

# Sushanta Karmakar

IIT Guwahati  
Department of Computer Science  
and Engineering  
Guwahati, 781-039, INDIA

+91-361-258-2368  
+91-9678007053  
sushantak@iitg.ac.in  
<http://www.iitg.ac.in/sushantak/>

## Education

Ph.D. , Computer Science and Engineering, Indian Institute of Technology Kharagpur, (thesis submitted in June 2009, defense on Apr 2010).

(Thesis title: *Design of adaptive distributed system by protocol switching*)

M.E. , Computer Science and Engineering, Jadavpur University, 2004.

B.E. , Computer Science and Engineering, Jadavpur University, 2001.

## Employment

Professor, Dept. of CSE, IIT Guwahati, 06 May 2022 onwards

Associate Professor, Dept. of CSE, IIT Guwahati, 2 Apr 2016 onwards

Assistant Professor, Dept. of CSE, IIT Guwahati, Dec 2009–Mar 2016

Assistant Professor, Dept. of CSE, KIIT University, July 2009–Dec 2009.

Sr. Lecturer, Dept. of CSE, IIIT Bhubaneswar, July 2008–July 2009.

Software Engineer, Arant Communication India Pvt. Ltd., June 2001– Nov 2001

## Areas of Interest

Data structure, algorithm, optimization, distributed algorithm, fault-tolerant distributed algorithm, graph algorithms, distributed optimization

## Publications

### *Book Chapter*

B1 Chapter Title: Sensory Data Gathering for Road-Traffic Monitoring: Energy Efficiency, Reliability and Fault-tolerance

Authors: S Chakraborty, S Chakraborty, S Nandi and S Karmakar

Publishers: Springer Series: Modelling and Optimisation in Science and Technology

Book Title: Modelling and Processing for Next Generation Big Data Technologies and Applications

B2 Title: Third International Conference on Information, Communication and Computing Technology (ICICCT 2018)

Authors: Sonajharia Minz, Sushanta Karmakar, Latika Kharb

Publishers: Springer, 26 Jan 2019

Event Year and Place : May 12, 2018, New Delhi, INDIA

*Journal Articles under review/preparation*

- F1 S. Karmakar, A Chandrakanth Reddy, **An Algorithm for Distributed Trigger Counting in Hierarchical Ring**, in Discrete Mathematics, Algorithms and Applications
- F2 Rahul Raj Gupta, Sushanta Karmakar, **Maintaining the classes of  $(k + 1)$ -edge connectivity in a  $k$ -edge connected hypergraph**, submitted to Information Processing Letters
- F3 Parikshit Saikia, Sushanta Karmakar, **A Framework for fast distributed steinter tree approximation**, under preparation
- F4 Sushanta Karmakar, Vineet Malik, **Some insights on dynamic maintenance of Gomory-Hu tree in cactus graphs and general graphs**, under preparation
- F5 S. Karmakar, A. Gupta **Adaptive broadcast using fault-local self-stabilizing protocol switching**, to be submitted to *IJFCS*
- F6 robustness paper with Sai Pranav to go to some conference or journal.
- F7 paper with Rahul on dynamic cut in hypergraph to be sent to some journal

*Journal Articles Published/Accepted*

- J23 R Saha, S Biswas, S Sarmah, Sushanta Karmakar, P Das, **A Working Prototype Using DS18B20 Temperature Sensor and Arduino for Health Monitoring**, SN Computer Science journal (accepted)
- J22 R Saha, S Biswas, S Sarmah, Sushanta Karmakar, P Das, **Design and Implementation of Routing Algorithm to Enhance Network Lifetime in WBAN**, Wireless Personal Communication (online)
- J21 Parikshit Saikia, Sushanta Karmakar, **Distributed Steiner tree approximation in CONGESTED CLIQUE**, International Journal of Foundation of Computer Science (accepted)
- J20 Parikshit Saikia, Sushanta Karmakar, **Improved Distributed Approximation for Steiner tree in the CONGEST model**, Journal of Parallel and Distributed Computing (Elsevier), accepted
- J19 Parikshit Saikia, Sushanta Karmakar, Aris T. Pagourtzis, **A Primal-Dual based Distributed Approximation Algorithm for Prize Collecting Steiner Tree**, Discrete Mathematics, Algorithms and Applications (accepted)
- J18 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 (Elsevier) (accepted)
- J17 Basant Subba, Santosh Biswas, Sushanta Karmakar, **A Game theory based multi-layered intrusion detection framework for Wireless Sensor Network**, International Journal of Wireless Information Networks, Springer
- J16 Basant Subba, Santosh Biswas, Sushanta Karmakar, **A Game theory based multi-layered intrusion detection framework for VANET**, Future Generation Computer Systems, Elsevier
- J15 M. Ghose, A. Sahu, S. Karmakar, **Energy Efficient Online Scheduling of Real Time Tasks on Large Multi-threaded Multiprocessor Systems**, Journal of Information Science and Engineering, Academia Sinica
- J14 S. Karmakar, P. Koutris, A. Pagourtzis, D. Sakavalas, **Energy-efficient broadcasting in ad-hoc wireless networks**, Journal of Discrete Algorithms (online 23 Nov 2016)

- J13 Basant Subba, Santosh Biswas, Sushanta Karmakar, **False Alarm Reduction in Signature based IDS: Game Theory Approach**, *Security and Communication Networks*, Wiley
- J12 Suchetana Chakraborty, Sandip Chakraborty, Sushanta Karmakar, Sukumar Nandi, **Impact of Redundant Sensor Deployment over Data Gathering Performance: A Model Based Approach**, *Journal of Network and Computer Applications*, Elsevier
- J11 Basant Subba, Santosh Biswas, Sushanta Karmakar, **Intrusion Detection in Mobile Ad-hoc Networks: Bayesian Game Formulation**, *Engineering Science and Technology, an International Journal (JESTECH)*(Elsevier)
- J10 Suchetana Chakraborty, Sandip Chakraborty, Sushanta Karmakar, Sukumar Nandi, **Fault Resilience in Sensor Networks: Distributed Node-Disjoint Multi-Path Multi-Sink Forwarding**, *Journal of Network and Computer Applications*, Elsevier
- J9 Suchetana Chakraborty, Sandip Chakraborty, Sukumar Nandi, Sushanta Karmakar, **Topology Management Ensuring Reliability in Delay Sensitive Sensor Networks with Arbitrary Node Failures**, *International Journal of Wireless Information Networks*, Springer
- J8 Suchetana Chakraborty, Sandip Chakraborty, Sukumar Nandi, Sushanta Karmakar, **ADCROSS: Adaptive Data Collection from Road Surveilling Sensors**, *IEEE Transactions on Intelligent Transportation Systems*
- J7 R. Singh, S. Chakraborty, S. Karmakar, **Concurrent Deterministic 1-2 Skip List in Distributed Message Passing Systems**, *International Journal of Parallel, Emergent and Distributed Systems*, Taylor and Francis (Accepted, doi = 10.1080/17445760.2013.876637)
- J6 S. Mandal, S. Chakraborty, and S. Karmakar, **Distributed Deterministic 1-2 Skip List for Peer-to-Peer System**, *Peer-to-Peer Networking and Applications*, Springer US, 2013.
- J5 S. Karmakar, A Chandrakanth Reddy, **An Improved Algorithm for Distributed Trigger Counting in Ring**, *The Computer Journal*, Oxford University Press, 2013.
- J4 Suchetana Chakraborty, S. Chakraborty, S. Nandi, S. Karmakar, **Convergecast Tree Management from Arbitrary Node Failure in Sensor Network**, *Ad Hoc Networks* 11:6 (2013), Elsevier, 1796–1819.
- J3 Suchetana Chakraborty, S. Chakraborty, S. Karmakar, S. Nandi, **Dynamic Tree Switching for Distributed Message-Passing Applications**, *Journal of the Network and Systems Management*, Springer US, (2013), pp. 1–40
- J2 S. Karmakar, A. Gupta, **Adaptive distributed mutual exclusion by dynamic topology switching**, *International Journal of Foundations of Computer Science (IJFCS)* 22:3 (2011), 713–737.
- J1 S. Karmakar, A. Gupta, **Adaptive broadcast by fault-tolerant spanning tree switching**, *Journal of Parallel and Distributed Computing (JPDC)*, 70:9 (September 2010), 889–906.

### *Proceedings*

- C40 Popular Matching in Hypergraph to be submitted (submitted)
- C39 Vineet Malik, Sushanta Karmakar, **Some Insights on Dynamic Maintenance of Gomory-Hu Tree in Cactus Graphs and General Graphs** accepted at CALDAM 2023: 231-244
- C38 Hemraj Raikwar, Sushanta Karmakar, **Fully Dynamic Algorithm for the Steiner Tree Problem in Planar Graphs**, accepted at CANDARW 2022: 416-420

- C37 Kolichala Rajashekar, Souradyuti Paul, Sushanta Karmakar, Subhajit Sidhanta, **Minimizing communication delay at the Edge by topology-aware assignment of IoT workloads**, accepted at ICDCS 2022 (short paper), Bologna, Italy
- C36 Hemraj Raikwar, Sushanta Karmakar, **Fully dynamic algorithm for Steiner tree using dynamic distance oracle**, accepted in ICDCN 2022 Doctoral Symposium
- C35 Yashdeep Singh, Sushanta Karmakar, **Popular matching in a 3-uniform 3-partite hypergraph**, accepted in ICDCN 2022 Doctoral Symposium
- C34 Parikshit Saikia, Sushanta Karmakar,  **$2(1 - \frac{1}{\ell})$  factor Steiner tree approximation in  $\tilde{O}(n^{1/3})$  rounds in the CONGESTED CLIQUE**, 7th International Symposium on Computing and Networking (CANDAR 2019), Japan (*best paper award*)
- C33 Parikshit Saikia, Sushanta Karmakar, **Round-message trade-off in distributed Steiner tree approximation in the CONGEST model**, 16th International Conference on Distributed Computing and Internet Technology (ICDCIT 2020), Bhubaneswar, India, 9–11 Jan 2020
- C32 Rahul Raj Gupta, Sushanta Karmakar, **Incremental algorithm for minimum cut and edge connectivity in hypergraph**, 30th International Workshop on Combinatorial Algorithms (IWOCA 2019), Pisa, 23–25 July
- C31 Parikshit Saikia, Sushanta Karmakar, **A simple  $2(1 - \frac{1}{\ell})$  factor distributed approximation algorithm for steiner tree in the CONGEST model**, 20th International Conference on Distributed Computing and Networking (ICDCN) 2019, Jan 4–7, IISc Bengaluru, INDIA
- C30 B. Subba, S. Biswas, S. Karmakar, **Host based intrusion detection system using frequency analysis of n-gram terms**, in Proceedings of IEEE Region Ten Conference (TENCON), November 5–8, 2017, Penang, Malaysia (accepted)
- C29 Manojit Ghose, Pratyush Verma, Sushanta Karmakar, Aryabartta Sahu, **Energy Efficient Scheduling of Scientific Workflows in Cloud Environment**, in Proceedings of the 19th IEEE International Conference on High Performance Computing and Communications (HPCC 2017), Bangkok, Thailand, December 18–20, 2017
- C28 M. Ghose, A. Sahu, S. Karmakar, **Energy Efficient Scheduling of Real Time Tasks on Large Systems**, in Proceedings of 17th International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT 2016), December 16–18, 2016, Guangzhou, China
- C27 M. Ghose, A. Sahu, S. Karmakar **Energy Efficient Online Scheduling of Aperiodic Real Time Tasks on Large Multi-threaded Multiprocessor Systems**, in Proceedings of 13th International IEEE India Conference (INDICON 2016), 16–18 December, IISc Bengaluru, India (*best paper award in the category*)
- C26 B. Subba, S. Biswas, S. Karmakar **Enhancing Performance of Anomaly based Intrusion Detection Systems through dimensionality reduction using Principal Component Analysis**, IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2016
- C25 B. Subba, S. Biswas, S. Karmakar **Enhancing effectiveness of Intrusion Detection Systems: A Hybrid Approach**, IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2016
- C24 B. Subba, S. Biswas, S. Karmakar **A Neural Network Based System for Intrusion Detection and Attack Classification**, in Proceedings of 22nd National Conference on Communications (NCC), March 2016, Guwahati (poster)

- C23 B. Subba, S. Biswas, S. Karmakar, **Intrusion Detection Systems using Linear Discriminant Analysis and Logistic Regression**, in Proceedings of 12th IEEE India International Conference (INDICON), December 17-20, 2015, New Delhi (accepted)
- C22 S. Karmakar, **Adaptive Broadcast by Fault-Local Self-Stabilizing Spanning Tree Switching**, in Proceedings of 29th International Symposium on Distributed Computing (DISC), October 5-9, 2015, Tokyo, Japan (accepted as poster)
- C21 S. Chakraborty, S. Chakraborty, S. Karmakar, H. Dutta, **Hierarchical Topology Adaptation for Distributed Convergecast Applications**, in Proceedings of 29th ACM Symposium On Applied Computing (Dependable and Adaptive Distributed Systems Track, SAC 2014), March 24-28, Gyeongju, South Korea
- C20 S. Karmakar, S. Chattopadhyay, **A Trigger Counting Mechanism for Ring Topology**, in Proceedings of 37th Australasian Computer Science Conference (ACSC 2014), Jan 20-23, Auckland, New Zealand
- C19 S. Chakraborty, S. Chakraborty, S. Nandi, S. Karmakar, **RelBAS:Reliable Data Gathering from Border Area Sensors**, in Proceedings of 18th IEEE Symposium on Computers and Communications (IEEE ISCC 2013), July 7-10, Split, Croatia
- C18 S. Chakraborty, S. Chakraborty, S. Nandi, S. Karmakar, **Exploring Gradient in Sensor Deployment Pattern for Data Gathering with Sleep based Energy Saving**, in Proceedings of 9th International Wireless Communications and Mobile Computing Conference (IEEE IWCMC 2013), Sardinia, Italy, July 1-5, 2013
- C17 S. Chakraborty, S. Chakraborty, S. Nandi, S. Karmakar, **Energy-efficient Data Gathering for Road-side Sensor Networks ensuring Reliability and Fault-tolerance**, in Proceedings of 27th IEEE International Conference on Advanced Information Networking and Applications (AINA '13), March 25-28, 2013, Barcelona, Spain
- C16 S. Mandal, S. Chakraborty, S. Karmakar, **Deterministic 1-2 Skip List in Distributed System**, in Proceedings of 2nd IEEE International Conference on Parallel, Distributed and Grid Computing (PDGC 2012), Wagnaghat, Solan, Himachal Pradesh, India, Dec 6-8, 2012 ( best paper award )
- C15 S. Chakraborty, S. Chakraborty, S. Nandi and S. Karmakar, **A Novel Crash-Tolerant Data Gathering in Wireless Sensor Networks**, in Proceedings of 13th IEEE/IFIP Network Operations and Management Symposium (NOMS) Maui, Hawaii, April 16-20, 2012
- C14 S. Chakraborty, S. Karmakar, **A Novel Approach for Adaptive Data Gathering in Sensor Networks by Dynamic Spanning Tree Switching**, in Proceedings of International Conference on Advances in Computing and Communications (ACC 2011), Kochi, India (Springer)
- C13 S. Chakraborty, S. Chakraborty, S. Nandi and S. Karmakar, **A Reliable and Total Order Tree Based Broadcast in Wireless Sensor Network**, in Proceedings of International Conference on Computer and Communication Technology (ICCCT 2011), Allahabad, India (IEEE press)
- C12 S. Chakraborty, S. Chakraborty, S. Nandi and S. Karmakar, **A Tree-Based Local Repairing Approach for Increasing Lifetime of Query Driven WSN**, in Proceedings of 11th International Symposium on Parallel Architecture, Algorithms, and Networks (ISPAN), Dalian, China, August 2011 (IEEE Press).
- C11 S. Chakraborty, S. Karmakar, **Adaptive Convergecast by Distributed Topology Switching**, in Proceedings of 29th Brazilian Symposium on Computer Networks and Distributed Systems (SBRC), Campo Grande, Mato Grosso do Sul, Brazil, May 30-June 3, 2011

- C<sub>10</sub> S. Katiyar, S. Karmakar, **A Simple Scheme for Termination Detection in Distributed Systems under Single Link Failure**, in Proceedings of International Conference on Computing and Communication Devices (ICCCD), Bali Island, Indonesia, April 1-3, 2011
- C<sub>9</sub> S. Katiyar, S. Karmakar, **An Approach to Termination Detection in Delay Tolerant Networks**, in Proceedings of 2nd National Conference on Emerging Trends and Applications in Computer Science (NCETACS), Shillong, Meghalaya, India, March 4-5, 2011
- C<sub>8</sub> S. Karmakar, A. Gupta, **Self-stabilizing distributed protocol switching**, in Proceedings of 9th International Conference on Distributed Computing and Networking (ICDCN 2008), Kolkata, India, Jan. 2008, LNCS 4904, Springer.
- C<sub>7</sub> S. Karmakar, A. Gupta, **Fault-tolerant topology adaptation by localized distributed protocol switching**, in Proceedings of International Conference on High Performance Computing (HiPC 2007), Goa, India, Dec. 2007, LNCS 4873, Springer.
- C<sub>6</sub> S. Karmakar, A. Gupta, **Adaptive broadcast by distributed protocol switching**, in Proceedings of ACM Symposium on Applied Computing (SAC), Dependable and Adaptive Systems Track, Seoul, Korea, March 2007
- C<sub>5</sub> A. Jain, S. Karmakar, A. Gupta, **A distributed algorithm for bounded degree connected dominating set**, in Proceedings of 5th Asian Mobile Computing Conference (AMOC 2007), Kolkata, India, Jan. 2007
- C<sub>4</sub> A. Jain, S. Karmakar, A. Gupta, **Adaptive connected dominating set - an exercise in distributed output switching**, in Proceedings of 8th International Conference on Distributed Computing and Networking (ICDCN 2006), Guwahati, India, Dec. 2006
- C<sub>3</sub> S. Karmakar, A. Gupta, **Iterative refinement of clusterheads in wireless sensor networks**, in Proceedings of 4th Asian Mobile Computing Conference (AMOC 2006), Kolkata, Jan. 2006
- C<sub>2</sub> S. Karmakar, A. Gupta, **Bounded clustering with low node-clusterhead separation in wireless sensor networks**, in Proceedings of 8th IEEE International Symposium on Parallel Architectures, Algorithms, and Networks (ISPAN 2005), Las Vegas, USA, Dec. 2005
- C<sub>1</sub> R. Sen, S. Karmakar, S. K. Ray, **SLC-LAN: A Simple Low Cost LAN**, in Proceedings of COMNAM, Jadavpur University, Kolkata, 2000

