Argha Sen

Networked Systems Group, TU Delft, Netherlands
Room 2.E.100, Building 28 Information, Van Mourik Broekmanweg 5, 2628 XE Delft a.sen@tudelft.nl
+91-9733909220 / +31 6 17175360 https://arghasen10.github.io/ https://www.linkedin.com/in/arghasen10/
github.com/arghasen10

Research Profile

Postdoctoral researcher at TU Delft working on haptic bilateral teleoperation and networked interactive systems. I hold a Ph.D. in Computer Science from IIT Kharagpur, where my research spanned mmWave radar sensing, event-based vision, and embedded sensing for automotive environments, human activity recognition, and pervasive monitoring.

Education

Indian Institute of Technology Kharagpur Jan 2021 – Jun 2026
Ph.D. in Computer Science and Engineering
Advisor: Dr. Sandip Chakraborty · Thesis: "Advancing Next-Generation mmWave Sensing Across Automotive and Human-Centric Environments"

National Institute of Technology Durgapur Aug 2016 – Jun 2020
B.Tech in Electronics and Communication Engineering CGPA: 8.97

Jawahar Navodaya Vidyalaya, Birbhum 2016
Higher Secondary (CBSE) Percentage: 95.4

Work Experience

Networked Systems Group, Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology (TU Delft) Nov 2026 – Present
– Postdoctoral Researcher – Netherlands
- Researching **haptic bilateral teleoperation** and networked interactive systems with **Prof. Venkatesha Prasad**.

Department of Computer Science and Engineering, Indian Institute of Technology (IIT) Kharagpur Jun 2026 – Nov 2026
– Institute Postdoctoral Fellow – India
- Taught Programming and Data Structures Lab as **Course Instructor** and supported Design Optimization of Computing Systems as a **Teaching Assistant**.

Nokia Bell Labs – Research Intern – Cambridge, UK Jun 2025 – Aug 2025
- Developed algorithms in **MATLAB** for earable hearing-loss assessment, using **audio signal processing** with the Device Forms team in the Pervasive Systems Department.

University of Bremen – DAAD-DST Research Exchange Programme – Germany Dec 2024 – Jan 2025
- Joined the Computer Architecture Research Group for a DST-DAAD exchange under **Prof. Rolf Drechsler**.

Singapore Management University (SMU) – Visiting Postgraduate Research Student – Singapore Aug 2023 – Feb 2024
- Developed a biometric authentication system using high-frequency eye-movement features captured by an **event camera**, applying machine learning in Python under **Prof. Archan Misra**.

Integrated Test Range, Chandipur, DRDO, Government of India – Summer Research Intern May 2019 – Jul 2019
- Developed a prototype for 3D target tracking and geolocalization using UAVs; designed and built two UAVs, including **robotic system design**, **sensor integration**, and **control pipelines**.

Technical Skills

Hardware Platforms	Raspberry Pi, Jetson Nano, ESP32, Arduino, Event Cameras, Omnibuds, TI mmWave radars
Languages	Python, C/C++, JAVA
Tools and Frameworks	PyTorch, Tensorflow, MATLAB, Git, Android Studio, MmWave Studio, ns-3, Mininet

Patents

A Hand-Held Device for Navigation of Visually Impaired Individuals
Soham Chakraborty, Soham Tripathy, Anamika Tiwari, **Argha Sen**, Sandip Chakraborty. "**A Hand-Held Device for Navigation of Visually Impaired Individuals**." India Patent Application: 202531074243, published 4 August 2025.

A System for In-Vehicle Passive Monitoring of Driver Behaviors
Argha Sen, Anirban Das, Sandip Chakraborty. "**A System for In-Vehicle Passive Monitoring of Driver Behaviors**." India Patent Application: 202431015618, published 2 February 2024.

Peer-Reviewed Journal Articles

RfSurfMap: mmWave-UAV Reconstruction of Room Geometry and Material-Aware Surface Perception
Tirthankar Halder, **Argha Sen**, Debarati Sen, Sandip Chakraborty. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (ACM IMWUT)*, 2026 (accepted, Q1).

RadarTrack: Radar-Only Odometry Beyond Doppler Limits

Argha Sen, Soham Chakraborty, Soham Tripathy, Sandip Chakraborty. *ACM Transactions on Internet of Things (ACM TIoT)*, 2026 (Q1).

