IF: 4)**
- (29) **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, 2023, ISSN: 1531-5053. **(Science Citation Index) (IF: 1.9)**
- (30) **Ray. P. P.**, "ChatGPT and Forensic Science: A New Dawn of Investigation", *Forensic Science, Medicine and Pathology*, Springer, 2023, ISSN: 1556-2891. **(Science Citation Index) (IF: 1.8)**
- (31) **Ray. P. P.**, "Can GPT-4 Direct a New Horizon for Healthcare Academics, Scientific Writing and Research?", *Surgical Innovation*, Sage, 2023, ISSN: 1553-3514. **(Science Citation Index) (IF: 1.5)**
- (32) **Ray. P. P.**, "A Critical Evaluation on the Use of Large Language Model for Radiology Research", *European Radiology*, Springer, 2023, ISSN: 1432-1084. **(Science Citation Index) (IF: 5.9)**
- (33) **Ray. P. P.**, "Striking a Balance: Embracing LLMs while Upholding Scientific Integrity", *Japanese Journal of Radiology*, Springer, 2023, ISSN: 1867-108X. **(Science Citation Index) (IF: 2.1)**
- (34) **Ray. P. P.**, "ChatGPT's Competence in Addressing Urolithiasis: Myth or Reality?", *International Urology and Nephrology*, Springer, 2023, ISSN: 1573-2584. **(Science Citation Index) (IF: 2.2)**
- (35) **Ray. P. P.**, "Generative AI: In Rescue of Healthcare Reformation", *World Journal of Urology*, Springer, 2023, ISSN: 1433-8726. **(Science Citation Index) (IF: 3.4)**
- (36) **Ray. P. P.**, "Can ChatGPT Truly Overcome other LLMs?", *Canadian Association of Radiologists Journal*, Sage, 2023, ISSN: 1488-2361. **(Science Citation Index) (IF: 3.1)**
- (37) **Ray. P. P.**, "Generative AI: A New Dawn in Cardiovascular Study and Research", *Indian Journal of Thoracic and Cardiovascular Surgery*, Springer, 2023, ISSN: 0973-7723. **(Scopus) (IF: 0.7)**

- (38) **Ray. P. P.**, "Can We Depend on LLMs to Persuade Myopia Related Issues?", *Ophthalmic and Physiological Optics*, Wiley, 2024, ISSN: 1475-1313. **(Science Citation Index) (IF: 2.9)**
- (39) **Ray. P. P.**, "An Overview on WebAssembly for IoT: Background, Tools, State-of-the-art, Challenges and Future Direction", *Future Internet*, MDPI, 2023, ISSN: 1999-5903. **(Scopus) (IF: 3.4)**
- (40) **Ray. P. P.**, "Can LLMs Improve Existing Scenario of Healthcare?", *Journal of Hepatology*, EASL, 2023, ISSN: 1600-0641. **(Science Citation Index) (IF: 25.7)**
- (41) **Ray. P. P.**, "Is ChatGPT Worthy Enough for Provisioning Clinical Decision Support?", *Journal of the American Medical Informatics Association*, Oxford University Press, 2023, ISSN: 1527-974X. **(Science Citation Index) (IF: 6.4)**
- (42) **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, 2023, ISSN: 2515-5091. **(Science Citation Index) (IF: 4.4)**
- (43) **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, 2023, ISSN: 2772-4859.
- (44) **Ray. P. P.**, "Revisiting the Need of the Use of GPT in Surgery and Medicine", *Techniques in Coloproctology*, Springer, 2023, ISSN: 1123-6337. **(Science Citation Index) (IF: 3.5)**
- (45) **Ray. P. P.**, "A Critical Analysis of Use of ChatGPT in Orthopedics", *International Orthopaedics*, Springer, 2023, ISSN: 1432-5195. **(Science Citation Index) (IF: 2.9)**
- (46) **Ray. P. P.**, "A Critical Perspective on Large Language Model to Obtain Clinical Information about Fertility Research", *Fertility and Sterility*, ASRM, 2023, ISSN: 1556-5653. **(Science Citation Index) (IF: 6.7)**
- (47) **Ray. P. P.**, "A Critical Examination and Suggestions for Large Language Models for Structured Reporting in Radiology", *La radiologia medica*, Springer, 2023, ISSN: 1826-6983. **(Science Citation Index) (IF: 8.9)**
- (48) **Ray. P. P.**, "Broadening the Horizon: A Call for Extensive Exploration of ChatGPT's Potential in Obstetrics and Gynecology", *American Journal of Obstetrics & Gynecology*, 2023, ISSN: 1097-6868. **(Science Citation Index) (IF: 9.8)**
- (49) **Ray. P. P.**, "Re-evaluating the Role of AI in Scientific Writing: A Critical Analysis on ChatGPT", *Skeletal Radiology*, Springer, 2023, ISSN: 1432-2161. **(Science Citation Index) (IF: 2.1)**
- (50) **Ray. P. P.**, "Peeking Inside GPT-4 for Medical Research and Practice", *Journal of the Chinese Medical Association*, The Chinese Medical Association, Taipei, Taiwan, 2023, ISSN: 1726-4901. **(Science Citation Index) (IF: 3.396)**
- (51) **Ray. P. P.**, "Bridging the Gap: Integrating ChatGPT into Obstetrics and Gynecology Research - A Call to Action", *Archives of Gynecology and Obstetrics*, 2023, ISSN: 1432-0711. **(Science Citation Index) (IF: 2.7)**

- (52) **Ray. P. P.**, Majumder, P., "Beyond the Hype: A Comprehensive Critique of ChatGPT's Applicability in Genetics", *European Journal of Human Genetics, Nature*, 2023, ISSN: 1476-5438. **(Science Citation Index) (IF: 5.2)**
- (53) **Ray. P. P.**, "Need to Evaluate the Role of GPT-4 in Generating Radiology Reports", *Radiology, RSNA*, 2023, ISSN: 1527-1315. **(Science Citation Index) (IF: 19.7)**
- (54) **Ray. P. P.**, "ChatGPT: A Game Changer in Academic Medicine's AI Revolution", *Academic Medicine, Walters Kluwer*, 2023, ISSN: 1040-2446. **(Science Citation Index) (IF: 7.4)**
- (55) **Ray. P. P.**, Majumder, P. "Role of ChatGPT in predicting protein-protein interactions (PPI)", *Current Science, Indian Academy of Sciences*, 2023, ISSN: 0011-3891. **(Science Citation Index) (IF: 1.169)**
- (56) **Ray. P. P.**, "Bridging the Gap: Integrating ChatGPT into Obstetrics and Gynecology Research - A Call to Action", *Archives of Gynecology and Obstetrics, Springer*, 2023 ISSN: 1432-0711 **(Science Citation Index) (IF: 2.804)**.
- (57) **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*, 2023 ISSN: 1435-5655 **(Scopus) (IF:3)**.
- (58) **Ray. P. P.**, Majumder, P., "Impact of ChatGPT on Surgical Practice and Research: Embracing AI's Transformative Potential", *Indian Journal of Surgery, Springer*, 2023 ISSN: 0973-9793 **(Science Citation Index) (IF: 0.609)**.
- (59) **Ray. P. P.**, "Transforming Industrial Reliability: The Intersection of Failure Modes and Effects Analysis with Artificial Intelligence", *Journal of Failure Analysis and Prevention, Springer*, 2023 ISSN: 1864-1245 **(Scopus) (IF: 1.1)**.
- (60) **Ray. P. P.**, "ChatGPT in Radiology: Transforming Patient Care with AI Chatbots", *Journal of the American College of Radiology, American College of Cardiology - Elsevier*, 2023 ISSN: 1558-349X. **(Science Citation Index) (IF: 6.24)**.
- (61) **Ray. P. P.**, "Leveraging Deep Learning and Language Models in Revolutionizing Water Resource Management, Research and Policy-Making: A Case for ChatGPT", *ACS ET&Water, American Chemical Society*, 2023 ISSN: 2690-0637. **(Scopus)**.
- (62) **Ray. P. P.**, Majumder, P., "ChatGPT's Potential to Transform Healthcare and Address Ethical Challenges in AI-driven Medicine", *Journal of Clinical Neurology, Korean Neurological Association*, 2023 ISSN: 1738-6586. **(Science Citation Index) (IF: 3.701)**.
- (63) **Ray. P. P.**, "AI in Sensor Research: A Reality Check and the Underestimated Potential of ChatGPT", *ACS Sensors, American Chemical Society*, 2023 ISSN: 2379-3694. **(Science Citation Index) (IF: 9.618)**.



- (64) **Ray. P. P.**, "Refining the Application of Artificial Intelligence in the Water Domain: Exploring the Potential of ChatGPT", *Science of The Total Environment*, Elsevier, 2023 ISSN: 0048-9697. **(Science Citation Index) (IF: 10.754)**.
- (65) **Ray. P. P.**, "A Sober Appraisal of AI Systems, Particularly ChatGPT, in the Facets of Emergency Medicine", *Annals of Emergency Medicine*, Elsevier, 2023 ISSN: 1097-6760. **(Science Citation Index) (IF: 6.762)**.
- (66) **Ray. P. P.**, "AI-Assisted Sustainable Farming: Harnessing the Power of ChatGPT in Modern Agricultural Sciences and Technology", *ACS Agricultural Science & Technology*, American Chemical Society, 2023 ISSN: 2692-1952. **(Scopus)**.
- (67) **Ray. P. P.**, Das, P., K., "Charting the Terrain of Artificial Intelligence: A Multidimensional Exploration of Ethics, Agency, and Future Directions", *Philosophy & Technology*, Springer, 2023 ISSN: 2210-5441. **(Scopus)**.
- (68) **Ray. P. P.**, Majumder, P., "Assessing the Accuracy of Responses by the Language Model ChatGPT to Questions Regarding Bariatric Surgery: A Critical Appraisal", *Obesity Surgery*, Springer, 2023 ISSN: 1708-0428. **(Science Citation Index) (IF: 3.836)**.
- (69) **Ray. P. P.**, Majumder, P., "The Double-Edged Sword of AI in Biomedical Engineering: ChatGPT's Controversial Impact on Research and Collaboration Paradigms", *Annals of Biomedical Engineering*, Springer, 2023 ISSN: 1573-9686. **(Science Citation Index) (IF: 4.310)**.
- (70) **Ray. P. P.**, Majumder, P., "AI Tackles Pandemics: ChatGPT's Game-Changing Impact on Infectious Disease Control", *Annals of Biomedical Engineering*, Springer, 2023 ISSN: 1573-9686. **(Science Citation Index) (IF: 4.310)**.
- (71) **Ray. P. P.**, Majumder, P., "Dr. ChatGPT in Cardiovascular Nursing: A Deeper Dive into Trustworthiness, Value, and Potential Risks", *The European Journal of Cardiovascular Nursing*, Oxford Academic, 2023 ISSN: 1873-1953. **(Science Citation Index) (IF: 3.593)**.
- (72) **Ray. P. P.**, Majumder, P., "ChatGPT in Radiology: A Deeper Look into its Limitations and Potential Pathways for Improvement", *Canadian Association of Radiologists Journal*, Sage, 2023 ISSN: 1488-2361. **(Science Citation Index) (IF: 4.186)**.
- (73) **Ray. P. P.**, Majumder, P., "Assessing ChatGPT's Potential: A Critical Analysis and Future Directions in Total Joint Arthroplasty", *The Journal of Arthroplasty*, Elsevier, 2023 ISSN: 1532-8406. **(Science Citation Index) (IF: 4.435)**.
- (74) **Ray. P. P.**, "Web3: A Comprehensive Review on Background, Technologies, Applications, Zero-Trust Architectures, Challenges and Future Directions", *Internet of Things and Cyber-Physical Systems*, Elsevier, 2023 ISSN: 2667-3452. **(Scopus)**
- (75) **Ray. P. P.**, "ChatGPT: A Comprehensive Review on Background, Applications, Key Challenges, Bias, Ethics, Limitations and Future Scope", *Internet of Things and Cyber-Physical Systems*, Elsevier, 2023