## Special Mention for Summer Interns

**A gender based study on school education across India**, by Pritam Chakraborty (BTech student of Mechanical Engg, NIT Durgapur), Project demo at "<http://sipapp.epizy.com>"

**Study of Fully Dynamic Single Source Shortest Path Problem**, by Aditya Mitra (BTech student of Electrical Engineering Dept, NIT Durgapur)

## Awards

National Scholarship at 10th and 12th Level

Hi Value Ph.D. Fellowship at IIT Kharagpur

Microsoft Young Faculty Award at IIT Guwahati

DST Travel Grant for Attending International Conference

NBHM Travel Grant for attending summer school on Randomized Algorithm at Simon Fraser University, Canada

Best paper award IEEE PDGC 2012

Philips Fellowship for attending conference

Travel Grant for attending Symposium on Algorithmic Game Theory (SAGT 2014) held at Patras, Greece

Best paper award IEEE INDICON 2016

Prime Minister's Research Fellowship (PMRF) subject expert, 2018

Best paper award CANDAR 2019

ASEM-DUO Fellowship (3000 euro) for 1 month faculty exchange program, 2019-2020

BTech project of *Vineet Malik* entitled "Dynamically maintaining Gomory-Hu tree" awarded prestigious **Samsung Fellowship** for translational research in 2021 (INR 18000 for 3 months)

## Sponsored Projects

*Design and Development of a Dynamic and Reliable Protocol Switching Framework for Wireless Mesh Network*, 3yrs, 75 Lakhs (INR) , Ministry of Electronics and Information Technology, New Delhi,

*Game Theory based Intrusion Detection System (IDS) for Cyber Physical System*, 3yrs, 40 Lakhs (INR) , Department of Science and Technology (DST), New Delhi,

*A Framework for patient-in-transit healthcare ensuring seamless health data transmission*, Co-PI, TEQIP III CRS project, 15 Lakhs

*Classification and Identification of Parkinson's Disease (PD) patient for proper treatment*, Co-PI, TEQIP III CRS project, 5.33 Lakhs

*Design and Analysis of Some Fast Steiner Tree Algorithms*, PI, MATRICS scheme of SERB, Govt of India (submitted in June 12, 2019), Accepted (16 Jan 2020), 6.6 Lakhs

## Academic Visits

Prof. Dr. Peter Widmayer, Institut of Theoretische Informatik, ETH Zurich, 31st May 2014 to 30th June 2014

Prof. Aris T. Pagourtzis, Department of Computer Science, National Technical University of Athens (NTUA), Greece, 15 June 2015 to 15 July 2015

## Professional Activities:

Member of ACM

Member of EATCS

Reviewer of Theoretical Computer Science

Reviewer of IEEE Communication Letters

Reviewer of Wireless Networks, Springer

External examiner of M Tech (IT) thesis at Assam University, Silchar, on 11 May 2016

Reviewer of PhD and MTech thesis at Gujarat Technical University in 2013, 2014, 2015

Reviewer of Ph.D. thesis titled *Optimum Resource Utilization Techniques for Routing in MANET* by Sujatha B R (Visvesvaraya Technological University, Karnataka, India)

Reviewer of Ph.D. thesis titled *Design of dynamic load balancing algorithms for distributed systems using a diffusion technique* by P. Neelakantan (Department of Computer Sc and Engg, Sri Venkateswara University College of Engineering, Tirupati-517502, AP, INDIA)

