Pradyumna Kumar Tripathy, Ph.D.

Designation: Associate 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] [16] 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. Akilandeeswari, "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/IJPCC-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, Niranjan 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, Niranjan 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.

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 Digitial 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**, Accepted, 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**, Accepted, 2024.

[12] Deepika Rani Sahu, Niranjan 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**, Accepted, 2024.

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**SUIIT, 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 Prativa 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 L ectureNotes, 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, Niranjan 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. Niranjan 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. Amabarish G. Mohapatra, **Dr. Pradyumna Kumar Tripathy**
  Patent Application Number:202231042676
  Date of Publication: 05-08-2022