



Techno College of Engineering Agartala

An Engineering College affiliated to Tripura University (A Central University),

Approved by AICTE, MHRD, Govt. of India

Website: www.tiaedu.org

Name of the faculty: BARNALI CHOWDHURY

Designation: Associate Professor, Department of CSE

Education: PhD

Contact: Flat no: 405, BS Galaxy Tower, Ramnagar Road number 7, Near Nabodaya Sangha, Agartala, Tripura-799002



Address: Techno College of Engineering Agartala, Maheshkhola, Anandanagar, Agartala, West Tripura, PIN - 799004.

Mobile: 7005825189 / 8794183526(Whatsapp)

Email: barnali.cse92@gmail.com

Research Interest:

- Logic Synthesis, Reversible Logic
- Reversible Computing, Quantum Computing

Membership of professional bodies: No

Professional Experience:

1. *Assistant professor, Department of Computer Science and Engineering, Techno College of Engineering Agartala* (August 2025- Till Date)
2. *Assistant professor, Department of Computer Science, Holycross College, Agartala* (July 2025- August 2025)
3. *Program Analyst at Inosprime Innovation Pvt. Ltd., Andhra Pradesh*(Jan' 2021 – July 2025)
4. *Guest Faculty (Information Technology) at NIELIT Arunachal Pradesh, India (Naharlagun Branch)* (Aug' 2018 – Dec' 2020)
5. *Intern at Torit Innovation Pvt. Ltd, Kolkata*(Jan' 2018 – July 2018)
6. *Guest Faculty, Department of Computer Science & Engineering North Eastern Regional Institute of Science & Technology, Arunachal Pradesh* (Jan' 2017 – May 2017)



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Patents: No

Publications:

Publishes Journal/ Conference papers/ Book/ Book Chapters :

- **B. Chowdhury**, S. Awasthi, S.K. Metya, "Optimized Reversible Full Adder using Lithium Niobate MZI Based Peres Gate", Circuit, System & Signal Processing, Springer, 2024, DOI: 10.1007/s00034-025-03207-5 (**SCI, IF ~ 1.8**)
- **B. Chowdhury**, S. Awasthi, S.K. Metya, "Optimized Fredkin Gate and Its Application to Design an Ancilla-Delay-Cost Efficient ($2^i * j$) Reversible RAM", Circuit, System & Signal Processing, Springer, 2024, DOI: 10.1007/s00034-025-03086-w (**SCI, IF ~ 1.8**)
- **B. Chowdhury**, S. Awasthi, A. Majumder, S.K. Metya, "Ti-diffused LiNbO₃ Based Reversible TR Gate: An 2 Electro-Optic Design and Applications", Iranian Journal of Science and Technology-Transactions of Electrical Engineering, Springer, 2024, DOI: 10.1007/s40998-024-00781-3. (**SCI, IF ~ 1.5**)
- S Awasthi, **B Chowdhury**, V Janyani, SK Metya, A Majumder, "Configuring a Reversible Full Adder using Pockels Electro-Optic Effect of Ti:LiNbO₃ Based MZI", Journal of Computational Electronics, Springer, 2022, DOI: 10.1007/s10825-022-01991-w. (**SCI, IF ~ 2.2**)
- S Awasthi, **B Chowdhury**, SK Metya, A Majumder, "Pockel's Effect Inspired Toffoli Gate: An MZI Count Optimized Design and Logical Applications", Optical and Quantum Electronics, Springer, 2022, DOI: 10.1007/s11082-022-04358-4. (**SCI, IF ~ 3.3**)
- S. Awasthi, **B. Chowdhury**, Z. Haider, J. Ali, P. Yupapin, S.K. Metya, A. Majumder, "Exploring Reversible NOR from 4*4 Modified Fredkin Gate and its Optical Mapping using LiNbO₃ Based MZI", Journal of Computational Electronics, Springer, 2022, DOI: 10.1007/s10825-021-01850-0. (**SCI, IF ~ 2.2**)
- S. Awasthi, **B. Chowdhury**, Z. Haider, J. Ali, P. Yupapin, S.K. Metya, A. Majumder, "Optical Configuration of $N:2^N$ Reversible Decoder using LiNbO₃ based Mach-Zehnder Interferometer", Applied Optics, OSA, 2021, DOI: 10.1364/AO.422790. (**SCI, IF ~ 1.9**)
- **B Chowdhury**, S Awasthi, MA Jalil, A Majumder, SK Metya, "Ti:LiNbO₃ Based EO-MZI Count Optimized Design of Reversible Peres Gate", IEEE 33rd International Conference RADIOELEKTRONIKA, 19-20 April 2023, University of Pardubice, Czech Republic, DOI: 10.1109/RADIOELEKTRONIKA57919.2023.10109088.
- S. Awasthi, S. Sharma, **B. Chowdhury**, G. Singh, S.K. Metya, A. Majumder, "Configuring Logic Operations from New Reversible Toffoli Gate Using Pockel's Effect of Ti: LiNbO₃", IEEE Region 10 Symposium (TENSYP 2022), 01-03 July 2022, IIT Bombay, India. DOI: 10.1109/TENSYP54529.2022.9864374



