Curriculum Vitae

Pradeep Kumar Biswal, Ph.D.
Assistant Professor,
Department of CSE, IIIT Bhagalpur,
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Objective

I aim at achieving academic excellence and wish to be a successful academician. My motto is to impart quality education in the field of Computer Science and Engineering. I want to edify my career by nurturing young talents and contributing in true research. I expect a professional environment where I can be a benefactor and able to grow so as to exemplify my royal profession as a Teacher. I always interest to maintain spirituality which one is essential to control the powerful mind. Lastly, I aim to earn a good name for my organization/institute through hard-working, honesty and fidelity.

Education

- **Ph.D (CSE):** From Indian Institute of Technology Guwahati (IIT Guwahati), India in July, 2017.
- **Master of Technology (CSE):** From IIT Guwahati, India in 2011, with CPI **8.00/10**.
- **Bachelor of Engineering (CSE):** From Biju Patnaik University of Technology (BPUT), Odisha in 2004 with **74.14%** of marks.
- **10+2 Science:** From Upendra Nath College, Balasore, Odisha in 1999 with **66.67%** of marks.
- **Class-10:** From Bhadrak High School (Zilla School), Bhadrak, Odisha in 1997 with **72.67%** of marks.

Achievements

- All India Rank 378 in Graduate Aptitude Test in Engineering **(GATE)** held in February-2009 with **99.09 percentile** .

Honorarium

- Served as Teaching Assistant for the NPTEL (Ministry of HRD, Govt. of India) Online Certification course *"VLSI Design Verification and Test"*.

Area of research

- Fault Tolerance
- VLSI testing
- Quantum Computing
- Computer Architecture
- Discrete Event System

Subject taught

- Computer Organization and Architecture
- Operating System
- Formal Language and Automata
- Design and Analysis of Algorithms
- Computer Graphics
- Data Structure and Algorithms
- Object Oriented Programming
- Computer Programming
- Software Engineering
- Advanced Data Structure and Algorithms

Projects

Ph.D Thesis

- *Decision Diagrams based On-line testing of digital VLSI circuits*, under the supervision of Dr. Santosh Biswas, Department of CSE, IIT Guwahati, Assam.

M.Tech Thesis

- *Enhance the performance of cache coherence problem in LCMP using multicast tree*, under the supervision of Dr. Aryabratta Sahu, Department of CSE, IIT Guwahati, Assam.

Publications

Journals

1. P. K. Biswal and S. Biswas, *A Binary Decision Diagram based Online Testing of Digital VLSI Circuits for Feedback Bridging Faults*, Microelectronics Journal, Elsevier, Vol. 46(7), Pages: 598–616, 2015 .
2. P. K. Biswal, K. Mishra, S. Biswas and H. K. Kapoor, *A Discrete Event System Approach to Online Testing of Speed Independent Asynchronous Circuits*, VLSI Design, Hindawi, Vol. 2015, Pages: 1–16, 2015 .
3. P. K. Biswal and S. Biswas, *A Polynomial Algorithm for Diagnosability of Fair Discrete Event Systems*, Systems Science and Control Engineering, Taylor and Francis, Vol. 3(1), Pages: 307-319, 2015.

4. P.K. Biswal, H.P. Sambho, S. Biswas, *A Discrete Event System approach to On-line Testing of digital circuits with measurement limitation*, Engineering Science and Technology, an International Journal, Elsevier, Vol. 19(3), Pages: 1473–1487, 2016.
5. P. K. Biswal, S. Biswas, *On-Line Testing of digital VLSI circuits at Register Transfer Level using High Level Decision Diagrams*, Microelectronics Journal, Elsevier, Vol. 67, Pages: 88–100, 2017.
6. P. K. Biswal, S. Biswas, *A Binary Decision Diagram Approach On-line Testing of Asynchronous Circuits with Static and Dynamic C-elements.*, Journal of Electronic Testing, Springer, Vol. 35(5), Pages 715 – 727, 2019.
7. P. K. Biswal, *A Flexible Concurrent Testing Scheme for Non-Feedback and Feedback Bridging Faults in Integrated Circuits.*, Journal of Electronic Testing, Springer, Pages 1–24, 2023.
8. N Tiwari, P Ranjan, P. K. Biswal, C Barde, and N Sinha, *Survey and analysis of blockchain technologies with respect to: properties, algorithms, architecture, models, evolution and framework,* Journal of Multimedia Tools and Applications, Springer, 2024. Pages 1–45.
9. N. Tiwari, P.K. Biswal, P. Ranjan, *Blockchain-Enhanced Electronic Health Records: A Kafka-Based Approach for IoMT Integration*, Journal of Network and Systems Management, Springer, Volume 34, article number 56, 2026.
10. N. Tiwari, P. K. Biswal, and P. Ranjan. *Quantum-Resilient Blockchain Framework with ZKP-Based Access Control for Secure IoMT Healthcare Systems* ,Indian Journal of Pure & Applied Physics (IJPAP), Volume 64 (7), 2026.
11. N. Tiwari, P. K. Biswal, and P. Ranjan. *Decoupling data ingestion and blockchain processing: a high-performance event-driven Kafka architecture for remote patient monitoring* , Cluster Computing, Volume 29 (8) (2026).
12. Sandeep Kumar, Pradeep Kumar Biswal.*Calibration-aware CNN–U–Net syndrome decoding for a two-patch surface–colour code on a superconducting processor*, Physica Scripta, Volume 101 (38), 2026.