Data-Driven Calibration and Reference-Free Drift Detection for Multi-Modal Sensor Systems

Kishor Arvind Mohandas Sivakumar, Laurent Segers, Bruno da Silva, **Argha Sen**, Sujay Narayana, R. R. Venkatesha Prasad. *Sensors (MDPI)*, 2026 (Q1).

EyeTrAES: Fine-grained, Low-Latency Eye Tracking via Adaptive Event Slicing

Argha Sen, Nuwan Bandara, Ila Gokarn, Thivya Kandappu, Archan Misra. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (ACM IMWUT)*, Vol. 8, No. 4, Article 150, December 2024 (Q1).

Passive Monitoring of Dangerous Driving Behaviors Using mmWave Radar

Argha Sen, Avijit Mandal, Prasenjit Karmakar, Anirban Das, Sandip Chakraborty. *Pervasive and Mobile Computing*, Vol. 103, Article 101949, October 2024 (Q1).

Improving UE Energy Efficiency through Network-aware Video Streaming over 5G

Basabdatta Palit, **Argha Sen**, Abhijit Mondal, Ayan Zunaid, Jay Jayatheerthan, Sandip Chakraborty. *IEEE Transactions on Network and Service Management*, Vol. 20, No. 3, September 2023 (Q1).

Conferences (Main Track)

TEOAE Measurement Beyond Clinical Settings: Intermittent Acquisition and Computation in Everyday Audio

Argha Sen, Jake Stuchbury-Wass, Yang Liu, Khaldoon Al-Naimi, Alessandro Montanari. Accepted in *34th European Signal Processing Conference (EUSIPCO)*, 2026.

MIRO: Multi-radar Identity and Ranging for Occupational Safety

Tirthankar Halder*, **Argha Sen***, Swadhin Pradhan, Rijurekha Sen, Sandip Chakraborty. *ACM/IEEE International Conference on Embedded Networked Sensor Systems (SenSys)*, 2026 (*Equal contribution, CORE A*).

RadarTrack: Enhancing Ego-Vehicle Speed Estimation with Single-chip mmWave Radar

Argha Sen, Soham Chakraborty, Soham Tripathy, Sandip Chakraborty. *IEEE International Conference on Smart Computing (SMARTCOMP)*, 2025 (CORE B).

CarVision: Vehicle Ranging and Tracking Using mmWave Radar for Enhanced Driver Safety

Rajib Sarkar, **Argha Sen**, Sandip Chakraborty. *IEEE International Conference on Pervasive Computing and Communications (PerCom)*, 2025 (CORE A*).

SmartMME: Implementation of Base Station Switching Off Strategy in ns-3

Argha Sen, Bhupendra Pal, Seemant Achari. *IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)*, 2024.

EyeGraph: Modularity-aware Spatio Temporal Graph Clustering for Continuous Event-based Eye Tracking

Nuwan Bandara, Thivya Kandappu, **Argha Sen**, Ila Gokarn, Archan Misra. *NeurIPS Datasets and Benchmarks Track*, 2024 (CORE A*).

Continuous Multi-user Activity Tracking via Room-Scale mmWave Sensing

Argha Sen, Anirban Das, Swadhin Pradhan, Sandip Chakraborty. *ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*, 2024 (CORE A*).

Revisiting Cellular Throughput Prediction over the Edge: Collaborative Multi-device, Multi-network in-situ Learning

Argha Sen, Ayan Zunaid, Soumyajit Chatterjee, Basabdatta Palit, Sandip Chakraborty. *International Conference on Embedded Wireless Systems and Networks (EWSN)*, 2023 (CORE B).

mmdrive: mmWave Sensing for Live Monitoring and On-Device Inference of Dangerous Driving

Argha Sen, Avijit Mandal, Prasenjit Karmakar, Anirban Das, Sandip Chakraborty. *IEEE International Conference on Pervasive Computing and Communications (PerCom)*, 2023 (CORE A*).

mmAssist: Passive Monitoring of Driver's Attentiveness Using mmWave Sensors

Argha Sen, Anirban Das, Prasenjit Karmakar, Sandip Chakraborty. *International Conference on COMmunication Systems & NETworkS (COMSNETS)*, 2023.

Implementation of mmWave Energy Module and Power Saving Schemes in ns-3

Argha Sen, Sashank Bonda, Jay Jayatheerthan, Sandip Chakraborty. *Workshop on ns-3 (WNS3)*, 2022.

