Argha Sen

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Education

1. **Indian Institute of Technology Kharagpur** — *Jan 2021 – Present*
   Doctor of Philosophy (Ph.D.) (Thesis Submitted)
   Dept. of Computer Science and Engineering, Ph.D. Advisor: Dr. Sandip Chakraborty

2. **National Institute of Technology Durgapur** — *Aug 2016 – Jun 2020*
   Bachelor of Technology (BTech)
   Department of Electronics and Communication Engineering, CGPA: 8.97

3. **Jawahar Navodaya Vidyalaya, Birbhum** — *2016*
   Higher Secondary School
   Central Board of Secondary Education (CBSE), Percentage: 95.4

4. **Jawahar Navodaya Vidyalaya, Birbhum** — *2014*
   Secondary School
   Central Board of Secondary Education (CBSE), CGPA: 9.8

Internships and Student Exchange

Research Intern, Nokia bell Labs, Cambridge, UK — Jun 2025 - Aug 2025
- Worked with the Device Forms team in the Pervasive Systems Department at Nokia Bell Labs, Cambridge, UK. The objective of the internship was to design an earable platform for hearing loss assessment, involving **audio signal processing** and algorithm development using **MATLAB**.

DAAD-DST Research Exchange Programme, University of Bremen, Germany — Dec 2024 - Jan 2025
- Visited the Computer Architecture research Group at the University of Bremen, Germany as part of an Indo-German DST-DAAD project under Prof. Rolf Drechsler.

Visiting Postgraduate Research Student, SMU, Singapore — Aug 2023 - Feb 2024
- Visited the School of Computing and Information Systems, SMU, under Prof. Archan Misra. The objective of the internship was to develop a biometric authentication system using high-frequency eye movement features captured by an **event camera**, leveraging **machine learning** techniques and **Python**-based implementation.

Summer Research Intern, Integrated Test Range, Chandipur, DRDO, Govt. of India — May 2019 - July 2019
- The objective of the internship was to develop 3D tracking and geo-localization of a target using UAVs. The work included designing and building two UAVs from scratch, covering **robotic system design**, **sensor integration**, and **control pipelines**.

Summer Intern, Criotam Technologies PVT LTD, Bangalore — May 2018 - July 2018
- Designed three **IoT prototypes** for the Sports Authority of India (Starting Block, Force Plate, and Timing Gates), integrating them with IoT platforms for **data acquisition and monitoring**.

Selected Publications

Patents

1. Soham Chakraborty, Soham Tripathy, Anamika Tiwari, **Argha Sen**, Sandip Chakraborty. "**A hand-held device for navigation of visually impaired individuals.**". India Patent Application: 202531074243, filed 4th August 2025.

2. **Argha Sen**, Anirban Das, Sandip Chakraborty "**A system for in-vehicle passive monitoring of driver behaviors.**". India Patent Application: 202431015618, filed 2nd February 2024.

Peer-Reviewed Journals

1. **Argha Sen**, Nuwan Bandara, Ila Gokarn, Thivya Kandappu, Archan Misra. "**EyeTrAES: Fine-grained, Low-Latency Eye Tracking via Adaptive Event Slicing.**" *ACM IMWUT*, Vol. 8, No. 4, Article 150, December 2024 **(Q1 Journal)**.

2. **Argha Sen**, Avijit Mandal, Prasenjit Karmakar, Anirban Das, Sandip Chakraborty. "**Passive Monitoring of Dangerous Driving Behaviors Using mmWave Radar.**" *Elsevier Pervasive and Mobile Computing (PMC)*, Vol. 103, Article 101949, October 2024 **(Q1 Journal)**.

3. Basabdatta Palit, **Argha Sen**, Abhijit Mondal, Ayan Zunaid, Jay Jayatheerthan, Sandip Chakraborty. "**Improving UE Energy Efficiency through Network-aware Video Streaming over 5G.**" *IEEE Transactions on Network and Service Management (TNSM)*, Vol. 20, No. 3, September 2023 **(Q1 Journal)**.

Conferences (Main Track)

1. Tirthankar Halder*, **Argha Sen***, Swadhin Pradhan, Rijurekha Sen, Sandip Chakraborty. "**MIRO: Multi-radar Identity and Ranging for Occupational safety.**" Accepted in *ACM/IEEE SenSys*, 2026. **(*Equal Contribution, Core A*)**

2. **Argha Sen**, Soham Chakraborty, Soham Tripathy, Sandip Chakraborty. "**RadarTrack: Enhancing Ego-Vehicle Speed Estimation with Single-chip mmWave Radar.**" *IEEE SmartComp*, 2025, Cork, Ireland. [GitHub] [Teaser]

3. Rajib Sarkar, **Argha Sen**, Sandip Chakraborty. "**CarVision: Vehicle Ranging and Tracking Using mmWave Radar for Enhanced Driver Safety.**" *IEEE PerCom*, 2025, Washington DC, USA. [GitHub] [Teaser] [Blog] **(Core A*)**

4. Nuwan Bandara, Thivya Kandappu, **Argha Sen**, Ila Gokarn, Archan Misra. "**EyeGraph: Modularity-aware Spatio Temporal Graph Clustering for Continuous Event-based Eye Tracking.**" *NeurIPS Datasets and Benchmarks Track*, 2024, British Columbia, Canada. [GitHub] [Blog] **(Core A*)**

5. **Argha Sen**, Anirban Das, Swadhin Pradhan, Sandip Chakraborty. "**Continuous Multi-user Activity Tracking via Room-Scale mmWave Sensing.**" *ACM/IEEE IPSN*, 2024, Hong Kong. [GitHub] [Teaser] [Blog] **(Core A*)**