External examiner in the Doctoral Committee of Amit Gurung, PhD. student at NIT Meghalaya under Dr. Rajarshi Roy

External examiner for M.Tech project review at NIT Nagaland

Reviewer of Ph.D. thesis titled *Methodologies for Client Oriented Discovery and Mining in Web Service Environment* by Mrs. Vandan Tewari (Department of Computer Sc and Engg, Shri G. S. Institute of Technology and Science, Indore), thesis submitted to **Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal**

Reviewer of Ph.D. thesis titled *Design and Analysis of an Automated Approach to Detect Brain Disorders* by Mr. Kirti Raj Bhatele, thesis submitted to **Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal (M.P.)**

Reviewer of Ph.D. thesis of BITS Pilani, IIT Roorkee, IIT-ISM Dhanbad

Reviewer of International Journal of Parallel, Emergent, and Distributed System

Reviewer of IET Wireless Sensor Systems

Reviewer of ICTACT Journal on Commutation Technology

Reviewer of CSI Transactions on ICT

Reviewer of STM Journal of Computer Technology and Applications

Reviewer of book chapter: Dynamics on and of Complex Networks: Applications to Biology, Computer Science, Economics, and the Social Sciences, Birkhauser, Springer, Boston

Program Committee member of NCCCS-2012, IMKE - 2012, APICENS-2013, ETES-2014, ACM DEBS-2014

Reviewer of the Conferences: NCETACS (2011), IEEE ICETACS (2013), ICCS (2010), ICDCIT (2010), NCC (2013), ICON (2012, 2013), ICCCT (2011, 2012, 2013), MIKE (2013), ICACCI (2013), ICECCS (2013), Indicon (2013)

Mentor for design of algorithm for a start-up company named "HEALBOT" that develops android applications for health-care domain.



## Courses Taught:

Data Structures and Algorithms  
Programming Lab  
Algorithms  
Self-stabilizing Algorithms  
Randomized Algorithms  
Combinatorial Optimization  
Distributed Systems  
Object Oriented Programming and Data Structures  
Operating System  
Parallel Algorithms

## Ph.D. Guidance:

Suchetana Chakraborty, *Tree Based Data Gathering from Sensors: Topology Management Sustaining QoS*, thesis defense on 29 May 2014

Basant Subba, *On Improving the efficiency of intrusion detection systems using game theoretic approaches*, thesis defense on 25 June 2018

Manojit Ghose, *Energy efficient scheduling of real-time tasks on large systems and cloud*, thesis defense on 4th Dec 2018

Parikshit Saikia, *Algorithms for some Steiner tree problems on graphs*, July 2015 onwards, thesis submitted on 4-May-2020 (defense on 6 Nov 2020)

Yashdeep Singh , July 2018 onwards

Hemraj Raikwar , July 2018 onwards

## M.Tech. Guidance:

Meghna Singh, *Concept-based Short Text Topic Model*, July 2021 (joint guidance with Dr. Ashok Singh Sairam, Math, IIT Guwahati)

Gurjit Singh, *Message Efficient Distributed Algorithm for Sparse Connectivity Certificate*, July 2019

Biliyan Kumar Pujari Jee, *Maximum Weighted Matching in a graph under Edge Uncertainty*, May 2015–June 2016

Yashdeep Singh, *Data Delivery by Energy-Constrained Mobile Agents* , May 2014–June 2015

Netsanet Getachew, *Reviewing community scoring functions in complex networks*, July 2015 (joint guidance with Dr. Ashish Anand, CSE, IIT Guwahati)

Prashant Arya, *Data Placement Problem in Networks*, May 2013–June 2014

- Vinod Kumar, *Probabilistic Minimum CDS in Unit Disk Graph*, May 2013–June 2014
- Kundan Kumar, *Some issue related to Distributed Trigger Counting*, May 2013–June 2014
- Parikshit Saikia, *Game Theory based Routing in DTN*, May 2013–July 2014
- Ramesh Singh, *Concurrency Issues in Deterministic 1-2 Skip List in Distributed System*, May 2012–June 2013
- A Chandrakanth Reddy, *Deterministic Algorithms for Distributed Trigger Counting*, May 2011–June 2012
- Subhrangsu Mandal, *Deterministic 1-2 Skip List in Distributed System*, May 2011–June 2012
- Sweta Priyadarshini, *Comparison between Chord and Pastry under Identical Environment*, May 2011–June 2012
- Suchetana Chakraborty, *Dynamic Tree Switching for Adaptation in Distributed Message Passing System*, May 2010–June 2011
- Sivendra Katiyar, *Termination Detection in Distributed Systems under Link Failure Model*, May 2010–June 2011

## B.Tech. Guidance:

- Saraswatula Phani Sai Pranav, *Game theory related*
- Annapurne Krishna Manik , *Game theory related*
- Mukkanti Venkata Saketh, *Min-cut Cactus related*
- Nalabolu Sandeep, *Min-cut Cactus related*
- Vineet Malik, *Dynamic maintenance of Gomory-Hu tree in Cactus graphs and general graphs* , Aug 2020 –May2021
- Abhishek Ranjan, Aditya Chouhan, Hemant Yadav, *Fast Prize-collecting Steiner tree Construction in Distributed Setting*, July 2019–
- Divyam Agarwal, *Implementation of Algorithm to calculate min cut in Hypergraph* , July 2019–
- Ankit Vyas, *Implementing Land Record System using Blockchain* , July 2018–
- N Abhinav Reddy, *Smart Contracts on Block Lattice DAGs*, July 2018–
- Neel Mittal, *Dynamic 2-edge connectivity*, July 2018 –
- Rahul Raj Gupta, *Incremental algorithm for computing min-cut in Hypergraph*, July 2017–
- Sagar Roy Pradhan, *Distributed deadlock detection and recovery*, July 2017–
- Mohd Imran, *Graph coloring with applications*, July 2017–
- Piyush Kedia, *Load Balancing Balls and Bins Problem*, May 2016–
- Ganesh Kaname, *Locality of Distributed Symmetry Breaking*, May 2016–
- Ravi Gupta, *Consensus Tree Construction*, May 2016 –
- Subham Shukla, *Application of Rotor-router for load balancing*, May 2015–

Ajay Pal Singh, *Improvement of algorithm for 2-path partitions of a graph*, May 2015–

Rohitashva Kumar Meena, *Implementation of Dynamic DFS algorithm*, May 2015–

Madhu Prudhvi Raj, *Implementation of a DTN routing protocol using One simulator*, May 2014 –June 2015

Abhishek Joshi, *Handling uncertainty and its application to maximum matching*, May 2013–June 2014

Mudit Gupta, *Bounded size k-hop clustering in ad hoc network*, May 2013–June 2014

Hridoy Sankar Dutta, *Hierarchical adaptive convergecast with clustering and spanning tree switching*, May 2012–June 2013, Gauhati University

Gaurav Ranjan, *Performance evaluation of adaptive broadcast by switching from a DFS Tree to a BFS Tree under changing environment*, May 2011–June 2012

Darapu Bharat Kumar, *Introducing anonymity in P2P file sharing for wireless ad-hoc networks*, May 2011–June 2012

Deepak Kumar, *Delay tolerant broadcast using partially constructed spanning tree*, May 2010–June 2011

Jupaka Shashi Kiran, *A new routing protocol in intermittently connected mobile networks*, May 2010–June 2011

## Invited Talk/Event Organized

Organized QIP Short Term Course on *Recent Advances in Network Algorithms*, September 2013

Organized Workshop on “Randomized Distributed Algorithm” October 17, 2014 (sponsored by Microsoft)

Invited talk in *Workshop in Parallel and Distributed Computing*, Silicon Institute of Technology, Bhubaneswar, 2009

Invited talk in NCEVT-2014 (Parul Institute of Engineering and Technology, Limda, Gujarat ) during April 2014

Invited talk in International Conference on Information Science 2014, Department of Computer Science & Engineering, College of Engineering Cherthala, Kerala, 4-5 July 2014

Invited Tutorial at EAIT 2014 on 19th Dec, 2014 at ISI Kolkata on “Fault-tolerant Distributed System”

Organized QIP Short Term Course on *Algorithm and Game Theory*, March 10-14, 2015

Organizing TEQIP Short Term Course on *Centralized and Distributed Graph Algorithms*, May 23-25, 2016

Invited talk at National Workshop on Quantum Information and Information Security (NWQIIS 2018): 5-11 October 2018 held at IIIT Hyderabad

Invited Talk at Tripura University Agartala

Invited talk on "Game Theory and Security" at National workshop on **Cyber Security, crypt analysis, and security of physical infrastructure**, held at BIRJHORA MAHAVIDYALAYA, Bongaigaon, Assam, 25 –27 June 2019

