Manojit Ghose
Assistant Professor (CSE)
PhD (IIT Guwahati)

Department of Computer Science & Engineering

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Joined the Institute in July 2019

About

Hi, This is Manojit. I joined this institute in July 2019 after completing my Ph.D. (in CSE) from IIT Guwahati. I did my B.E. in CSE from Jorhat Engineering College (Govt. of Assam) under Dibrugarh University, followed by M.Tech. (in CSE) from IIT Guwahati.

I am currently accepting applications for short/long internships where we shall work on some cutting-edge research problems. If you are interested, send me an email with your CV.

To know more about me, you may visit my personal webpage.

Research Interests

- Bigdata, Performance improvement of ML/DL algorithms
- Processing-in-Memory, 3D NoC
- Resource management in Edge, Cloud
- Quantum cloud computing, etc.

Research Projects:

Title: Efficient Execution of User Applications on Mobile Edge Computing Platform

Period: June 2019 - Dec 2020

Funding agency: MHRD (through TEQIP)

Amount sanctioned: 5.22 lacs

Status: Complete

Teaching

- CS320: Compilers with lab [Jan-Apr'24, Jan-Apr'23]
- CS104: Computer Organization [Apr-Jul'21, Jan-Apr'20]
- CS674: Advanced Computer Architecture [Jan-Apr'22, Jan-Apr'21, Jul-Nov'19]
- CS202: IT Workshop-I (Java programming) [Jul-Nov'20]
- CS110: Computer Programming Lab (C programming) [Jan-Apr'21]

Courses taught before joining IIITG:

- Computer organization and architecture
- Data structures
- Operating systems

Book Authored

- Co-authored the book "An Introduction to Computer Science", a textbook on Computer Science for class IX under Board of Secondary Education Assam (SEBA), published by Assam State Textbook Production and Publication Ltd, Govt. of Assam in May 2021.
- Co-authored the book "Building Concepts in Computer Science", a textbook on Computer Science for class X under Board of Secondary Education Assam (SEBA), published by Assam State Textbook Production and Publication Ltd, Govt. of Assam in April 2022.

Students, research areas and their publications

BTech:

1. Vishal Deka (Area: Scheduling and caching in MEC, Publications done in: Edge Analytics-LNEE 2022, INDICON-2021, INDICON-2020)
2. Ananya Pathak, Rutuja Patole (Area: Application scheduling in 3D Network-on-chip, Publications done in: JSA2024)

MTech:

1. Mayank Agarwal [MTech] (Area: Computation offloading in Processing-in-memory, Publications done in: HiPC2023)
2. Simran Kaur [MTech] (Area: Application scheduling and mapping for 3D Network-on-chip, Publications done in: JSA2024)

PhD:

1. Akhirul Islam [PhD] (Area: Scheduling in MEC, Publications done in: ISA 2021, ICDCIT2024)
2. Satanu Maity [PhD] (Area: Compiler assisted offloading in PIM/NMP, Publications done in: HiPC2023)
3. Asutosh Kumar Sarma [PhD] (Area: -, Publications done in: -)

Publication

Journal

- Simran Preet Kaur, Manojit Ghose, Ananya Pathak, Rutuja Patole, "A survey on scheduling and mapping techniques for 3D Network-on-chip", Journal of Systems Architecture,147, (2024), pages. 103064, Elsevier
- Simran Preet Kaur, Manojit Ghose, Ananya Pathak, Rutuja Patole, "A survey on scheduling and mapping techniques for 3D Network-on-chip", Journal of Systems Architecture,147, (2024), pages. 103064, Elsevier
- A. Choudhury, M. Ghose, A. Islam, Y Thakran, "Machine Learning-Based Computation Offloading in Multi-Access Edge Computing: A Survey", Journal of Systems Architecture, (2024), Elsevier
- Simran Preet Kaur, Manojit Ghose, Ananya Pathak, Rutuja Patole, "A survey on scheduling and mapping techniques in 3D Network-on-chip", arXiv preprint arXiv:2211.02378, (2022),
- A. Islam, A. Debnath, M. Ghose, S. Chakraborty, "A Survey on Task Offloading in Multi-access Edge Computing", Journal of Systems Architecture,118 (102225), (2021),
- M. Ghose, A. Sahu, S. Karmakar, "Urgent Point Aware Energy-Efficient Scheduling of Tasks with Hard Deadline on Virtualized Cloud System", Sustainable Computing: Informatics and Systems, (2020),
- M. Ghose, S. Kaur, A. Sahu, "Scheduling Real-Time Tasks in an Energy-Efficient Way with VMs having Discrete Compute Capacities", Computing,102(1), (2020), pages. 263-294,
- M. Ghose, A. Sahu, S. Karmakar, "Energy Efficient Online Scheduling of Real Time Tasks onto Large Multi-threaded Multiprocessor Systems", in The Journal of Information Science and Engineering,34(6), (2018), pages. 1599 – 1615,
- Manojit Ghose, Aryabartta Sahu, Sushanta Karmakar, "Energy Efficient Online Scheduling of Real Time Tasks on Large Multi-threaded Multiprocessor Systems.", Journal of Information Science & Engineering,Volume 34 Issue 6, (2018),
- Manojit Ghose, "Energy efficient scheduling of real time tasks on large systems and cloud", (2018),
- T. K. Agrawal, A. Sahu, M. Ghose, and R. Sharma, "Scheduling chained multiprocessor tasks onto large multiprocessor system", Computing,99(10), (2017), pages. 1007 – 1028,

Conference

- Alok Choudhury, Kausitav Kumar Nath, Manojit Ghose, Yogita Thakran, "Memory and CPU utilization-aware Energy-Efficient VM Placement and Consolidation in Cloud Data Centers", 1st IEEE Guwahati Sub-Section Flagship Conference (GCON), (2023), pages. 1-6, (**received Best Paper award**).
- Akhirul Islam, Manojit Ghose, "ELITE: Energy and Latency-Optimized Task Offloading for DVFS-Enabled Resource-Constrained Devices in MEC", The 20th International Conference on Distributed Computing and Intelligent Technology (ICDCIT-2024), (2023), pages. (accepted), IEEE
- Satanu Maity, Mayank Goel, Manojit Ghose, "Data Locality Aware Computation Offloading in Near Memory Processing Architecture for Big Data Applications", The 30th IEEE International Conference on High Performance Computing, Data, and Analytics (**HiPC-2023**),(accepted), (2023), IEEE
- Satanu Maity, Mayank Goel, Manojit Ghose, "Data Locality Aware Computation Offloading in Near Memory Processing Architecture for Big Data Applications", The 30th IEEE International Conference on High Performance Computing, Data, and Analytics (**HiPC-2023**),(accepted), (2023), IEEE
- M Ghose, KP Pandey, N Chaudhari, A Sahu, "Soft Reliability Aware Scheduling of Real-time Applications on Cloud with MTTF constraints", 23rd International Symposium on Cluster, Cloud and Internet Computing, (2023), (**CCGrid 2023**)
- V. Deka, A. Islam, M. Ghose, "Cloud-Assisted Dynamic and Cooperative Content Caching in Mobile Edge Computing", in The 19th International IEEE Annual India Conference (INDICON), Dec, (2022),
- Vishal Deka, Akhirul Islam, Manojit Ghose, "Cloud-Assisted Dynamic and Cooperative Content Caching in Mobile Edge Computing", 2022 IEEE 19th India Council International Conference (INDICON), (2022), pages. 1-6, IEEE
- M. Ghose, Hemangee K. Kapoor, "WeiSub: Weighted Subset-based Cache Replacement Policy for Last Level Caches", in The 12th International Conference on Computing, (2021), Communication and Networking Technologies (ICCCNT 2021), Jul
- V. Deka, M. Ghose, S. Nandi, "Energy-aware Application Scheduling on DVFS-enabled Edge Computing with Mobile-Edge-Cloud Cooperation", in The 26th annual International Conference on Advanced Computing and Communications (ADCOM), Dec, (2020),
- V. Deka, C. Guleria, M. Ghose, , "TEAM: Time and Energy Aware Application Partitioningand Resource Allocation Strategy on MEC Platform", in The 17th International IEEE Annual India Conference (INDICON),Dec, (2020),
- M. Ghose, P. Varma, S. Karmakar, A. Sahu, "Energy Efficient Scheduling of Scientific Workflows in Cloud Environment", in The 19th IEEE International Conference on High Performance Computing and Communications (HPCC 2017), (2017), pages. 170 – 177, Bangkok
- S. Kaur, M. Ghose, A. Sahu, , "Energy Efficient Scheduling of Real-Time Tasks in Cloud Environment", in The 19th IEEE International Conference on High Performance Computing and Communications (HPCC 2017), (2017), pages. 178 – 185, Bangkok
- M. Ghose, A. Sahu, S. Karmakar, "Energy Efficient Scheduling of Real Time Tasks on Large Systems", in The 17th IEEE International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT-16), (2016), pages. 99 – 104, Guangzhou
- M. Ghose, A. Sahu, S. Karmakar, "Energy Efficient Online Scheduling of Aperiodic Real Time Task on Large Multi-threaded Multiprocessor Systems", in The 13th International IEEE Annual India Conference (INDICON), (2016), pages. 1 – 6, (**received Best paper award in CS track**).
- M. Ghose, A. Sahu, S. Karmakar, "Energy Efficient Online Scheduling of Aperiodic Real Time Task on Large Multi-threaded Multiprocessor Systems", in The 13th International IEEE Annual India Conference (INDICON), (2016), pages. 1 – 6, (**received Best paper award in CS track**).
- Manojit Ghose, Aryabartta Sahu, Sushanta Karmakar, "Energy Efficient Scheduling of Real Time Tasks on Large Systems", 2016 17th International Conference on Parallel and Distributed

Computing, Applications and Technologies (PDCAT), (2016), pages. 99-104, IEEE

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