Conferences

1. Pradeep Kumar Biswal and Santosh Biswas, *Timed Discrete Event System Approach to Online Testing of Asynchronous Circuits*, 23rd IEEE Mediterranean Conference on Control and Automation, page 341 - 348, 2015, Spain.
2. Pradeep Kumar Biswal and Santosh Biswas, *Diagnosability in stochastic Petri Net based DES models*, 22nd Mediterranean Conference on Control and Automation, IEEE, Pages: 434–439, 2014, Italy.

3. Pradeep Kumar Biswal and Santosh Biswas, *A Binary Decision Diagram Approach to On-line Testing of Asynchronous Circuits*, 32^{nd} International Conference on VLSI Design and 18^{th} International Conference on Embedded Systems (VLSID), Pages: 94-99, 2019, New Delhi, India. ***[Nominated for best paper award]***.
4. Pradeep Kumar Biswal, *A Concurrent Testing Scheme for Muller Circuits Using Reduced Ordered Binary Decision Diagram*, IEEE REGION 10 SYMPOSIUM (TENSYMP), Pages: 1–6, IIT Bombay, 1st - 3rd July 2022.
5. G. S. Rajput, K. Kumari, P. K. Biswal, R. B. Bharodiya and U. Biswas, *Quantum-ML and Gen-AI in Preliminary Disease Diagnosing: A Chatbot Framework*,2025 IEEE 17th International Conference on Computational Intelligence and Communication Networks (CICN), pp. 633-637, Goa, India, 2025.
6. N. Tiwari, P. K. Biswal and P. Ranjan, *Evaluating Cryptographic Shifts in Smart Healthcare: Classical vs Quantum Security for IoMT Ecosystems*, IEE International Conference on Computational Intelligence and Computing Technologies & AI (ICCICT 2026), India International Centre, Lodhi Estate, New Delhi, India (in press).

Research and Development Projects

- **Title:** Undergraduates teaching laboratories in quantum technologies.
  Role: Co-Principal Investigator (Co-PI)
  Funding Agency: National Quantum Mission, DST India.
  Grant Amount: 1 crore
  Duration: 5 years
  Status: On-going

Work Experience

- I am working as an Assistant Professor in the department of Computer Science and Engineering at IIIT Bhagalpur, Bihar, since October 2017.

Academic and Administrative Responsibility

- Present Responsibilities
  - HoD, Computer Science & Engineering (CSE), IIIT Bhagalpur, since August, 2024 to till date (continue).
  - Associate Dean, Development and Planning, IIIT Bhagalpur, since July, 2022 to till date (continue).
  - Faculty In-charge, Store and Purchase, IIIT Bhagalpur, since July, 2022 to till date (continue).

- Past Responsibilities
  - HoD, Computer Science & Engineering (CSE), IIIT Bhagalpur, from September 2020 to July 2022.
  - Warden for Boy's Hostel No.1 at IIIT Bhagalpur, from August, 2018 to July, 2022.
  - Faculty In-charge Computer Center at IIIT Bhagalpur, from January, 2019 to July, 2022.
  - Faculty In-Charge of official transport arrangement at IIIT Bhagalpur, from February, 2019 to July, 2022.

B.Tech and M.Tech Projects Guided

- B.Tech Projects
  - Supervised more than 25 B.Tech projects at IIIT Bhagalpur.
- M.Tech Projects
  1. Mr. Ravi Kant, *Crop Recommendation and Yield Prediction in Bihar State using Machine Learning Techniques*, Year 2021–23.
  2. Md. Asfaque Azam, *Short Message Service (SMS) Detection using Different Learning Techniques*, Year: 2021–23.
  3. Mr. Mithilesh Mandal, *A Comparative Study on Crop Price Prediction and Anomalies Detection*, Year: 2023–25.
  4. Mrs. Khushboo Kumari, *ML Ethnobotany: An ML based technique for advancing ecological knowledge and upholding sovereignty*, Year: 2024–26.
  5. Mr. Gaurav Singh Rajput, *Hybrid Quantum Classical Convolutional Neural Networks for Galaxy Morphological Classification*, Year: 2024–26.

Ph.D Supervision

1. Ms. Nikita Tiwari, *Design and Development of Quantum Resilient Blockchain Framework for Secure and Scalable IoMT Healthcare.*
   Status: Synopsis is over
2. Mr. Sandeep Kumar, *Design and Implementation of different Fault Tolerant Techniques to mitigate errors in Superconducting Qubits using IBM Quantum Processors.*
3. Ms. Rimjhim Kumari, *Application of Quantum Computing (tentative).*

References

- Prof. Santosh Biswas
  Professor, Department of CSE, IIT Bhilai,
  Bhilai, Chhattisgarh 491002
  Email: santosh@iitbhilai.ac.in
  Mobile: +91-9957561026
- Dr. Aryabartta Sahu
  Associate Professor, Department of CSE, IIT Guwahati, India.
  Pin-781039
  Email : ashu@iitg.ac.in
  Mobile: +91-8011139091

Personal Information

My father, Sri Nanda Kishore Biswal is a retired teacher and my mother, Smt. Janakilata Biswal is a sincere housewife. We are devotee of Sri Sri Thakur Anukulchandra and follow His principles wholeheartedly. I always try to realize each and every step of my life and give first priority to the philosophy of "Being and Becoming". Finally, I love my life and accept it as it appears. My date of birth is 28.02.1982. Besides my mother tongue, Odia, I am well versed in English and Hindi.

Present Address

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Permanent Address

S/O: Sri Nanda Kishore Biswal
At–Solagan, Po–Bandhatia, Via–Dhamnagar, Dist–Bhadrak,
Odisha–756117

Declaration

I hereby declare that the information furnished above is true to best of my knowledge.

Date: Signature:
Place: