



Pradyumna Kumar Tripathy, Ph.D.

Designation : Professor and HoD(CSE)

Department : Department of Computer Science & Engineering
(JOINED THE INSTITUTE IN 2007)

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RESEARCH INTERESTS

- ✓ Parallel Distributed Systems
- ✓ Reliability Engineering
- ✓ Interconnection Networks

Academic Qualifications

Ph. D. (Computer Science), Utkal University, India

M.Tech. (Computer Science), Utkal University, India

Teaching Experience/Industrial Experience/Research Experience

- ✓ More than 17 Years of Teaching experience

SUBJECT TOUGHT:

Programming (C, C++, Java, Python, R, MatLab), Data Structure & Algorithms, Database, Computer Architecture and Organizations, Advanced Computer Architecture, Operating Systems & System Programming, High Performance Architecture, Parallel and Distributed Systems, Operating systems & System Programming.

PUBLICATIONS

JOURNAL ARTICLES:

- [1] R. K. Dash, N. K. Badpanda, **P. K. Tripathy** and C. R. Tripathy, "Network Reliability Optimization Problem of Interconnection Network under Node-Edge Failure Model," **Journal of Applied Soft Computing, Elsevier, [SCI, Scopus]** vol. 12, no. 8, pp. 2322–2328, 2012.
- [2] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "A New Genetic Algorithm based Method for Topological Optimization of Interconnection Networks," **International Journal of Computer Applications [UGC listed]**, vol. 63, no 3, pp. 0975 – 8887, 2013.

- [3] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "An Efficient Method based on Self Generating Disjoint Minimal Cut-Set Method for Reliability Measures of Interconnection Networks," **International Journal of Performability Engineering [Scopus]**, Vol. 10, No. 3, pp. 303-312, 2014.
- [4] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "A Dynamic Programming based Approach for Layout Optimization of Interconnection Networks," **JESTECH, Elsevier [SCIE, Scopus]**, Vol. 18, No 3, Page 374-384, 2015.
- [5] **P. K. Tripathy**, I. Hota, R. K. Dash, C. R. Tripathy," An Elementary Tree Transformation Based Approach for Reliability Estimation of Interconnection Networks," **International Journal of Innovations in Engineering and Technology [Thomson Reuter Indexed]**, Vol 7, No 4, Page 238-247, 2016.
- [6] **P. K. Tripathy**, S. Swain, R. K. Dash, C. R. Tripathy," A Minimal Cut-Set based Enumerative Approach for Two-Terminal Reliability Estimation," **International Journal of Control Theory and Applications [Scopus]**, Vol 10, No 13, Page 11-18, 2017.
- [7] R. K. Dalei, A. Nayak, **P. K. Tripathy**, S. Champatiray, "Content-Centric Framework for Wireless Sensor Networks," **Journal of Engineering and Applied Sciences, Medwell Journals, [Scopus]**, Vol 12, No. 2, pp. 6234-6239, 2017.
- [8] D. Das, C. R. Tripathy, **P. K. Tripathy**, M. R. Kabat "System Reliability Estimation of Constrained Multi-state Computational Grids", **BJIT, Springer [Scopus, UGC Listed]**, Vol 12, pp. 1419-1425, <https://doi.org/10.1007/s41870-018-0132-1>, 2018.
- [9] **P. K. Tripathy**, R. K. Dash, R. K. Dalei, C. R. Tripathy, "A Path-Set Based Approach for Two-Terminal Reliability Computation of Interconnection Networks," **Journal of Engineering and Applied Sciences, Medwell Journals, [Scopus]**, Vol. 13, No. 3, pp. 3243-3249, 2018.
- [10] A. K. Tripathy and **P. K. Tripathy**, "Fuzzy QoS Requirement-Aware Dynamic Service Discovery and Adaptation ", **Journal of Applied Soft Computing, Elsevier[SCI, Scopus]**, Vol. 68, pp. 136-146, 2018.
- [11] A. K. Tripathy, **P. K. Tripathy**, N. K. Roy, and S. P. Mohanty, "iTour: The Future of Smart Tourism A IoT based framework for sustainable mobility in urban area ". **IEEE CEM [SCI, Scopus]**, Vol. 7, No. 3, 2018.
- [12] D. Das, C. R. Tripathy, **P. K. Tripathy**, M. R. Kabat, "Optimal Design of Computational Grids Topology", **Journal of Computational and Theoretical Nanoscience, American Scientific Publishers, [Scopus]**, Vol. 16, No. 9, pp. 3754-3758, 2019.
- [13] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "A New Cost-Effective and Reliable Interconnection Topology of Parallel Systems", **International Journal of Engineering and Advanced Technology, BEIESP, [Scopus]**, Vol 8, No 6, pp. 1186-1195, 2019.
- [14] B. K. Mishra, A. K. Ratha, **P. K. Tripathy**, "Detection of Fungal Contagion in Food Items Using Enhanced Image Segmentation", **International Journal of Engineering and Advanced Technology, BEIESP, [Scopus]**, Vol 8, No 6, pp. 1748-1757, 2019.

