

Akshita Gupta

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• 419, Shastri Nagar, Dadabari, Kota, Rajasthan

🖻 Akshita Gupta

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### Skills

#### **Expertise Area**

Wireless Communication, Wireless Networks, Optical Networks, Probability and Statistics

#### **Tools and Technologies**

NS-3, Beginner level knowledge of Arduino, ZedBoard

#### **Programming Language**

MATLAB, C, C++

#### **Technical Electives**

Wireless System Implementation Principles of Digital Communication System, Wireless Network Modeling and Analysis of Random 5G Networks Probability and Random Processes

# Akshita Gupta

Ph.D. Scholar, IIITD

## Education

# Ph.D. (ECE)2019-2024Indraprastha Institute of Information Technology, DelhiCGPA:8.27 (till 9th Semester)M.Tech (ECE)2017 - 2019

LNM Institute of Information Technology, Jaipur, Rajasthan CGPA: 9.6

B.Tech (ECE)2013 – 2017Jaypee University of Engineering & Technology, Guna, M.P.CGPA: 8.9

Senior Secondary

Springdales Senior Secondary School, Kota, Rajasthan Percentage: 82.2

#### Secondary

Modern Senior Secondary School, Kota, Rajasthan CGPA: 9.4

## Projects

## Optical-Wireless Integrated Access and metro networks

Guide: Prof. Marco Ruffini

Objective: Study the performance of integrated network for analog radio over fiber (ARoF).

Resource Allocation for Quality-of-Service Improvement in Integrated Fiber-Wireless Networks

Guide: Prof. Vivek Ashok Bohara and Prof. Anand Srivastava

Objective: Enable a connected and reliable network by allocating the network resources for integrated fiber-wireless (FiWi) access network.

Designing a cost-efficient and optimized Green Broadband Access Network for Rural India using Fiber Wireless (FiWi) Access Network Architecture

Guide: Prof. Anand Srivastava and Prof. Vivek Ashok Bohara

Objective: Maximize the performance of FiWi networks and minimize their deployment costs, network planning, and reconfiguration to improve services for rural India.

Performance Analysis of Decode and Forward Protocol-based Cooperative Systems over TWDP fading



Guide: Dr. Divyang Rawal

Objective: Analyzed an M-QAM scheme over two wave with diffuse power (TWDP) fading environment for multiple receive antennas based system



(Jun,19 – Mar,21)

2012 - 2013

2010 - 2011

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Jun,19 – Sep,24

Aug,24 – Present

#### Worked on Metaverse and Digital Twin-related applications for vehicular networks. Specifically on the quality of service enhancement for vehicular networks based on collective learning. DCM Shriram, Kota, Rajasthan (Industrial)

Learned about the various machines used in the process of manufacturing and the utilization of PLC SCADA for field control.

## Awards and Achievements

- 1. Received Director's Gold Medal for Best Academic Performance in M. Tech 2019 at LNMIIT, Jaipur.
- 2. Published in 8 Journals (including IEEE TGCN, IEEE TNSM, IEEE System Journals, Vehicular Communication) and 7 conferences in the last 5 years and 1 Indian patent granted in March 2024.
- 3. Received CSIR travel grant for traveling to Dubai to attend IEEE WCNC, 2024 to be held in April 2024.
- 4. TA for online NPTEL Swayam course on "Advanced Topics in Wireless Communication (Hindi)," in February-April 2024.
- 5. TA for online NPTEL Swayam course on "Fundamentals Of Wireless Communication (Hindi)," in August-September 2023.
- 6. Received overseas research fellowship from IIITD for a six-month internship in Montreal, Canada.
- 7. Delivered a talk on "Resource Allocation in FiWi Networks" at Georgia State University, Atlanta, Georgia, US.
- 8. Delivered a talk on "Digital-Twin Enabled Metaverse based on Connected Vehicular Network" in a twoweek workshop organized by IIITD on 5G System Design.
- 9. Delivered a tutorial on OFDM in a two-week workshop organized by IIITD on 5G System Design.
- 10. 3rd Prize in Line Follower Robot at Dextra'15 (Techfest-JUET).

## Position of Responsbilities

- 1. Teaching Assistantship for online NPTEL Swayam course on "Advanced Topics in Wireless Communication (Hindi)," in Feb-Apr 2024.
- 2. Teaching Assistantship for online NPTEL Swayam course on "Fundamentals Of Wireless Communication (Hindi)," in August-September 2023.
- 3. Teaching Assistantship at IIIT-Delhi (for subjects: Wireless System Implementation, Wireless Communications, Probability and Random Process, Wireless Network, Digital Image Processing, Probability and Statistics, Stochastic Processes and Applications ).
- 4. Joint General Secretary of Technocreative Club of ISF (IETE-Student Forum of JUET)
- 5. Project mentor for 3 M.Tech and 5 B.Tech students. This has resulted into several publications in IEEE Conferences and Journals.

Declaration: The above information is correct to the best of my knowledge. Akshita Gupta

## Internship

Guide: Prof. Martin Maier

IEEE)

Discussed modern generation of communication technology is increasingly relying on the use of cloud communication to improve performance metrics like spectral efficiency, reliability, and less processing time.

#### Institut National de la Recherche Scientifique (INRS), Montreal, Canada (6-months research internship)

Next Generation Cloud Communications (IEEE ComSoc School Series Atlanta, USA Event, 2023 - Partially funded by

(Jun,16 – July,16)

Nov,22-Apr,23

#### 21-24 Sept 2023

## **Publications**

#### Patent

"A system and method for resource optimization of access networks: Indian Patent Grant (March 2024). [Inventors: A. Gupta, V. A. Bohara and A. Srivastava]" Patent Application No. 202111007120.

