

# Rishiraj Adhikary

rishiraj.inbox@gmail.com — +91-8787360173 — [rishi-a.github.io](https://github.com/rishiraj) — [Google Scholar](#)

## RESEARCH INTEREST

---

### Application of AI/ML and Signal Processing for Embedded Systems

*Experienced in developing low cost health sensing equipment*

## EDUCATION

---

### Ph.D., Computer Science, IIT Gandhinagar

*Aug 2019 – Jan 2025, CGPA: 8.76*

Thesis: Machine Learning based low-cost health sensing as alternatives to clinical gold standards

- Developed a wearable mask with embedded sensors to monitor respiratory flow; applied ML models for airflow pattern classification and validated against spirometry.
- Built a thermal + RGB imaging pipeline to detect nostril position and track breathing; integrated discriminative correlation filters, optical flow, and temporal convolutional neural networks (TCNs) for robust temporal breathing analysis.
- Designed a Transformer-based architecture to analyze thermal breathing signals and diagnose sleep apnea, demonstrating feasibility of contactless, low-cost respiratory monitoring.

### B.Tech., Electronics, Gauhati University, India

*Aug 2011 – Aug 2015, CGPA: 8.19*

## EXPERIENCE

---

### Enercent Technologies (JioThings – Reliance)

*Aug 2024 – Present*

Research Data Scientist, Bengaluru, India

- Finetuned and evaluated Large Language Models (LLMs) on domain-specific IoT data to strengthen guardrails and generate structured outputs, improving reliability and response quality in company products on smart electric meters and solar plants.
- Applied data science techniques on thousands of smart electric meter datasets to detect faulty meters, diagnose grid imbalance, and improve system reliability.

## AWARDS AND FELLOWSHIPS

---

### Commendation for Outstanding Research (PhD), IIT Gandhinagar

July 2025

*Recognized for excellence in doctoral research by IIT Gandhinagar during the convocation ceremony*

### UbiComp Gaetano Borriello Outstanding Student Award (Top 3)

October 2023

*Award for outstanding contributions to academia and society in ubiquitous and pervasive computing.*

### Presenter at the 11th Heidelberg Laureate Forum

September 2024

*My thesis work was covered by German popular science magazine [Spektrum der Wissenschaft](#)*

### Fulbright-Nehru Doctoral Research Fellowship 2022-2023

November 2022

*Funded research at Carnegie Mellon on deployable respiratory health systems*

### Prime Minister's Research Fellowship, India

May 2022

### Best poster award in PhD Research Showcase, IIT Gandhinagar

January 2024

## SELECTED JOURNAL PUBLICATIONS

---

1. **Rishiraj Adhikary**, Maite Sadeh, Nipun Batra, Mayank Goel

*JoulesEye: Energy Expenditure Estimation and Respiration Sensing From Thermal Imagery while Exercising*

\*ACM Transactions on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT '24)

<https://dl.acm.org/doi/abs/10.1145/3631422>

Media Coverage by Indian Express, CMU News, ZME Science, Knowridge, TechXplore and other news outlets

2. **Rishiraj Adhikary**, Prerna Khanna, Tanmay Srivastava, Rohit Patil, Jacob Peplinski, Joe Breda, Nipun Batra, and Shwetak Patel

*SpiroMask: Measuring Lung Function Using Consumer-Grade Masks*

\*ACM Transactions on Computing for Healthcare (HEALTH '23)

<https://doi.org/10.1145/3570167>

Covered by The Ahmedabad Mirror

3. **Rishiraj Adhikary**, Zeel patel, Tanmay Srivastava, Nipun Batra, Mayank Singh, Udit Bhatia, Sarath Guttikunda

*Vartalaap: What Drives AirQuality Discussions: Politics, Pollution or Pseudo-science*

\* CSCW Proceedings 2021

<https://dl.acm.org/doi/10.1145/3449170>

---

## SERVICE AND INVITED TALKS

**Technical Program Committee Member:** IEEE EMBC (2025), IEEE COMSNETS (2024), ACM SenSys DATA workshop (2021),

**Reviewer for** ACM IMWUT, ACM CHI, ACM COMPASS; IEEE EMBC; Nature Scientific Data.

### Invited Talks:

- Represented **Reliance Jio** at the *ACM India Summer School, IIT Gandhinagar*, showcasing JioThings products and services. Delivered a tutorial session on health sensing. [Talk] [Tutorial]
- Invited talk on “*Sensing Respiration Rate*” at the **NetHealth Workshop**, ACM/IEEE COMSNETS 2024.
- Expert talk on “*Mobile Computing in Health*” during the **GUJCOST-sponsored 3-day workshop on IoT and Wearable Technology**, Sarvajanic College of Engineering and Technology (SCET).

[linkedin.com/in/rishiraj-in/](https://www.linkedin.com/in/rishiraj-in/)