- [15] A. K. Tripathy, **P. K. Tripathy**, A. G. Mohapatra, N. K. Roy, and S. P. Mohanty, "WeDoShare: A Ridesharing Framework in Transportation Cyber-Physical System for Sustainable Mobility in Smart Cities ". **IEEE CEM [SCI, Scopus]**, Vol. 9, No. 4, pp.41-48, 2020.
- [16] **P. K. Tripathy**, A. K.Tripathy, A. Agarwal, and S. P. Mohanty, "MyGreen: An IoT-Enabled Smart Greenhouse for Sustainable Agriculture ". **IEEE CEM [SCI, Scopus]**, Vol. 10, No. 4, pp. 57-62, 2021.
- [17] D. Das, C. R. Tripathy, **P. K. Tripathy**, "An insect-inspired approach for optimization of tasks scheduling in computational grids", **Evolutionary Intelligence, Springer [ESCI, Scopus]**, Vol. 14, No. 2, pp. 999-1013, 2021.
- [18] D. Das, C. R. Tripathy, **P. K. Tripathy**, M. R. Kabat "A Genetic Algorithm based approach for designing multi-state computational grid with cost and bandwidth constraints", **Journal of King Saud University – Computer and Information Sciences, Elsevier [SCIE, Scopus]**, Vol. 34, No. 2, pp. 443-456, 2022.
- [19] **P. K. Tripathy**, A. Shrivastava, V. Agarwal, D. U. Shah, C. S. R. Sekhar L., S.V. Akilandeewari, "Federated learning algorithm based on matrix mapping for data privacy over edge computing", **International Journal of Pervasive Computing and Communications, Emerald Publishing Limited, [ESCI, Scopus]**, Accepted, DOI 10.1108/IJPC-03-2022-0113, 2022.
- [20] B. K. Mishra, **P. K. Tripathy**, A.K. Rath, "An Enhanced Image Segmentation Approach for Detection of Diseases in Fruits", **International Journal of Information System Modeling and Design, IGI-Global, [ESCI, Scopus]**, Vol. 13, No. 7, pp. 1-21, 2023.
- [21] **P. K. Tripathy**, M. Shabaz, A. Zaidi, I. Keshta., U.Sharma, M. Soni, A. V. Agrawal, R. R. Maaliw III, D.P. Sharma, "Policy Conflict Detection Approach for Decision-Making in Intelligent Industrial Internet of Things", **Computers and Electrical Engineering, Elsevier, [SCIE, Scopus]**, Vol. 108, pp. 108671 (1-13), 2023.
- [22] Debashreet Das, **Pradyumna Kumar Tripathy**, "Optimal Reliability in Cloud Computing Networks under Dynamic Node Failure", **Journal of Harbin Engineering University, [Scopus]**, Vol.44, No.7, pp. 2427-2434, 2023.
- [23] Ghanashyam Sahoo¹, Ajit Kumar Nayak, **Pradyumna Kumar Tripathy**, Jyotsnarani Tripathy, "A novel machine learning based hybrid approach for breast cancer relapse prediction ", **Indonesian Journal of Electrical Engineering and Computer Science, [Scopus]** Vol. 32, No. 2, pp. 1655-2663, 2023.
- [24] Ghanashyam Sahoo, Ajit Kumar Nayak, **Pradyumna Kumar Tripathy**, Bibhu Dash, Abhilash Pati, Amrutanshu Panigrahi, "Enhanced breast Cancer Relapse Prediction Based on Ensemble Learning Approaches", **International Journal on Recent and Innovation Trends in Computing and Communication, [Scopus]**, Vol. 11, No. 10, pp.1000-1007, 2023.

