

Satanu Maity

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RESEARCH INTEREST

My current research focuses on addressing performance and scalability challenges in near-memory processing and hybrid memory-enabled systems, with a focus on compiler support and heterogeneous integration. By enabling intelligent coordination across computation and memory, it aims to reduce data movement and improve performance for data-intensive workloads.

EDUCATION

Ph.D. in Computer Science and Engineering Indian Institute of Information Technology Guwahati (IIITG), Assam, India	Aug 2021 - Present (Thesis Submitted)
M.Tech in Software Engineering Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal, India	Aug 2017 - Jul 2019 Grade: 8.01/10
M.Sc in Computer Science Vidyasagar University, West Bengal, India	Aug 2015 - Jul 2017 Percentage: 80%

WORK EXPERIENCE

Department of Computer Science and Engineering, IIITG Teaching Assistant • Computer Organization and Architecture (Tutorial), Labs (Operating System, Compiler, Programming).	Sept 2021 - April 2026 Assam, India
Indian Institute of Technology Bhilai Project Assistant • Project Title: Building Trust on Computing Platform and Training of Secure Coding of Security Chip.	Feb 2021 - Sept 2021 Chhattisgarh, India
Bengal School of Technology & Management (BSTM) Teaching Faculty • Instructed and inspired college students through engaging lectures and interactive discussions.	Oct 2019 - Feb 2021 West Bengal, India

PUBLICATIONS

- **Satanu Maity** and Manojit Ghose, “MCPSim: A compiler-integrated co-simulation platform for hybrid memory-centric processing paradigm,” Journal of Systems Architecture (JSA), vol. 176, p. 103784, Jul. 2026.
- **Satanu Maity** and Manojit Ghose, “SAGE: A Compiler-assisted Reinforcement Learning-based Offloading Approach under Near-Memory Processing Paradigm,” in ACM Transactions on Architecture and Code Optimization (TACO), vol. 23, no. 1, Nov. 2025.
- **Satanu Maity**, Manojit Ghose, and Sudeep Pasricha, “A Framework for Near Memory Processing with Computation Offloading and Load Balancing,” in IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 44, no. 9, pp. 3381-3394, Sept. 2025.
- **Satanu Maity**, Mayank Goel, and Manojit Ghose, “Coat: Compiler-assisted Two-stage Computation Offloading for Data-Intensive Applications in Hybrid Computing Environment,” in IEEE Transactions on Emerging Topics in Computing (TETC), vol. 13, no. 3, pp. 753-767, July-Sept. 2025.
- **Satanu Maity**, Manojit Ghose, Avinash Kumar, Anol Chakraborty, and Ankit Chakraborty, “Unguided Machine Learning-based Computation Offloading for Near-Memory Processing,” in 38th International Conference on VLSI Design & 24th International Conference on Embedded System (VLSID), 2025, pp. 540-545.
- **Satanu Maity**, Mayank Goel, and Manojit Ghose, “Data Locality Aware Computation Offloading in Near Memory Processing Architecture for Big Data Applications,” in 30th International Conference on High Performance Computing, Data, and Analytics (HiPC), 2023, pp. 288-297.
- Apratim Goswami, **Satanu Maity**, Manojit Ghose, “Energy and Performance Optimized Computation Offloading for Near-Memory Computing,” in 39th International Conference on VLSI Design & 25th International Conference on Embedded Systems (VLSID), 2026, pp. 353-358.
- Simran P. Kaur, Asutosh K. Sarma, **Satanu Maity**, Manojit Ghose, “Addressing Cache Side-Channel Attacks Using Taint-Guided Fine-Grained Computation Offloading in Near-Memory Processing,” in International Conference on Security, Privacy, and Applied Cryptography Engineering (SAPCE), 2025, pp. 206-226.

GRANTS AND AWARDS

- Received Best Paper award (under embedded system track) in VLSID 2026.
- Received TCPP student travel grant for HiPC 2023.

TECHNICAL SKILLS

Programming languages: C++, Python, Shell.	Architectural simulators: Ramulator, PIN tool, QtSpim.
ML/AI: Pandas, Matplotlib, Scikit-learn, NLTK.	Miscellaneous: Git, LaTeX, LLVM, Docker, Wireshark.

REFERENCES

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Indian Institute of Information Technology Guwahati, India
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