Alakesh Kalita

Personal Data

Place and Date of Birth:	India | 22 May 1990
Current city:	Pioneer, Singapore
Phone:	+65 88104452
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Website:	https://alakesh1025.github.io/
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Google Scholar:	https://tinyurl.com/8km6vtrj

Work Experience

Apr'22-Present **Research Fellow**
National University of Singapore, Singapore
Supervisor: Dr. Mohan Gurusamy

- Exploring different research areas such as Metaverse, Application of Parrando's Paradox and Gaming Model in Computer Networks, Internet of Things.
- Assisting UG and PG students in their final year projects
- Scientific project proposal writing

Jan'18-Apr'22 **Graduate Teaching Assistant**
Indian Institute of Technology Guwahati, India
Courses: Introduction to Computing Lab, Data Communication, Computer Networks, Internet of Things, Computer Networks and Operating System Lab

- Setup Internet of Things testbed using TI CC2650, LaunchPad, CC2531, RPi, ESP8266
- Took lab classes on Contiki-NG OS, FIT IoT-LAB
- Assisted the instructors in formulating questions for exams & assignments

Jul'17-Dec'17 **Junior Research Fellow**
Indian Institute of Information Technology Guwahati, India

- Explored Internet of Vehicle

Aug'16-Jun'17 **Research Scientist**
North Eastern Hill University, Meghalaya, India

- Implemented IoT based smart lighting application
  - Bagged second prize (25000 INR) in Regional Innovators Conclave, Government of Meghalaya, India.
- Designed and implemented 6LowPAN-based IoT Prototype

Education

Jan'18 - May'22 **Doctor of Philosophy**
Indian Institute of Technology Guwahati, India
Department: Computer Science and Engineering
Thesis: Adaptive Resource Allocation for Faster Formation of 6TiSCH IoT Network. PDF
Innovative Student Projects Award'22 from Indian National Academy of Engineering, India (Indian National Award)
Supervisor: Dr. Manas Khatua

July'14 - May'16 | **Master in Technology**
Assam Central University, India
Department: Computer Science and Engineering
Thesis: A Fault Tolerant Topology For Network-on-Chip
University Rank -2

June'08 - June'12 | **Bachelor in Technology**
Assam Don Bosco University, India
Department: Computer Science and Engineering

Publications

Journals

1. A. Kalita, A. Hazra, and M. Gurusamy, "Parrando's Paradox based Enhanced Beacon Transmission in 6TiSCH Networks", IEEE Networking Letters, IF-NA, 2023, (Accepted). PDF
2. A. Kalita and M. Khatua, "Time-Variant RGB Model for Minimal Cell Allocation and Scheduling in 6TiSCH Networks," in IEEE Transactions on Mobile Computing, IF-6.07, 2023, (Accepted). PDF
3. A. Kalita, M. Gurusamy, and M. Khatua "A Gaming and Trust Model based Counter Measure for DIS Attack on 6TiSCH IoT Networks", in IEEE Internet of Things Journal, IF-11.7, vol. 10, no. 11, pp. 9727-9737, 2023. PDF
4. A. Kalita and M. Khatua, "6TiSCH – IPv6 Enabled Open Stack IoT Network Formation: A Review," in ACM Transactions on Internet of Things, IF-NA, vol. 3, no. 24, pp. 1-36, 2022. PDF
5. A. Kalita, A. Brighente, M. Khatua, and M. Conti, "Effect of DIS Attack on 6TiSCH Network Formation," in IEEE Communications Letters, IF-3.55, vol. 26, no. 5, pp. 1190-1193, May, 2022. PDF
6. A. Kalita and M. Khatua, "A Non-cooperative Gaming Approach for Control Packet Transmission in 6TiSCH Network," in IEEE Internet of Things Journal, IF-11.7, vol. 9, no. 5, pp. 3954-3961, 2022. PDF
7. A. Kalita and M. Khatua, "Adaptive Control Packet Broadcasting Scheme for Faster 6TiSCH Network Bootstrapping," in IEEE Internet of Things Journal, IF-11.7, vol. 8, no. 24, pp. 17395–17402, 2021. PDF
8. A. Kalita and M. Khatua, "Autonomous Allocation and Scheduling of Minimal Cell in 6TiSCH Network," in IEEE Internet of Things Journal, IF-11.7, vol. 8, no. 15, pp. 12242-12250, 2021. PDF
9. A. Kalita and M. Khatua, "Opportunistic Transmission of Control Packets for Faster Formation of 6TiSCH Network," in ACM Transactions on Internet of Things, IF-NA, vol. 2, no. 1, pp. 1-29, 2021. PDF
10. A. Kalita and M. Khatua, "Channel Condition Based Dynamic Beacon Interval for Faster Formation of 6TiSCH Network," in IEEE Transactions on Mobile Computing, IF-6.07, vol. 20, no. 7, pp. 2326–2337, 2021. PDF