## Events Attended

20th International Conference on Distributed Computing and Networking (ICDCN), IISc Bengaluru, India, 2019

7th International Symposium on Computing and Networking (CANDAR), Nagasaki, Japan, 2019

30th International Workshop on Combinatorial Algorithms (IWOCA 2019) , Pisa, 23–25 July

46th International Colloquium on Automata, Languages and programming (ICALP) , 8–12 July 2019, Patras, Greece

Summer School on Random trees and random graphs, CIRM France, 1–5 July 2019

4th International Conference on Highlights of Algorithms (HALG 2019), University of Copenhagen, Denmark, June 14–16, 2019

Workshop on Emergent Algorithms and Network Dynamics (WENDY), Institut Henri-Poincaré, 75005 Paris, France, October 10–11, 2018

3rd International Conference on Highlights of Algorithms (HALG 2018), VU Amsterdam, Netherlands, June 4–6, 2018

2nd International Conference on Highlights of Algorithms (HALG 2017), TU Berlin, Germany, June 9–11, 2017

3rd International Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2017), Feb 13-18, 2017, BITS, Pilani, K K Birla Goa Campus, Goa, India

13th International IEEE India Conference (INDICON 2016), 16–18 December, IISc Bengaluru, India

36th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2016), Chennai Mathematical Institute, Chennai, December 13-15, 2016

Workshop on Complexity Theory. IIT Gandhinagar, Nov 02 – 06, 2016

17th Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS 2016), Aug 29–September 2, Saarbrücken, Germany

Workshop on **Game Theory and Mechanism Design**, January 11–15, 2016, IISc Bangalore

29th International Symposium on Distributed Computing, October 5–9, 2015, Tokyo, Japan

International Conference on Ad Hoc Networks and Wireless (ADHOC-NOW), June 29–July 01 2015 - Athens - Greece

**Key Insights on Networks and Graphs**, a summer school on spectral graph theory and distributed computing, Leukerbad, Switzerland, June 22–26, 2015

Symposium on **Learning, Algorithm and Complexity** Held at IISc bangalore from Jan 5–9, 2015

7th International Symposium on Algorithmic Game Theory (SAGT), 2014, at Patras, Greece

International Conference on Information Science (ICIS 2014) held at Dept of Computer Science, College of engineering, Cherthala, Kerala, INDIA, July 4–5, 2014

37th Australasian Computer Science Conference (ACSC 2014), Auckland, New Zealand, Jan 20–23, 2014

CEFIPRA WORKSHOP ON NEW AVENUES FOR NETWORK MODELS (at IISc Bangalore, INDIA), 13–15 Jan 2014

IFCAM WORKSHOP ON SOCIAL NETWORKS (at IISc Bangalore), 16 Jan, 2014

Foundation of software Technology and Theoretical Computer Science (FSTTCS) at IIT Guwahati, Dec 12–14, 2013

2nd IEEE International Conference on Parallel, Distributed and Grid Computing (PDGC 2012) , Wagnaghat, Solan, Himachal Pradesh, India, Dec 6–8, 2012

International Conference on Distributed Computing and Networking (ICDCN) at TIFR, Mumbai, Jan 3–6, 2012

Workshop on Graph and Geometric Algorithms at IIT Guwahati, Oct 21–23, 2011

International Conference on Advances in Computing and Communications (ACC 2011), Kochi, India, July 22–24, 2011

29th Brazilian Symposium on Computer Networks and Distributed Systems (SBRC 2011), Campo Grande, Mato Grosso do Sul, Brazil, May 30–Jun 3, 2011

International Conference on Computing and Communication Devices (ICCCD), at Bali Island, Indonesia, April 1–3, 2011

Workshop on "Networks: Structure and Function" (at IISc Bangalore), Nov 4–5, 2011

Workshop on "Introduction to Network Science" (at IISc Bangalore), Aug 29 – Sep 02, 2011

2nd National Conference on Emerging Trends and Applications in Computer Science (NCETACS), Shillong, Meghalaya, India, March 4–5, 2011

9th International Conference on Distributed Computing and Networking (ICDCN 2008), Kolkata, India, Jan 2008

International Conference on High Performance Computing (HiPC 2007), Goa, India, Dec. 2007

5th Asian Mobile Computing Conference (AMOC 2007), Kolkata, India, Jan. 2007

8th International Conference on Distributed Computing and Networking (ICDCN 2006), Guwahati, India, Dec. 2006

4th Asian Mobile Computing Conference (AMOC 2006), Kolkata, Jan. 2006

## Referees

Available on request

Last updated: July 24, 2023