

# Alakesh Kalita

## PERSONAL DATA

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PLACE AND DATE OF BIRTH: India | 22 May 1990  
CURRENT CITY: Pioneer, Singapore  
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EMAIL: [alakesh.kalita1025@gmail.com](mailto:alakesh.kalita1025@gmail.com)  
WEBSITE: <https://alakesh1025.github.io/>

## WORK EXPERIENCE

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- APR'22-PRESENT Research Fellow**  
*National University of Singapore, Singapore*  
Supervisor: [Dr. Mohan Gurusamy](#)
- Exploring different research areas such as Metaverse, Parrando's Paradox and game theory 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
  - Took lab classes on Contiki OS, FIT IoT-LAB
  - Evaluated students' answer scripts
  - 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

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- 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  
🏆 *Innovative Student Projects Award'22 from Indian National Academy of Engineering, India*  
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

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### 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

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- 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 10<sup>th</sup> standard board examination by State Government of Assam, India.

## PROFESSIONAL SERVICE

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### 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 PI-Com 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

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- [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

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**Dr. Manas Khatua**

Assistant Professor, Department  
of CSE  
Indian Institute of Technology  
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of ECE  
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