Posters, Workshops, and Demos

Towards Personalised DPOAE Protocols: Bayesian Optimisation of Secondary Stimulus Levels

Jake Stuchbury-Wass, **Argha Sen**, Khaldoon Al-Naimi, Yang Liu, Alessandro Montanari. *HeadSys 2026*, 1st Workshop on Head-Based Intelligent Systems, co-located with ACM MobiSys 2026.

Sparse-to-Dense Wall Mapping with Beamsteered mmWave Sensing and GAN Upsampling

Arup Sau, **Argha Sen**, Sandip Chakraborty. *IEEE PerCom Workshops*, 2026.

DEMO: Beyond Doppler: Demonstrating Phase-Based Ego-Speed Estimation on Embedded mmWave Radar
Argha Sen, Soham Chakraborty, Soham Tripathy, Sandip Chakraborty. *IEEE SMARTCOMP*, 2025.

mmTraffic: Live In-car Traffic Monitoring using mmWave Sensing
Rajib Sarkar, **Argha Sen**, Sandip Chakraborty. *IEEE PerCom Work-in-Progress*, 2025.

Capturing Human Emotion Pervasively using COTS mmWave Radar
Argha Sen, Amrta Chaurasia, Avijit Mandal, Sandip Chakraborty. *ACM COMPASS Posters*, 2024.

Poster: Dynamic Ego-Velocity Estimation Using Moving mmWave Radar: A Phase-Based Approach
Argha Sen, Soham Chakraborty, Soham Tripathy, Sandip Chakraborty. *ACM MobiSys Posters*, 2024.

Demo Abstract: MARS – An mmWave-based Multi-user Activity Tracking Solution
Argha Sen, Anirban Das, Swadhin Pradhan, Sandip Chakraborty. *ACM/IEEE IPSN Demos*, 2024.

Continuous Diver Monitoring and real-time inference of Dangerous Driving
Argha Sen, Sandip Chakraborty. *Cyber-Physical Systems Summit (CyPhySS)*, 2023.

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

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

Intelligent Traffic Routing Based on Real-time Congestion Analysis
Argha Sen, Monsij Biswal, Shreyan Datta. *IEEE INDICON*, 2019.

Awards and Travel Grants

- COMSNETS Student Travel Grant, COMSNETS 2025.
- ACM COMPASS and ACM MobiSys Student Travel Grants, 2024; ACM IARCS Travel Grant for ACM/IEEE IPSN 2024.
- COMSNETS LRN and ACM IARCS Travel Grants for IEEE PerCom 2023; COMSNETS Student Travel Grant, 2023.
- IEEE INFOCOM Travel Grant, 2021.
- DAAD-DST Joint Project hosted by Prof. Rolf Drechsler, University of Bremen.
- District topper, Central Board of Higher Secondary Examination (AISSCE).
- Best Project Award, ITR Chandipur, DRDO, 2019 summer internship.
- Samsung Star Scholarship during B.Tech, based on CBSE Class XII performance (JNV).

Teaching Experience

Programming and Data Structures Lab
Course Instructor, IIT Kharagpur · Autumn 2026–27

Design Optimization of Computing Systems
Teaching Assistant, IIT Kharagpur · Autumn 2026–27

Ubiquitous Computing
Teaching Assistant, IIT Kharagpur · Autumn 2024–25

Computer Networks
Teaching Assistant, IIT Kharagpur · Spring 2024–25; Spring 2022–23

Advances in Operating Systems
Teaching Assistant, IIT Kharagpur · Autumn 2022–23

Programming and Data Structures
Teaching Assistant, IIT Kharagpur · Autumn 2021–22; Spring 2021–22

Professional Service

Reviewer
IEEE ICASSP (May 2026; May 2027); SPT-IoT (March 2027); SysAI (January 2027); ACM Transactions on Internet of Things (November 2026); IEEE PerCom Work-in-Progress (March 2026); ACM MobiSys Artifacts (June 2025).

Workshop Chair, SoCIeTY, ICDCN 2027 Jan 2027
5th International Workshop on Societal Computing for the Internet of Things & You.

TPC Member
IEEE MSN (December 2026); WellComp (October 2025 and 2026); NetAISys (June 2026); ICDCN Doctoral Symposium (January 2026).

Tutorial Speaker on mmWave Sensing, IEEE PerCom Tutorials May 2025