Najiya Naj

PhD Scholar,
Computer Science & Engg,
Indraprastha Institute of Information Technology Delhi

Email: najiyan@iiitd.ac.in
Web: najiya-08.github.io/najiya
Google Scholar Profile

Summary

My research explores systems and networks, focusing on the adaptation of applications to wireless networks. I work on improving network performance and leveraging machine learning to address real-time optimization of communication, resource allocation, and data offloading to cloud/edge devices.

Education

- **Indraprastha Institute of Information Technology Delhi** — Delhi, India
  Ph.D. Computer Science and Engineering (CSE) — *Since Dec 2022*
  - Thesis Title: Cloud-Assisted Autonomous Driving over Wireless Network
  - Advisor: Arani Bhattacharya
  - Coursework: Wireless Network, Mobile Computing, Object Oriented Programming and Design, Machine Learning and Research Methodology.
  - CGPA: 8.55 / 10
- **Goa University (Goa College of Engineering)** — Goa, India
  M.E Information Technology and Engineering — *2019 - 2021*
  - Thesis Title: An IoT based Real-Time Monitoring of Water Quality System
  - Advisor: Amogh Sanzgi
  - CGPA: 8.96 / 10
  - First Class with Distinction
- **Sarguja University (Vishwavidyalaya Engineering College), Ambikapur** — Chattishgarh, India
  B.E Computer Science — *2014 - 2018*
  - Score: 83.71 / 100
  - First Class with Distinction

Professional Experience

- **Teaching Assistant** — New Delhi, India
  Indraprastha Institute of Information Technology Delhi — *2023 - 2024*
  - Conducted tutorials, assignment demos, quiz preparation, paper checking, and grading:
    * Object-Oriented Programming and Design (Monsoon 2024)
    * Mobile Computing (Winter 2024)
    * Advanced Programming (Monsoon 2023)
    * Fundamentals of Database Systems (Winter 2023)
- **Assistant Professor** — Punjab, India
  Chandigarh University — *2021 - 2022*
  - Taught undergraduate course, quiz preparation, and grading:
    * Object-Oriented Programming using C++ (Monsoon 2022)
    * Fundamentals of Computer Programming (Winter 2022)

Selected Publications

1. **Najiya Naj**, Debopam Bhattacherjee, and Arani Bhattacharya, "Cloud-Assisted Autonomous Driving over Wireless Network." 2025 17th International Conference on COMmunication Systems and NETworks (COMSNETS). IEEE, 2025., DOI: 10.1109/COMSNETS63942.2025.10885768 .
2. Amandeep Kaur, Neha Singla, and **Najiya Naj**, "Comparative study of Covid-19 using machine learning models." AIP Conference Proceedings. Vol. 2978. No. 1. AIP Publishing, 2024. DOI: /10.1063/5.0191610.
3. **Najiya Naj**, and Amogh Sanzgiri, "An IoT based real-time monitoring of water quality system." Proceedings of the International Conference on IoT Based Control Networks & Intelligent Systems-ICICNIS. 2021. DOI: 10.2139/ssrn.3883305.
4. **Najiya Naj**, and Mario Pinto, "Deployment of Traffic Control Management System using IoV", International Journal of Emerging Technologies and Innovative Research, ISSN:2349-5162, Vol.8, Issue 4, page no. 683-691, April 2021. PDF

Skills

- **Programming Languages:** C, C++, Java/Android, Python, Bash shell
- **Libraries/Software Packages**: numpy, pandas, sklearn, matplotlib, PyTorch, OpenCV, ffmpeg, scrcpy
- **Software Tools**: Android Studio, Git, Docker, Visual Studio Code, Eclipse
- **Miscellaneous**: Algorithms, Data Structures, Problem Solving