- (76) **Ray. P. P.**, Majumder, P., "A Review on Cancer Data Management Using Blockchain: Progress and Challenges", *Advances in Computers*, Elsevier, 2023, ISSN: 0065-2458. (**Science Citation Index**) (**IF: 3.067**).
- (77) **Ray. P. P.**, Skala, K., "Internet of Things Aware Secure Dew Computing Architecture for Distributed Hotspot Network: A Conceptual Study", *Applied Sciences*, MDPI, (12), 2022, ISSN: 2076-3417. (**Science Citation Index**) (**IF: 2.838**)
- (78) **Ray. P. P.**, "A Review on TinyML: State-of-the-art and Prospects", *Journal of King Saud University - Computer and Information Sciences*, Elsevier, 34(4) April, pp. 1595-1623, 2022, ISSN: 1319-1578. (**Science Citation Index**) (**IF: 8.839**)
- (79) **Ray. P. P.**, "A Review on Tactile IoT: Architecture, Requirements, Prospects, and Future Directions", *Transactions on Emerging Telecommunications Technologies*, Wiley, 33(4), 2022, ISSN: 2161-3915. (**Science Citation Index**) (**IF: 3.310**)
- (80) **Ray. P. P.**, "IoT-Edge Analytics for BACON Assisted Multivariate Health Data Anomaly", *Advances in Computers*, Vol. 127, pp. 117-137, Elsevier, 2022, ISSN: 0065-2458. (**Science Citation Index**) (**IF: 3.067**)
- (81) **Ray. P. P.**, Dash, D., "IoT-Edge Anomaly Detection for Covariate Shifted and Point Time Series Health Data", *Journal of King Saud University - Computer and Information Sciences*, Elsevier, 34(10B), pp. 9608-9621, 2022, ISSN: 1319-1578. (**Science Citation Index**) (**IF: 8.839**)
- (82) Baidya. S., Potdar. V., **Ray. P. P.**, Mandi. C., "Reviewing the opportunities, challenges, and future directions for the digitalization of energy", *Energy Research & Social Science*, Elsevier, 81, 2021, ISSN: 2214-6296. (**Social Science Citation Index**) (**IF: 8.514**)
- (83) **Ray. P. P.**, "A Review on 6G for Space-air-ground Integrated Network: Key Enablers, Open Challenges, and Future Direction", *Journal of King Saud University - Computer and Information Sciences*, Elsevier, 34(9), pp. 6949-6976, 2022, ISSN: 1319-1578. (**Science Citation Index**) (**IF: 8.839**)
- (84) **Ray, P. P.**, "A Survey on Cognitive Packet Networks: Taxonomy, State-of-the-art, Recurrent Neural Networks, and QoS Metrics", *Journal of King Saud University - Computer and Information Sciences*, Elsevier, 34(8B), pp. 5663-5683, 2022, ISSN: 1319-1578. (**Science Citation Index**) (**IF: 8.839**)
- (85) **Ray, P. P.**, "A Perspective on 6G: Requirement, Technology, Enablers, Challenges and Future Road Map", *Journal of Systems Architecture*, Elsevier, Vol. 118, 2021, ISSN: 1383-7621. (**Science Citation Index**) (**IF: 5.836**)
- (86) Majumder, P, **Ray, P. P.**, "A Systematic Review and Meta-analysis on Correlation of Weather with COVID-19", *Scientific Reports*, Nature, 11, 2021, ISSN: 2045-2322. (**Science Citation Index**) (**IF: 4.996**)
- (87) **Ray, P. P.**, Kumar, N., Guizani, M., "A Vision on 6G-Enabled NIB: Requirements, Technologies,