6. **Argha Sen**, Avijit Mandal, Prasenjit Karmakar, Anirban Das, Sandip Chakraborty. "**mmdrive: mmWave Sensing for Live Monitoring and On-Device Inference of Dangerous Driving.**" *IEEE PerCom*, 2023, Atlanta, USA. [GitHub] [Teaser] [Blog] **(Core A*)**

7. **Argha Sen**, Ayan Zunaid, Soumyajit Chatterjee, Basabdatta Palit, Sandip Chakraborty. "**Revisiting Cellular Throughput Prediction: Learning *in-situ* for Multi-device and Multi-network Considerations for 5G.**" *EWSN*, 2023, Rende, Italy. [GitHub] [Blog] **(Core B)**

Conferences (Posters/Workshops/Demos)

1. Arup Sau, **Argha Sen**, Sandip Chakraborty. "**Sparse-to-Dense Wall Mapping with Beamsteered mmWave Sensing and GAN Upsampling**". Accepted in *IEEE PerCom WIP*, 2026, Pisa, Italy **(Core A*)**.

2. Rajib Sarkar, **Argha Sen**, Sandip Chakraborty. "**mmTraffic : Live In-car Traffic Monitoring using mmWave Sensing**". *IEEE PerCom WIP*, 2025, Washington DC, USA **(Core A*)**.

3. **Argha Sen**, Soham Chakraborty, Soham Tripathy, Sandip Chakraborty. "**Poster: Dynamic Ego-Velocity estimation Using Moving mmWave Radar: A Phase-Based Approach**". *ACM MobiSys Posters*, 2024, Tokyo, Japan **(Core A*)**.

4. **Argha Sen**, Anirban Das, Swadhin Pradhan, Sandip Chakraborty. "**Demo Abstract: *MARS* -An mmWave-based Multi-user Activity Tracking Solution**". *ACM/IEEE IPSN Demos*, 2024, Hong Kong **(Core A*)**.

5. **Argha Sen**, Sashank Bonda, Jay Jayatheerthan, Sandip Chakraborty. "**An ns3-based Energy Module for 5G mmWave Base Stations**" *IEEE INFOCOM Posters*, 2022 **(Core A*)**.

6. **Argha Sen**, Abhijit Mondal, Basabdatta Palit, Jay Jayatheerthan, Krishna Paul, Sandip Chakraborty. "**An ns3-based Energy Module of 5G NR User Equipments for Millimeter Wave Networks**" *IEEE INFOCOM Posters*, 2021 **(Core A*)**.

Technical Skills

1. **Hardware Platforms** - Raspberry Pi, Jetson Nano, ESP32, Arduino, TI mmWave Radars, LiDAR, Event Cameras, Omnibuds.

2. **Languages** - Python, C/C++, RUST, Java, Javascript.

3. **Tools and Frameworks** - Tensorflow, PyTorch, Matlab, Git, Android Studio, MmWave Studio, ns-3, Mininet.

Awards and Recognitions

- COMSNETS Student Travel Grant, COMSNETS, *2025*

- ACM COMPASS Travel Grant, ACM COMPASS, *2024*

- ACM MobiSys Student Travel Grant, ACM MobiSys, *2024*

- ACM IARCS Travel Grant, ACM/IEEE IPSN, *2024*

- COMSNETS LRN Travel Grant, IEEE PerCom, *2023*

- ACM IARCS Travel Grant, IEEE PerCom, *2023*

- COMSNETS Student Travel Grant, COMSNETS, *2023*

- DAAD-DST Joint Project, University of Bremen (Prof. Rolf Drechsler), *2022*

- IEEE INFOCOM Travel Grant, IEEE INFOCOM, *2021*

- Best Project Award, ITR Chandipur, DRDO, *2019*

- Samsung Star Scholarship, Samsung (based on CBSE Class XII, JNV), *2016–2020*

Teaching Assistantship

1. **Ubiquitous Computing** - Autumn 2024-25 (Instructor: Dr. Sandip Chakraborty).

2. **Computer Networks** - Spring 2024-25, Spring 2022-23 (Instructors: Dr. Sandip Chakraborty, Prof. Aurobinda Gupta)

3. **Advances in Operating Systems** - Autumn 2022-23 (Instructor: Dr. Sandip Chakraborty)

4. **Programming and Data Structures** - Autumn 2021-22, Spring 2021-22 (Instructors: Dr. Sandip Chakraborty, Dr. Debasish Samanta)

Student Mentoring

1. **Soham Chakraborty and Soham Tripathy (IIT Kharagpur);** Phase-based ego-velocity estimation using mmWave radar. Co-authored publications in *ACM MobiSys Posters 2024*, *IEEE SmartComp 2025*.

2. **Bhupendra Pal and Seemant Achari (IIT Kharagpur);** Implementation of Energy Efficient Base Station Switching Off in next-generation BS using ns-3. Co-authored publications in *IEEE ANTS 2024*.

3. **Avijit Mandal and Amrta Chaurasia (IIT Kharagpur);** Capturing Human Emotion Pervasively using COTS mmWave Radar. Co-authored publication in *ACM COMPASS Posters 2024*.

4. **Sashank Bonda (IIT Kharagpur);** Application aware power state switching for 5G mmWave gNodeBs. Co-authored publication in *WNS-3 2022*.

Personal Details

Date of Birth: 20th November, 1998
Permanent Address: Chatra, Rampurhat, Birbhum, West Bengal. PIN: 731238
Languages: English, Bengali, Hindi