#### Journals

- 1. Akshita Gupta, Halwai Sakshi Gupta, Vivek Ashok Bohara and Anand Srivastava, "Energy Resource Allocation for Green FiWi Network using Ensemble Learning," in IEEE Transactions on Green Communications and Networking, vol. 6, no. 3, pp. 1723-1738, Sept. 2022, doi: 10.1109/TGCN.2022.3164443.
- 2. Akshita Gupta, Vivek Ashok Bohara and Anand Srivastava, "Techno-Socio-Economic Impact of Joint Energy Resource Allocation Scheme in FiWi Network," in IEEE Transactions on Network and Service Management, vol. 19, no. 2, pp. 1472-1488, June 2022, doi: 10.1109/TNSM.2022.3144996.
- 3. Akshita Gupta, Anand Srivastava, and Vivek Ashok Bohara, "Resource Allocation in Solar-Powered FiWi Networks," in IEEE Access, vol. 8, pp. 198691-198705, 2020, doi: 10.1109/ACCESS.2020.3034685.
- 4. Akshita Gupta, Saurabh Jaiswal, Vivek Ashok Bohara and Anand Srivastava, "Priority Based V2V Data Offloading Scheme for FiWi based Vehicular Network using Reinforcement Learning," in Vehicular Communications, vol. 42, 2023, ISSN 2214-2096, doi: 10.1016/j.vehcom.2023.100629.
- 5. Akshita Gupta, Abhishek Pratap Singh, Arunima Srivastava, Vivek Ashok Bohara, Anand Srivastava, and Martin Maier, "Traffic Prediction Assisted Wavelength Allocation in Vehicle-to-Infrastructure Communication: A Fiber-Wireless Network Based Framework," in Vehicular Communications, vol. 45, 2024, doi: 10.1016/j.vehcom.2023.100713.
- Ravneet Kaur, Akshita Gupta, Anand Srivastava, Bijoy Chand Chatterjee, Abhijit Mitra, Byrav Ramamurthy, and Vivek Ashok Bohara, "Resource Allocation and QoS Guarantees for Real World IP Traffic in Integrated XG-PON and IEEE802.11e EDCA Networks," in IEEE Access, vol. 8, pp. 124883-124893, 2020, doi: 10.1109/ACCESS.2020.3007778.
- 7. Priyanka Singh, Akshita Gupta, Vivek Ashok Bohara and Anand Srivastava, "QoS-Aware Reliable Architecture for Broadband Fiber-Wireless Access Networks," in IEEE Systems Journal, doi: 10.1109/JSYST.2022.3149854.
- 8. Rahul Makkar, Akshita Gupta, Divyang Rawal, Nikhil Sharma, "Spectrally efficient M-ary QAM based multi-antenna cooperative system over TWDP fading channel," in Transactions on Emerging Telecommunications Technologies, 2021, doi: 10.1002/ett.4284.

#### Conferences

- 1. Akshita Gupta, Drishti Diwani, Vivek Ashok Bohara, and Anand Srivastava, "QoS Aware Task Offloading for Digital-Twin Enabled Connected Vehicular Network," IEEE Wireless Communications and Networking Conference (WCNC), April 21 24 2024 in Dubai, UAE (Accepted).
- Akshita Gupta, Hritik Goel, Vivek Ashok Bohara and Anand Srivastava, "Performance Evaluation of Integrated XG-PON and IEEE 802.11ac based EDCA Networks," 2020 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2020, pp. 1-6, doi: 10.1109/ANTS50601.2020.9342752.
- 3. Neetu R. R., Akshita Gupta, G. Ghatak, Anand Srivastava and Vivek Ashok Bohara, "Joint Bandwidth and Position Optimization in UAV Networks Deployed for Disaster Scenarios," 2021 National Conference on Communications (NCC), Kanpur, India, 2021, pp. 1-6, doi: 10.1109/NCC52529.2021.9530185.
- Kinshu Kumar, Akshita Gupta, Vivek Ashok Bohara and Anand Srivastava, "Centralized vs Decentralized Resource Analysis of Green FiWi Networks," 2021 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), Hyderabad, India, 2021, pp. 90-95, doi: 10.1109/ANTS52808.2021.9937014.
- 5. Priyanka Singh, Akshita Gupta, Vivek Ashok Bohara and Anand Srivastava, "Cost Effective Hybrid FSO-Wireless Architecture for Broadband Access Network," 2022 International Conference on Optical Network Design and Modeling (ONDM), 2022, pp. 1-6, doi: 10.23919/ONDM54585.2022.9782861.
- Mehreen, Akshita Gupta, Vivek Ashok Bohara and Anand Srivastava, "A Hybrid Wavelength Allocation Framework for Fiber-Wireless Based Vehicle-to-Infrastructure Communication Network," 2022 IEEE 95th Vehicular Technology Conference: (VTC2 022-Spring), Helsinki, Finland, 2022, pp. 1-7, doi: 10.1109/VTC2022Spring54318.202 2.9860993.
- Akshita Gupta, Rahul Makkar, Divyang Rawal, Nikhil Sharma and Dushyant N. K. Jayakody, "Performance of M-QAM Scheme over TWDP Fading for Multiple Receive Antennas System," 2019 IEEE 89th Vehicular Technology Conference (VTC2019-Spring), 2019, pp. 1-5, doi: 10.1109/VTC-Spring.2019.8746363.