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- S. Awasthi, **B. Chowdhury**, M.A. Ali, J. Ali, P. Yupapin, S.K. Metya, A. Majumder, "Analysis for Cost Optimized EO Design of a Reversible Boolean Function using MZIs", 5th International Conference on Optical & Wireless Technologies (OWT 2021), Springer, 9-10 October 2021, Jaipur, India. DOI: 10.1007/978-981-19-1645-8_6
- A. Majumder, **B. Chowdhury**, V. Chaudhary, P. Chakraborty, B.K. Bhattacharyya, "A Methodology of High Speed Signaling through strip-line Interconnect using Resistive Channel to Minimize ISI Noise", 11th International conference on Microwave, Antenna, Propagation & Remote Sensing (ICMARS 2015), IEEE-GRSS, 15-17 December 2015, Jodhpur, India.
- A. Majumder, P.L. Singh, **B. Chowdhury**, V. Kumar, "Cost Efficient Realization & Synthesis of Reversible Pre-settable Program Counter for Processor", IEEE International Conference on Applied & Theoretical Computing and Communication Technology (ICATCCT - 2015), 29-31 October 2015, Karnataka, India.
- A. Majumder, **B. Chowdhury**, P.L. Singh, R. Rai "Synthesis & Realization of N-bit Reversible Register File used in Bus Organization of Processor Architecture", 3rd International Conference on Recent Trends in Computing 2015, 12-13 March 2015, SRM University, Ghaziabad, India, (Procedia Computer Science, Elsevier, Vol-57, pp: 305-312).
- A. Majumder, P.L. Singh, **B. Chowdhury**, A.J. Mondal, V. Anand, "Efficient Design & Analysis of N-bit Reversible Shift Registers", 3rd International Conference on Recent Trends in Computing 2015, 12-13 March 2015, SRM University, Ghaziabad, India (Procedia Computer Science, Elsevier, Vol-57, pp: 199-208).
- P.L. Singh, A. Majumder, **B. Chowdhury**, A.J. Mondal, T.S. Shekawat, "Reducing Delay & Quantum Cost in the Novel Design of Reversible Memory Elements", 3rd International Conference on Recent Trends in Computing 2015, 12-13 March 2015, SRM University, Ghaziabad, India (Procedia Computer Science, Elsevier, Vol-57, pp: 189-198).
- P.L. Singh, A. Majumder, **B. Chowdhury**, R. Singh, N. Mishra, "A Novel Realization of Reversible LFSR for its Application in Cryptography", 2nd IEEE International Conference on Signal Processing and Integrated Networks (SPIN 2015), 19-20 February 2015, Noida, India.
- A. Majumder, **B. Chowdhury**, A.J. Mondal, K. Jain, "Investigation on Quine McClusky Method: A Decimal Manipulation Based Novel Approach for the Minimization of Boolean Function", IEEE International Conference on Electronic Design, Computer Networks & Automated Verification (EDCAV 2015), 29-30 January 2015, Shillong, India.
- A. Majumder, P.L. Singh, N. Mishra, A.J. Mondal, **B. Chowdhury**, "A Novel Delay & Quantum Cost Efficient Reversible Realization of $(2^i \times j)$ Random Access Memory", IEEE International Conference on VLSI Systems, Architecture, Technology and Applications (VLSI SATA 2015), 08-10 January 2015, Bangalore, India.

Achievements (if any):

Hobbies: Drawing, Listening Music.