- Deployments and Prospects”, IEEE Wireless Communications, 28(4), pp. 120-127, 2021, ISSN: 1536-1284. **(Science Citation Index) (IF: 12.777)**
- (88) **Ray, P. P.**, Chowhan, B., Kumar, N., Almogren, A., “BioTHR: Electronic Health Record Servicing Scheme in IoT-Blockchain Ecosystem”, IEEE IoT Journal, 8(13), pp. 10857 – 10872, 2021, ISSN: 2327-4662. **(Science Citation Index) (IF: 10.238)**
- (89) **Ray, P. P.**, Kumar, N., “SDN/NFV Architectures for Edge-Cloud IoT Environment: A Systematic Review”, Computer Communications, vol. 169, pp. 129-153, 2021, ISSN: 0140-3664. **(Science Citation Index) (IF: 5.047)**
- (90) **Ray, P. P.**, Majumder, P., “Biofuel Powered Electronic Skin: Future of Healthcare”, Current Science, vol. 119 (12), pp. 1882-1883, 2020, ISSN: 0011-3891. **(Science Citation Index) (IF: 1.169)**
- (91) **Ray, P. P.**, “Intelligent Ingestibles: Future of Internet of Body”, IEEE Internet Computing, vol. 24 (5), pp. 19-27, 2020, ISSN: 1089-7801. **(Science Citation Index) (IF: 2.680)**
- (92) Dash, D., Kumar, N., **Ray, P. P.**, Kumar, N., “Reducing Data Gathering Delay for Energy Efficient Wireless Data Collection by Jointly Optimizing Path and Speed of Mobile Sink”, IEEE Systems Journal, 15(3), pp. 3173 – 3184, 2020, ISSN: 1932-8184. **(Science Citation Index) (IF: 4.802)**
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- (99) **Ray, P. P.**, Kumar, N., Dash, D., “BLWN: Blockchain-Based Lightweight Simplified Payment Verification in IoT-Assisted e-Healthcare”, IEEE Systems Journal, vol. 15(1), 134-145, 2020, ISSN: 1932-8184. **(Science Citation Index) (IF: 4.802)**

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- (111) **Ray, P. P.**, Dash, D., De, D., "Internet of Things-based Real-Time Model Study on e-Healthcare: Device, Message Service and Dew Computing", Computer Networks, Elsevier, Vol. 149(11), pp. 226-239,

- (112) **Ray, P. P.,** Dash, D., De, D., “Approximation of Fruit Ripening Quality Index for IoT based Assistive e-Healthcare”, *Microsystem Technologies*, Springer, vol. 25, pp. 3027-3036, 2019, ISSN: 1432-1858. **(Science Citation Index) (IF: 2.012)**
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- (118) **Ray, P. P.,** Mukherjee, M., Shu, L., “Internet of Things for Disaster Management: State-of-the-art, Challenges, and Future Road Map”, *IEEE Access*, Vol. 5(1), pp. 18818-18835, 2017, ISSN: 2169-3536. **(Science Citation Index) (IF: 3.476)**
- (119) **Ray, P. P.,** “Internet of Things for Smart Agriculture: Technologies, Practices and Future Road Map”, *Journal of Ambient Intelligence and Smart Environments*, IOS Press, Vol. 9, pp. 395–420, 2017, ISSN: 1876-1364. **(Science Citation Index) (IF: 4.920)**
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- (129) **Ray, P. P.**, "A Survey of IoT Cloud Platforms", *Future Computing and Informatics Journal*, Elsevier, Volume 1, Issues 1-2, 2016, pp. 35-46, ISSN: 2314-7288.

## International Conference Proceedings

- IEEE: 20
  - Springer: 4
  - Scopus Indexed: 4
- (1) **Ray, P. P.**, "Parametric Analysis of Resource Constrained Devices for Internet of Things using FreeRTOS, 4<sup>th</sup> International Conference on Inventive Computation and Information Technologies (ICICIT - 2022), In *Lecture Notes in Networks and Systems*, Springer, RVS Technical Campus, Coimbatore, August 25-26, 2022. **(Scopus)**
- (2) **Ray, P. P.**, "IoTGMRFM: Internet of Things-based Variable Wise Anomaly Detection", 4<sup>th</sup> International Conference on Data & Information Sciences (ICDIS-2022), In *Lecture Notes in Networks and Systems*, Springer, Raja Balwant Singh Engineering Technical Campus, Bichpuri, Agra, Uttar Pradesh, June 3-4, 2022. **(Scopus)**
- (3) **Ray, P. P.**, Dash, D. "A Review on Internet of Wearable Things for Pervasive e-Healthcare: Energy Efficiency and Prospects", *International Conference on Cognitive & Intelligent Computing (ICIC-2021)*, In *Cognitive Science and Technology*, Springer, CMR College of Engineering & Technology, Hyderabad, December 11-12, 2021. **(Scopus)**
- (4) **Ray, P. P.**, "Non-Content Message Masking Model for Healthcare Data in Edge-IoT Ecosystem using Blockchain", *International Conference on Network Security & Blockchain Technology (ICNSBT-2021)*, In *Lecture Notes in Networks and Systems*, Springer, Indian Statistical Institute Kolkata, Kolkata, December 2-4, 2021.

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- (5) **Ray, P. P.**, Skala, K. "A Vision of Dew-IoT Ecosystem: Requirements, Architecture, and Challenges", *IEEE 45<sup>th</sup> Computer Society Computers, Software, and Applications Conference (COMPSAC-2021)*, Madrid, Spain, July 12-16, 2021, DOI:10.1109/COMPSAC51774.2021.00267.
- (6) **Ray, P. P.**, Nguyen, K. "A Review on Blockchain for Medical Delivery Drones in 5G-IoT Era: Progress and Challenges", *IEEE/CIC International Conference on Communications in China (ICCC-2020)*, Chongqing, China, August 9-11, 2020, DOI: 10.1109/ICCCWorkshops49972.2020.9209931.
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- (9) **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", *Evenier 6th International Conference on Mathematics & Computing (ICMC 2020)*, Gangtok, India, 2020 (Earlier: 18-20 March, 2020, Revised 23-25 September, 2020).
- (10) 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.
- (11) **Ray, P. P.**, L. Chettri, N. Thapa, "IoRCar: IoT Supported Autonomic Robotic Movement and Control", *IEEE 7<sup>th</sup> International Conference on Computation of Power, Energy, Information and Communication, ICCPEIC-2018*, Melmaruvathur, India, 28-29 March 2018, DOI: 10.1109/ICCPEIC.2018.8525216, 2018.
- (12) **Ray, P. P.**, "Digital India: Perspective, Challenges, and Future Direction", *IEEE 4<sup>th</sup> International Conference on Power Signals Control & Computation (EPSCICON)*, Thrissur, Kerala, India, 6-10 June, 2018, DOI: 10.1109/EPSCICON.2018.8379594, 2018.
- (13) **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.
- (14) **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.
- (15) **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.