Current Projects

- **Cloud-Assisted Autonomous Driving Over Wireless Network:** Autonomous driving relies on large machine learning models for safety-critical decisions, but these models require significant computational resources. This work focuses on a scalable, scene-aware AV perception system that offloads data to the cloud or edge over dynamic networks to reduce the computation on local system. Using CARLA and Pylot for autonomous driving simulation, our approach improves object detection while maintaining low latency. We evaluate end-to-end Quality of Experience (QoE) using metrics such as perception accuracy, latency, and driving smoothness, demonstrating improved performance under diverse network and scene conditions.
- **Remote Operation of Vehicle: Do Satellite Networks Outperform Cellular Networks?** The project deals with the remote control of self-driving cars. It focuses on the tradeoff between video quality and latency while prioritizing the video feed based on the teleoperator's head movements and identifying the most important video parts (by detecting the obstacle in the frame) for decision-making. We tested remote driving using real-world traces of cellular and satellite networks.
- **Web Measurement for Transfer Size and Page Load Time Analysis:** The project focuses on improving mobile web browsing performance by analyzing factors that impact web page performance, such as transfer size and page load time. The goal is to propose solutions that enable mobile devices to perform better without relying on external dependencies. By addressing these performance factors, the project aims to optimise mobile browsing, ensuring a smoother and more efficient user experience.

Awards and Fellowship

- Received a full travel grant to attend ACM SIGCOMM 2025, to be held in Coimbra, Portugal.

- Received a full travel grant to attend COMSNETS 2025, held in Bangalore, India.
- Best Teaching Assistant (TA) Award for the academic year 2023–2024, IIIT-Delhi.
- Received a Letter of Appreciation for volunteering and serving as a Teaching Assistant at the ACM Winter School 2023, where I conducted a hands-on session on Linux networking.
- **PhD Fellowship:** Awarded the All India Council for Technical Education (AICTE) Doctoral Fellowship (ADF) for a 4-year PhD program, totaling USD 21,800 (2022–2026).
- **Master of Engineering Fellowship:** Awarded AICTE Postgraduate Scholarship for a 2-year master's program, totaling USD 3,345 (2019–2021).
- **GATE:** Qualified the Graduate Aptitude Test in Engineering (GATE) in 2019.

Courses and Certificates

- **Workshop on Machine Learning for Image Segmentation** — 10 – 14 June 2024
  Instructor: Prof. Anubha Gupta, IIIT-Delhi — *IIIT-Delhi*
- **Secure Shell (SSH) Essentials: A Hands-On Guide** — 7 June 2023
  Instructor: Ahmed Elfakharany — *Udemy*
- **Complete Linux Training** — 6 June 2023
  Instructor: Imran Afzal — *Udemy*
- **Autonomous Cars: How Do They Work and Impact Us?** — 1 June 2023
  Instructor: David kleinz — *Udemy*

Academic Service

- Member, Shadow Technical Program Committee, ACM Internet Measurement Conference (IMC) 2025.
- Subreviewer, IEEE Vehicular Technology Conference (VTC) 2025.
- Subreviewer, IEEE International Conference on Distributed Computing Systems (ICDCS) 2025.
- Presented research work at the India Mobile Congress (IMC) 2024.
- Presented a poster at the Doctoral Consortium, ACM COMPASS 2024.
- Participated in the Research Innovation and Incubation Showcase Events (RIISE) 2024, IIIT-Delhi.
- Volunteered and conducted a hands-on session on Linux networking at the ACM Winter School 2023.

Membership and Activities

- Student Member, Association for Computing Machinery (ACM), Member ID: 2481353, since June 2024.
- Volunteer, 15th Tribal Youth Exchange Program (T.Y.E.P.), held at IIIT-Delhi, October 19, 2023
- Graduate Student Member, IEEE, Member ID: 98486754, June 2022.

References

- **Arani Bhattacharya**
  Assistant Professor
  Department of Computer Science & Engineering and Electronics & Communication Engineering
  Indraprastha Institute of Information Technology Delhi (IIIT-Delhi)
  Email: arani@iiitd.ac.in
  Website: https://faculty.iiitd.ac.in/~arani
  Google Scholar: https://scholar.google.com/citations?user=YjiIDkjozUcC
- **Debopam Bhattacherjee**
  Senior Researcher
  Microsoft Research India
  Email: debopamb@microsoft.com
  website: https://bdebopam.github.io/
  Google Scholar: https://scholar.google.com/citations?user=hl3YvokAAAAJ&hl=en
- **Amogh Sanzgiri**
  Assitant Professor
  Department of Information Technology
  Goa College of Engineering, Goa, India
  Email: amoghs@gec.ac.in
  Linkedin: https://in.linkedin.com/in/amogh-sanzgiri-829462118