Conferences

1. A. Kalita, A. Hazra, and M. Gurusamy, "Efficient Schemes for Improved Performance in 6TiSCH Networks", In IEEE INFOCOM WKSHPS: The 10th International Workshop on Computer and Networking Experimental Research using Testbeds (INFOCOM - CNERT), 2023, (Accepted).
2. A. Kalita and M. Khatua, "Opportunistic Priority Alternation Scheme for Faster Formation of 6TiSCH Network," In Proc. of the International Conference on Distributed Computing and Networking (ICDCN), 2020. PDF
3. A. Kalita and M. Khatua, "Faster Joining in 6TiSCH Network using Dynamic Beacon Interval", In Proc. of the International Conference on Communication Systems Networks (COMSNETS), 2019. PDF
4. A. Kalita, N. Ahmed, H. Rahman, and M. I. Hussain, "A QoS-aware MAC protocol for large-scale networks in Internet of Things," In Proc. of the International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2017. PDF
5. A. Kalita, K. Ray, A. Biswas, and M. A. Hussain, "A topology for network-on-chip", In Proc. of the International Conference on Information Communication and Embedded Systems (ICICES), 2016. PDF
6. K. Ray, A. Kalita, A. Biswas, and M. A. Hussain, "A multipath networkon-chip topology", In Proc. of the International Conference on Information Communication and Embedded Systems (ICICES), 2016. PDF
7. A. Biswas, M. A. Hussain, and A. Kalita, "An improved congestion free modified fat tree network", In Proc. of the International Conference on Signal Processing, Communication, Power and Embedded System (SCOPES), 2016. PDF

Under Review

1. A. Kalita, A. Hazra, and M. Gurusamy, "RIM: Reputation-Based Incentives for Optimizing Service Pricing in Metaverse", (Journal).
2. A. Kalita, and M. Gurusamy, "On-the-Fly Autonomous Slot Allocation in 6TiSCH-based Industrial IoT Networks" (Journal)
3. A. Hazra, A. Kalita, and M. Gurusamy, "Potential of Zero-Touch Network Management in Industry 5.0: A Future Prospect", (Journal).
4. A. Hazra, A. Kalita, and M. Gurusamy, "Distributed Service Provisioning with Collaboration of Edge and Cloud in Industry 5.0", (Journal).
5. A. Hazra, A. Kalita, and M. Gurusamy, "Meeting the Requirements of Internet of Things: The Promise of Edge Computing" (Journal)
6. V. Sebastain, A. Kalita, and M. Gurusamy, "Dynamic Resource Allocation and Pricing for Edge-Assisted Metaverse" (Conference)
7. A. Hazra, A. Kalita, and M. Gurusamy, "Predicting Machine Downtime in Edge-Enabled Industrial Internet of Things" (Conference)

Awards and Honors

- Received Indian National Academy of Engineering (INAE) Innovative Student Projects Award (equivalent to best thesis) for Ph.D. Thesis work.
- Received travel grant to attend ICDCN'2020 conference from IIT Guwahati, India.

- Qualified UGC-NET (National Eligibility Test) for Assistant Professor (India).
- Received travel grant to attend COMSNETS'2019 conference from the conference organizer.
- Received MHRD scholarship during Ph.D. (2018-2022).
- Bagged second prize in Regional Innovators Conclave conducted by Government of Meghalaya for "Smart Lighting Model", Meghalaya, India 2017.
- Qualified GATE'2017.
- Secured First Class 2nd position with distinction in Master of Technology.
- Received TEQIP-II scholarship during M-Tech (2014-2016).
- Bagged first prize in line follower robotics competition in Assam University, India 2016.
- Awarded with *Anandaram Boruah Student Award*, 2006 for performance of $10th$ standard board examination by State Government of Assam, India.

Professional Service

Resource Person

- Delivered an expert talk on "A Tutorial on 6TiSCH IoT Network", at the workshop on "Recent Trends in Information Technology, Networking, Communication and Healthcare" held in the department of CSE, Tezpur University, Assam, India, on 11-12 March, 2023.
- Delivered an expert talk on "Internet of Things", for the Project based Industrial Training on Blockchain, IoT and Machine Learning using Python, jointly organized by Central Institute of Technology Kokrajhar and NIELIT Guwahati, Assam, India, on 4 August, 2022.

Technical Program Committee Member

- 2nd International Conference on Intelligent Computing Systems and Applications (ICICSA-2023), NIT Silchar, Assam, India
- 21st IEEE International Conference on Pervasive Intelligence and Computing (IEEE PICom 2023); Special Session on Distributed Machine Learning for Edge/Fog Computing: Challenges and Future Directions
- 1st IEEE International Conference on Computational Intelligence, Networks and Security (ICCINS-2023), Mylavaram, AP, India

Reviewer

- IEEE Transactions on Mobile Computing
- IEEE Internet of Things Journal
- IEEE Transactions on Vehicular Technology
- Wireless Communication and Networking (Springer)

Collaborators

- Dr. Mohan Gurusamy, National University of Singapore, Singapore
- Prof. Mauro Conti, IEEE Fellow, University of Padua, Italy

- Dr. Alessandro Brighente, University of Padua, Italy
- Dr. Nurzaman Ahmed, Dartmouth College, USA
- Dr. Abhishek Hazra, IIIT Sricity, India

Referees

Dr. Manas Khatua
Assistant Professor, Department of CSE
Indian Institute of Technology Guwahati, India
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Dr. Mohan Gurusamy
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National University of Singapore, Singapore
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Dr. Jayanta Yumnam
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National Institute of Electronics and Information Technology, (NEILIT)
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