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- (17) **Ray, P., P., Rai, R., Chettri, L., Bishunkey, K.,** “B4Heal: Bio-Inspired Biopolymer based Biocompatible Biosensor for Smart Healthcare”, *1<sup>st</sup> International Conference on Nanocomputing & Nanobiotechnology (NanoBioCon)*, (Abstract), ISBN: 9789380813493, pp. 74 , 2016.
- (18) **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.
- (19) **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.2015.7475314, 2015.
- (20) **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.
- (21) **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.
- (22) **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.
- (23) **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.
- (24) **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.
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## National Conference Proceedings



- Proceedings: 4

- (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

- Elsevier: 3
- Springer: 2
- IEEE Wiley: 1

- (1) **Ray. P. P.**, "AI-Enabled IoMT for Smart Cancer Care: Plausible Use Cases, Key Challenges and Future Road Map", Blockchain and Digital Twins for the Internet of Medical Things in Smart Hospitals, Elsevier, Eds (Tuan Anh Nguyen), 2025, ISBN: 9780443303005. (Accepted)
- (2) **Ray. P. P.**, "Federated Learning for Intelligent IoT Systems: Background, Architecture and Frameworks", Model Optimization methods for Efficient and Edge AI: Federated Learning Architectures, Frameworks and Applications, IEEE Wiley, Eds (Pethuru Raj, Amir Masoud Rahmani, Rob Colby, Sunku Ranganath, N. Gayathri), 2024, ISBN: 9780443248320. (Accepted)
- (3) **Ray. P. P.**, "An Introduction to Necrobotics: Concept, Architecture, Use Cases, Challenges, Future Directions", Necrobotics for Healthcare Applications and Management, Elsevier, Eds (Hemachanda K, Raul V. Rodriguez, Murugappan M, Sivaramakrishnan Rajaraman, Rajesh Kumar KV), 2025, ISBN: 9780443248320. (Accepted)
- (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: Volume 2: Fundamentals and Advancement for Energy Storage Applications, Springer, Eds (Ram K. Gupta), 2024.
- (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.

- (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, Elsevier, Eds (SKH Islam, AK Pal, D Samanta, S Bhattacharyya), ISBN: 9780323901932, 2021.

## Books

- Total: 7

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

## National Patents Filled

- (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

- 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

- Delivered talk on “*Rise of Single Board Computers and IoT*” at Sikkim Professional University, Gangtok on 25 April, 2024.
- Delivered talk on “*An Introspection to Internet of Things*” at ECE Department, SR University, Warangal on 24 April, 2021.
- Delivered talk and hands-on on “*Internet of Things using Raspberry Pi*” on occasion of Winter Training course at NIELIT, Gangtok in during 30 December 2019 to 3 January, 2020.
- 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.
- Delivered talk and hands-on “*Latex*” on the occasion of 2 days Hands-on Workshop using LaTeX (TeX-2014) on 15<sup>th</sup>-16<sup>th</sup> November, 2014 at Department of Computer Applications, Sikkim University.

## Projects/Consultancy

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

## Masters Project/Thesis Guidance

- Retrieval Augmented Question-Answering on Indian Constitution and Indian Penal Code by

Mayel Lyangten Lepcha, Pratiksha Phukon, Yogesh Lokhar, 2023 Odd.

- Integration of Sensor based Circuit for Monitoring Leaf Temperature by Pinju Priyam Gogoi, Ridhiman Bora, Rizuwana Sultana Hussain (MCA), 2022 Odd.
- Web Based Information System for Medicinal and Aromatic Plants of Sikkim by Adarsh Sharma, Neeraj Anand, Nirmal Gupta (MCA), 2021 Even.
- A Study of Time Series Database for IoT-Based Applications by Manita Rai, Yojana Thapa (MCA), 2021 Odd.
- 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.
- 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.
- Development of Web-Based Application for Graphical Data Visualization by Bikash Gupta, Nitant Pilmo Rai (MCA), 2020 Odd.
- Boilerplate as a Service for IoT Edge Based e-Healthcare Service by Bhumika Sharma and Sunita Pradhan (MCA), 2019 Even.
- Implementation of Dual layer Private Blockchain for Secure HER Transmission by Biky Chowhan, Keshang Sherpa, and Abhishek Mukhia (MCA), 2019 Even.
- Implementation of Decentralized Autonomous Network using Blockchain by Biky Chowhan and Keshang Sherpa (MCA), 2018 Odd.
- A study on Rating Algorithms by Robin Gurung and Ashish Pradhan (MCA), 2018 Odd.
- Development of Edgenet enabled Edge Computing System for IoT based Scenario by Arun Subba (MCA), 2018 Even.
- Design and development of IoT based Interoperable gateway by Nishant Thapa (MCA), 2018 Even.
- Design and Development of Wearable Galvanic Skin Response Systems by Shubham Pradhan, R. K. Sharma, Animesh Chettri (BCA-MCA Integrated), 2018 Odd.
- Intravenous Bag Fluid Measurement System by Nishant Thapa (MCA), 2018 Odd.
- Design and Development of Cloud Enabled Internet of Robotic Things (IoR) by Nishant Thapa, (BCA-MCA Integrated), 2016, Even.
- Prep Your Self Quiz: An Android Based Applications, Ashish Sharma & Kiran Regmi (BCA-MCA Integrated), 2015 Even.

## Conference Technical Committee Member

- Technical Program Committee Member in 2nd International Conference on Foundation and Large Language Models (FLLM2024) from 26-29 November, 2024, Dubai, UAE.
- Technical Program Committee Member in The 30th IEEE International Conference on Telecommunications (IEEE ICT) 2024 from 24-27 June, 2024, Deadsea, Jordan.
- Technical Program Committee Member in *The IEEE International Conference on Consumer*

*Electronics (IEEE ICCE-TW) 2024 from 9-11 July 2024, Taichung, Taiwan.*

- Technical Program Committee Member in *The 1st International Conference on Environment and Smart Education (ICENSE) 2024* from 7-8 AUGUST 2024, UNIVERSITAS MUHAMMADIYAH YOGYAKARTA, INDONESIA.
- Technical Program Committee Member in *The International Conference on Foundation and Large Language Models (FLLM2023)* from 13-14 December, 2023, Dubai, UAE.
- Technical Program Committee Member in *22nd IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology* from 26-29 October, 2023, Venice, Italy.
- Technical Program Committee Member in *2023 IEEE CTSoc Gaming, Entertainment and Media (GEM) 2023* from 19-22 November, 2023, Barbados.
- Technical Program Committee Member in *2023 IEEE 13TH International Conference on Consumer Technology (ICCE) 2023* from 2-5 September, 2023, City Cube, MEsse Barlin (IFA).
- Technical Program Committee Member in *2021 ICNBST 2021* from 2-4 December, 2021, Kolkata, India.
- Technical Program Committee Member in *2021 45<sup>th</sup> IEEE COMPSAC-2021* from 12-16 July, 2021, USA.
- Technical Program Committee Member in *2021 10<sup>th</sup> International Conference on Communication Systems and Network Technologies (CSNT-2021)* from 24-25 April, 2021, Bhopal, India.
- Technical Program Committee Member in *2020 1<sup>st</sup> International Conference on Artificial Intelligence & Modern Assistive Technology (ICAIMAT' 2020)* from 24-26 September, 2020, Riyadh, Saudi Arabia.
- Technical Program Committee Member in *2020 12<sup>th</sup> International Conference on Computational Intelligence and Communication Networks (CICN' 2020)* from 25-26 September, 2020, Nainital, India.
- International Program Committee Member in *2020 2<sup>nd</sup> IFSA Frequency & Time Conference (IFTC' 2020)* from 23-25 September, 2020, Porto, Portugal.
- Technical Program Committee Member in *2020 7th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI)*, from 23-25 September, 2020, Royal Ambarrukmo, Yogyakarta, Indonesia.
- Technical Program Committee Member in *2020 Ahmad Dahlan International Conference Series on Engineering and Science (ADICS-ESIT 2020)*, from 26-27 August, 2020, Yogyakarta, Indonesia.
- Technical Program Committee Member in *2019 2nd International Conference of Computer Science and Information Technology (ICoSNIKOM)*, from 28-29 November, 2019, Medan, Indonesia.
- Technical Program Committee Member in *2020 3rd IEEE International Conference on Computer Applications & Information Security (ICCAIS' 2020)*, from 19-21 March, 2020, Holiday Inn Izdehar area, Riyadh, Saudi Arabia.
- Technical Program Committee Member in *2019 IEEE Middle East & North Africa COMMUNICATIONS Conference (MENACOMM 2019)*, from 19-21 November, 2019, Kingdom of Bahrain.
- Technical Program Committee Member in *2019 IEEE International Symposium on Innovation and Entrepreneurship (TEMS-ISIE)*, from 24-26 October, 2019, Hangzhou, China.
- Technical Program Committee Member in *IEEE/WIC/ACM International Conference on Web Intelligence (WI'19)*, Demo Track, from 14-17 October, 2019, Thessaloniki, Greece.

- Technical Program Committee Member in *5th International Conference on Computer Science, Information Technology (CSITEC 2019)*, from 24-25 August, 2019, Vienna, Austria.
- Technical Program Committee Member in *2nd IEEE Middle East and North Africa COMMunications Conference (MENACOMM)*, from 19-21 November, Kingdom of Bahrain, 2019.
- 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)*, from 4-8 November, Macau, China, 2019.
- Technical Program Committee Member in *Fifth International Conference on Image Information Processing (ICIIP -2019)*, from 15-17 November, Wanknaghat, India, 2019.
- Technical Program Committee Member in *First IFSA Frequency & Time Conference (IFTC' 2019)*, from 23-25 October, Barcelona, Spain, 2019.
- Technical Program Committee Member in *International Conference on Computer Science, Information Technology, and Electrical Engineering (ICOMITEE 2019)*, from 16-17 October, Jember, Indonesia, 2019.
- Technical Program Committee Member in *2nd International Conference on Computer Applications & Information Security (ICCAIS)*, from 19-21 March, Saudi Computer Society, Riyadh, Saudi Arabia, 2019.
- Technical Program Committee Member in *International Conference on Data and Smart Systems Engineering (DSSE 2018)*, from 09-12 July, American University of Beirut (AUB), Beirut, Lebanon, 2018.
- Technical Program Committee Member in *International Conference on Information Society and Smart Cities (ISC 2018)*, from 06-07 June, Oxford city, United Kingdom, 2018.
- International Advisory Committee Member *International Conference on Chip, Circuitry, Current, Coding, Combustion and Composites (I7C-17)*, from 16 – 17 November, Anekal, Bengaluru, 2017.
- Technical Program Committee Member in *International Conference on Education and Social Development (ESD-17)*, from 20-22 October, Xiamen, China, 2017.
- Technical Program Committee Member in *International Conference on Information Society and Smart Cities (ISC 2018)*, from 06-07 June, Oxford city, United Kingdom, 2018.
- Technical Program Committee Member in *International Conference on Education and Social Development (ESD-17)*, from 20-22 October, Xiamen, China, 2017.
- International Advisory Committee Member in *International Conference on Ubiquitous Computing (ICUC-17)*, from 19-20 June, Sinhgad College of Engineering, Pune, India, 2017.
- Technical Program Committee Member in *Second International Conference on Advanced Wireless Information and Communication Technologies (AWICT'2018)*, from 13-14 November, Université De Paris-Saclay, Paris, France, 2017.
- Technical Program Committee Member in *World Symposium on Computer Applications & Research (WSCAR'2017)*, from 02-04 April, Istanbul, Turkey, 2017.
- Technical Program Committee Member in *International Conference on Internet of Things and Machine Learning (IML 2017)* in Liverpool John Moores University, Liverpool city, United Kingdom during October, 2017.

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

## Editor

- 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.

## Guest Editor/Workshop Chair/Reviewer /Advisory

- Track Chair in The 2nd IEEE 43rd International Conference on Consumer Electronics (IEEE ICCE 2025), 11-14 January 2025, Las Vegas, NV, USA.
- 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.
- 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.
- 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.
- Advisory Board Member of the European Union project *DewSyS: Dew-Oriented Platform for Cyber-Physical Systems of Systems*, 2019.
- 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, Ruđer Bošković Institute, Zagreb, Croatia in 2018-2019.

- Reviewer of 9th International Conference on Electronics, Communications and Networks (Oct. 18-21, Kitakyushu City, Japan, 2019).
- Editorial Advisory Board Member of the Edited Volume on the Cryptographic Security Solutions for the Internet of Things, IGI Global, 2018.
- 3rd International Conference on Computing Methodologies and Communication (ICCMC 2019)
- 27th Irish Signals and Systems Conference 2016
- 1st Annual International Conference of the IEEE Technology and Engineering Management Society 2017 (IEEE TEMSCON), Silicon Valley (Santa Clara), California USA
- International Conference on Informatics, Robotics, Network, Control and Systems (IRONCONS) 2016, Bandung, Indonesia, 2016
- 10<sup>th</sup> International Conference on Theory and Practice of Electronic Governance (ICEGOV), New Delhi, India, 2017.
- Evener International Conference on Computational Intelligence & Data Engineering (ICCIDE), Mylavaram, Krishna District, Andhra Pradesh, India, 2017.
- Reviewer of IEEE Transaction on Industrial Informatics, IEEE Transaction on Instrumentation and Measurement, IEEE Systems Journal, IEEE Access, IEEE IoT Journal, Measurement, Journal of Medical Systems, etc.

## Training Programs, Workshops, Conferences Organized

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



- Organized 5 days workshop on *Theory and Tools for Language and Document Analysis and Research (TTLDAR)* jointly with Indian Statistical Institute (ISI), Kolkata on 24<sup>th</sup>-28<sup>th</sup> March, 2014 at Sikkim University.

## Training Programs and Workshops Attended

- Attended 7-day Cloud Computing Course, by Turnip Innovations Private Limited, from 4 May – 10 May, 2023.
- Attended Joint Online One Week Certificate Program Social Robotics & AI, by PDPM IITDM, Jabalpur, MNIT Jaipur, NIT Patna, from 28 June – 4 July, 2021.
- 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.
- 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.
- 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 (PMMMNTT), 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.
- Attended *One Week International Webinar on Industry4.0: Artificial Intelligence and Related Technology* by Integral University, India from 6-10th July, 2020.
- 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.
- 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.
- 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.
- Attended online Faculty Development Program (FDP) on *Blockchain and its Application* organized by E & ICT Academy, NIT Patna from 4-10th May, 2020.
- Attended workshop on *Xilinx FPGA Architecture and Design flow* organized by Indian Institute of Technology-Guwahati, Guwahati on 22<sup>nd</sup> – 23<sup>rd</sup> November, 2013.
- Attended workshop on *Advances in Document Analysis and Retrieval* jointly organized by Indian Statistical Institute, Kolkata at Gauhati University, Gauhati on 7<sup>th</sup> - 11<sup>th</sup> March, 2013.

- Attended workshop on *i-Robotics* at Haldia Institute of Technology, Haldia, on 15<sup>th</sup> - 16<sup>th</sup> February, 2011.
- Attended workshop on *Hawk-Board* at Indian Institute of Technology Kharagpur, Kharagpur on 16<sup>th</sup> January, 2011.
- Attended short term course on *Advance DSP design techniques* at Indian Institute of Technology Kharagpur, Kharagpur on 28<sup>th</sup> Jun - 2<sup>nd</sup> July, 2010.
- Attended training programming on *Infosys campus connect* jointly organized by Infosys Inc. at B. P. Poddar Institute of Management and Technology in the year 2008-2009.
- Attended industrial training programming on *Switching, GSM mobile and OFC* at BSNL, Cooch Behar on 2<sup>nd</sup> - 24<sup>th</sup> July, 2007.