- [25] Ambarish Gajendra Mohapatra, Anita Mohanty, **Pradyumna Kumar Tripathy**, "IoT-Enabled Predictive Maintenance and Analytic Hierarchy Process Based Prioritization of Real-Time Parameters in a Diesel Generator: An Industry 4.0 Case Study", **SN Computer Science [Scopus]**, Vol. 5, No. 145, pp. 1-12, 2024.
- [26] Soubhagya Ranjan Mallick, Rakesh Kumar Lenka, **Pradyumna Kumar Tripathy**, D. Chandrasekhar Rao, Suraj Sharma, Niranjana Kumar Ray, "A Lightweight, Secure, and Scalable Blockchain-Fog-IoMT Healthcare Framework with IPFS Data Storage for Healthcare 4.0", **SN Computer Science [Scopus]**, Vol. 5, No. 198, pp. 1-11, 2024.
- [27] Ghanashyam Sahoo, Ajit Kumar Nayak, **Pradyumna Kumar Tripathy**, Abhilash Pati, Amrutanshu Panigrahi, Adyasha Rath, Bhimasen Moharana, "Breast cancer relapse disease prediction improvements with ensemble learning approaches", **Indonesian Journal of Electrical Engineering and Computer Science [Scopus]**, Vol. 35, No. 1, pp. 335~342, 2024.
- [28] Soubhagya Ranjan Mallick, Rakesh Kumar Lenka, **Pradyumna Kumar Tripathy**, D. Chandrasekhar Rao, Suraj Sharma, Niranjana Kumar Ray, "Fog-Assisted Blockchain-IoMT Healthcare Framework with Role-Based Access Control for Critically Ill Patients", **SN Computer Science [Scopus]**, Vol. 5, No. 658, pp. 1-13, 2024.
- [29] Ghanashyam Sahoo, Ajit Kumar Nayak, **Pradyumna Kumar Tripathy**, Amrutanshu Panigrahi, Abhilash Pati, Bibhuprasad Sahu, Chandrakanta Mahanty, and Saurav Mallik, "Predicting Breast Cancer Relapse from Histopathological Images with Ensemble Machine Learning Models", *Current Oncology*, Vol. 31, No. 11, pp. 6577-6597, 2024.
- [30] Anita Mohanty, Debi Prasad Pradhan, Subrat Kumar Mohanty, Bhagyalaxmi Jena, **Pradyumna Kumar Tripathy**, and Ambarish G. Mohapatra, "Enhancing Photovoltaic Efficiency through the Design and performance analysis of an Automatic Solar Tracking System", *The Indian Journal of Technical Education*, Vol. 47, No. 2, pp. 50-60, 2024.
- [31] Anita Mohanty, Ambarish G. Mohapatra, **Pradyumna K. Tripathy**, Prasanta Kumar Bal, Ajaya K. Tripathy, Sasmita Nayak, Subrat K. Mohanty & Bhagyalaxmi Jena, "Smart hospitality using IoT enabled integrated face recognition, machine learning, and fuzzy AHP for analyzing customer satisfaction measurements", *International Journal of Information Technology*, Springer, Vol. 17, pp. 1597–1605, 2024.

CONFERENCE PROCEEDINGS:

- [1] R. K. Dash, N. K. Badpanda, **P. K. Tripathy** and C. R. Tripathy, "System Reliability of Interconnection Networks with Heterogeneous Link Capacity," *12th International Conference on Information Technology (ICIT)*, **Bhubaneswar, India**, pp. 244-247, 2009.
- [2] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "A Self Generating Disjoint Minimal Cut-Set Method for Reliability Evaluation of Interconnection Networks," *International Conference on Signal Processing and Communications (SPCOM)IISC*, **Bangalore**, pp. 1-5, 2010.
- [3] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "The Reliability of the Interconnection Networks through Self Generating Disjoint Minimal Cut-Set Method," *IEEE 4th International Symposium on Advanced Networks and Telecommunication Systems (IEEE ANTS)IIT*, **Mumbai**, pp. 97-99, 2010.
- [4] **P. K. Tripathy**, R. K. Dash, C. R. Tripathy, "A Genetic Algorithm based Approach for Topological Optimization of Interconnection Networks," *2nd International Conference on Communication, Computing & Security [ICCCS-2012]NIT*, **Rourkela**, vol. 6, pp. 196-205, 2012.
- [5] **P. K. Tripathy**, R. K. Dash, R. K. Dalei, C. R. Tripathy, "A Path-Set Based Approach for Two-Terminal Reliability Computation of Interconnection Networks," *International Conference on Innovative Research in Engineering and Science [IRES-2017]*, **Asian Institute of Technology, Thailand**, 16th-17th June 2017.
- [6] **P. K. Tripathy**, S. Swain, R. K. Dash, C. R. Tripathy, "A Minimal Cut-Set based Enumerative Approach for Two-Terminal Reliability Estimation," *2nd International Conference on Sustainable Computing Techniques in Engineering, Science and Management (SCESM-2017)*, 2017.
- [7] A. G. Mohapatra, **P. K. Tripathy**, M. Mohanty, and A. Khanna, "IoT Enabled Distributed Cardiac Monitoring using Fiber Bragg Grating (FBG) Sensing Technology", *3rd Doctoral Symposium on Computational Intelligence (DoSci 2021)*, **Dr. A. P. J. Abdul Kalam University, Lucknow**, Available at SSRN: <https://ssrn.com/abstract=3842806> or <http://dx.doi.org/10.2139/ssrn.3842806>, 10th May 2021.
- [8] Dipak R. Nayak, Anita Mohanty, Ambarish Gajendra Mohapatra, **P. K. Tripathy**, Bright Keswani, Amiya Kumar Samantaray, "IoT enabled predictive maintenance of diesel generator in the context to Industry 4.0", *19th OITS International Conference on Information Technology (OCIT 2021)*, **Silicon Institute of Technology, Bhubaneswar**, pp. 364-368, 2021.
- [9] S. R. Mallick, S. Sharma, **P. K. Tripathy**, N. K. Ray, "Adoption of Blockchain-Fog-IoMT Framework in Healthcare 4.0 Digital Revolution", *20th OITS International Conference on Information Technology (OCIT 2022)*, **KIIT Deemed to be University, Bhubaneswar**, pp. 603-608, 2022.
- [10] Anita Sahoo, Rakesh Kumar Lenka, Soubhagya Ranjan Mallick, **Pradyumna Kumar Tripathy**, "Blockchain Applications in IoT-based Healthcare System- A

Review", *21st OITS International Conference on Information Technology (OCIT 2023)*, **NIT Raipur, Bhubaneswar**, 2024.

- [11] Shantilata Palei, Rakesh Kumar Lenka, Soubhagya Ranjan Mallick, Sanjay Saxena, **Pradyumna Kumar Tripathy**, "Decentralized Pest Detection in Plants with Blockchain Integrated Machine Learning Models", *21st OITS International Conference on Information Technology (OCIT 2023)*, **NIT Raipur, Bhubaneswar**, 2024.
- [12] Deepika Rani Sahu, Niranjana Kumar Ray, **Pradyumna Kumar Tripathy**, "A Review on Dependable Wireless Sensor Networks for Industrial IoT (IIOT)", *21st OITS International Conference on Information Technology (OCIT 2023)*, **NIT Raipur, Bhubaneswar**, 2024.
- [13] Ashish Kumar Mishra, Ajaya Kumar Tripathy, and **Pradyumna Kumar Tripathy**, Cyber-Physical System for Real-Time Tracking and Monitoring of Rare Blood Donors in Emergencies by Enhancing Donor Behavior, *International Conference on Intelligent Computing and Sustainable Innovations in Technology (IC-SIT)*, IEEE, pp. 1-6, 2025.
- [14] Rabinarayan Mohanty, Ranjan Kumar Dash, and **Pradyumna Kumar Tripathy**, IFLNLP: An Improved Federated Learning and Natural Language Processing-based Smart Healthcare System, *International Conference on Intelligent Computing and Sustainable Innovations in Technology (IC-SIT)*, IEEE, pp. 1-6, 2025.

BOOK CHAPTERS:

- [1] A. G. Mohapatra, **P. K. Tripathy**, M. Mohanty, A. Khanna, "Fiber Bragg Grating (FBG) Sensor for the Monitoring of Cardiac Parameters in Healthcare Facilities", In: Gupta D., Khanna A., Kansal V., Fortino G., Hassanien A.E. (eds) *Proceedings of Second Doctoral Symposium on Computational Intelligence. Advances in Intelligent Systems and Computing*, vol. 1374. Springer, Singapore. https://doi.org/10.1007/978-981-16-3346-1_57, 2022. Print ISBN: 978-981-16-3345-4, Online ISBN: 978-981-16-3346-1

MEMBER OF
PROFESSIONAL
BODIES

- IEEE (Institute of Electrical and Electronics Engineers) (Senior Member)
- ISTE (Indian Society for Technical Education) (Life Member)
- OITS (Orissa Information technology Society) (Life Member)
- WLA (World Leadership Academy) (Senior Member)
- IAENG (International Association of Engineers) (Member)

RESEARCH GUIDANCE

- Guided more than 35 students in their M.Tech. Thesis
- Supervisor of 03 Ph.D. students under BPUT

INVITED LECTURES/TALKS/ SEMINARS

- Resource person for "3 Days National Workshop on Data Science using Python" at KIST, **Bhubaneswar**
- Resource person for "3 days National Workshop on Data Science using R" at KIST, **Bhubaneswar**
- Resource person for "3 days National Workshop on Programming in Python" at KIST, **Bhubaneswar**
- Resource person for "Seminar talk on Artificial Intelligence and Machine Learning" for **Srusti Academy of Management, Bhubaneswar**
- Resource person for workshop "National Workshop on Simulation using MATLAB" at **SUIT, Sambalpur**
- Resource person for Refresher Course on "Computer Science" at **Utkal University, Bhubaneswar**
- Resource person for Two days Seminar on "High-Performance Computer Architecture" at **IDCOL Group, Bhubaneswar**
- Resource person for Two days Seminar on "Performance Issues in interconnection Networks" at **LILAC Academy, Bhubaneswar**
- Resource person for "Teachers Empowerment Program -2017 for PGT Comp. Sc". at **DAV Unit-8, Bhubaneswar**
- Resource person for "Teachers Empowerment Program -2017" at **Silicon Institute of Technology, Bhubaneswar**
- Resource person for "Application of Machine Learning using Python" at **Department of Computer Science and Application, Utkal University, Bhubaneswar.**
- Resource person for a seminar talk on "Cost and Reliability issues in Interconnection Networks" at **SOA University, Bhubaneswar.**
- Resource person for the AICTE sponsored workshop under VAANI scheme and delivered a talk on "Fundamental Design Architecture of Super computing System" at **Silicon University, Bhubaneswar**

AWARDS RECEIVED

- **Swami Vivekananda Pratiba Praskar-2016** for Contribution in Technical Education by Ever Green Forum, 15th August 2016
- OUWJ State Excellence Award-2019 for **Best Scientist** by OUWJ on 21st July 2019
- **Dr. APJ Abdul Kalam Award of Excellence** by SAISAB India Foundation for outstanding contribution in Computer Science and education on 15th October 2019
- **SuperTeacher Award** by LectureNotes Technology Pvt Ltd for 1,00,000 views at LectureNotes, 20th May 2019.
- **University Foundation Day Research Award-2020**, by BPUT, 21st November 2020
- **ISTE Rajlaxmi Memorial Best Engineering College Teacher Award** for Odisha State for the Year 2020(National Level Award-ISTE), received on 5th October 2021

PROJECT FUNDINGS

- Project Title: **Design and Development of Fibre Bragg Grating Based Cardiac Probe for MRI Environment**
Funding Agency: TEQIP-III Collaborative Research Initiative Scheme (CRIS), BPUT, Odisha
Amount: 1,80,000/-
Duration: 1 year

PATENTS FILED

- **Title:** User Guidance System
Patentee Names: Ajaya K. Tripathy, **Pradyumna K. Tripathy**, Saraju P. Mohanty, Niranjana K. Ray
Patent Application Number: 201931032117 A
Date of Publication: 13-09-2019
- **Title:** AEMC-IoT System: Agriculture Environment Managed and Control using IoT System
Patentee Names: Dr. T. S. Gorripotu, A. Kanthi, S. R. Mallick, **Pradyumna K. Tripathy**, V. Jain, A. Mangal
Patent Application Number: 202041012395
Date of Publication: 05-06-2020

- **Title:** Performance Enhancement of polymer deposited FBG sensor for cardiac parameter monitoring in MRI environment
Patentee Names: Dr. Ambarish Gajendra Mohapatra, Dr. Ashish Khanna, Dr. Deepak Gupta, Mrs. Maitri Mohanty, **Dr. Pradyumna K. Tripathy**, Dr. Poonam Rani, Dr. Piyush Kumar Pareek
Patent Application Number: 202131001862
Date of Publication: 12-02-2021
- **Title:** IoT Based Personal Security System
Patentee Names: Dr. Ajaya Kumar Tripathy, **Dr. Pradyumna Kumar Tripathy**, Dr. Niranjana K. Ray, Dr. Saraju Prasad Mohanty
Patent Application Number: 202111004091 A
Date of Publication: 12-02-2021
- **Title:** IoT Based Real-Time System and Methodology for Improvisation Educational Services using Machine Learning
Patentee Names: **Dr. Pradyumna Kumar Tripathy**, Dr. Abu Sarwar Zamani, Dr. Nadim Rana, Dr. Sheshang Degadwala, Vijay Dattatray Chaudhari, Dr. Harish K G R.
Patent Application Number: 202131061703
Date of Publication: 04-02-2022
- **Title:** Health Management System
Patentee Names: Dr. Ambarish G. Mohapatra, **Dr. Pradyumna Kumar Tripathy**
Patent Application Number: 202231042676
Date of Publication: 05-08-2022