## Courses/Certifications Completed

- Completed *Mastering Digital Twins*, accredited by Coursera June, 2019.
- Completed Annual Refresher Programme in Teaching (ARPIT) by UGC SWAYAM course on “*Fundamentals of Outcome-based Curriculum in Engineering Education*” on 28<sup>nd</sup> January– 23<sup>rd</sup> February, 2019.
- Certified *Blockchain Expert-V2*, accredited by the Blockchain Council, during October, 2018.
- Completed *Blockchain and Bitcoin Fundamentals*, accredited by Udemy during October, 2018.
- Completed *Blockchain Advanced Level: Uses Beyond Bitcoin 2018*, accredited by Udemy during October, 2018.

## Professional Activities

### Administration

- **Judge of Debate Competition of SUSA:** Judge of debate competition on “This House Rejects Artificial Intelligence Genitaled Art” organized by SUSA< Sikkim University, April 13, 2013.
- **Member of IEEE Technical Committee:** Member of IEEE IEEE CTSoc Internet of Things (IoT) Technical Committee (TC) IEEE CTSoc, 2023 -.
- **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.
- **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-.
- **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-.
- **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-.

- **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-.
- **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-.
- **Member of ICT Policy Committee:** Nominated by the Vice Chancellor of Sikkim University as the member to prepare ICT policy at Sikkim University, 2021-.
- **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-.
- **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-.
- **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-.
- **Member of Project Appointment Committee:** Nominated by the Vice Chancellor of Sikkim University as the member to perform regular works of project appoint committee of NETRA lab of Dept. of Computer Applications at Sikkim University, 2019-.
- **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-.
- **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-.
- **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-.
- **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-.
- **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-.
- **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-.
- **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-.

- **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-.
- **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-.
- **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-.
- **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-.
- **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-.
- **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-.
- **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 of students in Sikkim University, 2014-.
- **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-.
- **Member of IEEE CSI (Chapter Council) Executive Body:** Selected as member for executive body of the IEEE CSI as the member 2014-.
- **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-.
- **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-.
- **Member of Admission Committee:** Served admission committee for the Integrated BCA-MCA 5 years course admission for the year 2013-.
- **Syllabus Drafting Committee:** Served as syllabus drafting committee member for BCA-MCA 2013-.
- **Department Library Committee:** Served as library committee member for BCA-MCA 2013-.
- **Question Moderation Committee:** Served as library committee member for BCA-MCA 2013-.
- **Departmental Purchase Committee:** Serves as purchase committee member for BCA-MCA 2013-15.

## Academic

- **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.
- **Adjunct Faculty:** Served as Adjunct Faculty at the Department of Horticulture, Sikkim University during February-July 2018, taught Statistics and Computer Applications.
- **Adjunct Faculty:** Served as Adjunct Faculty at the Department of Management, Sikkim University during August-December 2013, taught Computer Applications in Management.
- **Adjunct Faculty:** Served as Adjunct Faculty at the Department of Management, Sikkim University during February-June 2014, taught Operation Research.

## Teaching Activities

### Full Semester Courses taught at the Sikkim University from July, 2012 onwards

Acad. Year	Degree	Titles of Papers Taught	
		Odd Semester (Monsoon / July-December)	Even Semester (Spring / February-June)
2023-24	PG	1 Discrete Mathematics	1 Object oriented programming in C++ & Java (C++ Only)
2022-23	PG/UG (NEP)	1 Data Structure and Algorithm	1 Introduction to Cyber Security
		2 Formal language and Automata Theory	2 Object oriented programming in C++ & Java
2021-22	PG	1 Computer Organization and Architecture	1 Discrete Mathematics
		2 Mathematics II	2 Introduction to Computer Systems
2020-21	PG	1 Mathematics I	1 Discrete Mathematics
		2 Digital Logic	
		3 Digital Logic Laboratory	
2019-20	PG	1 Digital Logic	1 Computer Organization and Architecture
		2 Digital Logic Laboratory	2 Data Structure Laboratory
		3 Elective II	
2018-19	PG/Integrated	1 Elective II	1 Mathematics-II
		2 Digital Logic Laboratory	2 Computer Organization and Architecture
		3 Formal Language and Automata Theory	
2017-18	PG/Integrated	1 Digital Logic	1 Elective II

			2 Computer Organization and Architecture
		2 Digital Logic Laboratory	
		3 Microprocessor and Microcontroller	
		4 Hardware Design Laboratory	
2016-17	PG/Integrated	1 Microprocessor and Microcontroller	1 Object Oriented Analysis and Design
		2 Hardware Design Laboratory	2 Advanced Java Laboratory
		3 Computer Organization & Architecture	3 Elective II
		4 Computer Organization & Architecture Laboratory	
2015-16	PG/Integrated	1 Computer Organization	1 Microprocessors
		2 Computer Organization Laboratory	2 Formal Language & Automata Theory
		3 Mathematics III	3 Microprocessors Laboratory
2014-15	UG/PhD Coursework	1 Basic Electronics	1 Microprocessors
		2 PhD Research Methodology (Statistics)	2 Microprocessors Laboratory
2013-14	UG	1 Computer System Architecture	1 Mathematics - II
		2 Data Structures	2 Computer Organization & Architecture
		3 Basic Electronics	
		4 Mathematical Foundation -I	
		5 Computer Application in Management	
2012-13	UG	1 Basic Electronics	1 Computer Organization
		2 Lab: Basics of Computing	
		3 Computer System Architecture	

**Full Semester Courses taught at Surendra Institute of Engineering and Management, Siliguri from January, 2012 to June, 2012**

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