

S AARTHI

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Trustworthy BiometraVision Lab, Department of Data Science and Engineering
IISER Bhopal, Madhya Pradesh, India — 462066

CURRENT ROLE

PhD Scholar

August 2024 — Present

Department of Data Science and Engineering
IISER Bhopal, Madhya Pradesh, India, 462066
Supervisor: Dr. Akshay Agarwal (Trustworthy BiometraVision Lab)
Thesis: “Audio DeepFake cum Hatespeech Generation and Detection”

PREVIOUS ROLES

Assistant System Engineer

2023 — 2024

Tata Consultancy Services, Bengaluru, India

Python and Prompt developer. Built production GenAI solutions for MetLife POC including a custom LangChain QA agent, data migration tools, and an Azure-based RAG chatbot. Co-presented GenAI bootcamps for TCS MetLife stakeholders.

Summer Intern

June – July 2022

National Institute of Technology Karnataka (NITK), Surathkal
Supervisor: Dr. Vishwanath K.P.
Project: Machine Learning for Fluid Mechanics

EDUCATION

Doctor of Philosophy (PhD)

August 2024 — Present

Department of Data Science and Engineering
IISER Bhopal, Madhya Pradesh, India
CPI: **9.67/10**
Thesis: “Audio DeepFake Generation and Detection”
DST-INSPIRE Fellow

Master of Science (MSc) in Mathematics

2021 — 2023

Specialisation: Data Science
Christ (Deemed to be University), Bengaluru, Karnataka
84.20%
1st Rank Holder

Bachelor of Science (BSc)

2018 — 2021

Physics, Chemistry, Mathematics
Christ (Deemed to be University), Bengaluru, Karnataka
91.44%
1st Rank Holder

Class XII (CBSE)

2018

Kendriya Vidyalaya Hebbal, Bengaluru, Karnataka
93.60%

Class X (CBSE)

2016

Kendriya Vidyalaya CRPF, Guwahati, Assam
10 CGPA

FELLOWSHIP AND HONORS

- **1st Prize**, Student Spotlights Competition, Engineer’s Day at IISER Bhopal. 2026
- Selected from over 370 submissions (<6% acceptance rate) for an **Oral Presentation at ConfAI** (Responsible and Ethical AI Track) on “LALMs for Audio Deepfake Detection”. 2026
- **2nd Prize**, Lightning Talk Competition, Summit on Democratizing AI at IISER Bhopal. 2026
- Received **Best Teaching Assistant** Award in the Department of Data Science and Engineering at IISER Bhopal. 2026
- **IEEE Biometrics Council DEI Travel Grant** to attend IJCB 2025, Osaka, Japan. 2025
- **Outstanding Reviewer Award**, IEEE International Joint Conference on Biometrics (IJCB 2025) — selected as one of 16 outstanding reviewers from 219 (7.3%). 2025

- **DST-INSPIRE Fellowship**, Department of Science and Technology, Government of India — for PhD studies in Data Science and Engineering. 2024
- **GATE Qualified** (Data Science & AI, DA) — All India Rank: 7448. 2024
- **UGC University Rank Holder Scholarship**, Government of India — for MSc studies. 2021
- Completed **Japan–Asia Youth Exchange Program in Science (Sakura Science)** exchange, Japan. 2017
- All India Rank **11** and **3rd Position in Region**, Junior Mathematics Olympiad; qualified Regional Mathematics Olympiad Class XI. 2017
- Witnessed **Republic Day Parade 2017 from the Prime Minister’s Box** for outstanding academic performance in Class X — an honour extended to fewer than 100 students nationally. 2017

STARTUP UP GRANTS

- Student Innovation Grant (SIG), IISER Bhopal Innovation and Incubation Centre for Entrepreneurship (IICE).

ACCEPTED PUBLICATIONS

1. J. Sinha, **S Aarthi**, Akshay Agarwal, “Rethinking Synthetic Mixing for Real-World Scenefake Detection,” *NeurIPS WiML Workshop*, 2026.
2. Nandhana K S, **S Aarthi**, Akshay Agarwal, “Observation-Guided Training for Occupational Lung Disease Classification,” *NeurIPS WiML Workshop*, 2026.
3. J. Sinha, **S Aarthi**, A. Agarwal, “Does Reality Matter? A Reality-Aware Audio SceneFake Dataset,” *IEEE International Joint Conference on Biometrics (IJCB)*, Rome, Italy, 2026.
4. A. Kumar, **S Aarthi**, A. Agarwal, “[Tap, Scan, Exploit: The Hidden Vulnerabilities of Everyday QR Codes](#),” *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR: Findings Track)*, 2026 [**h5-index: 450**].
5. **S Aarthi**, A. Agarwal, “The Explainability Paradox: How Audio Language Models Detect Content, Not Deepfakes,” *AAAI 2026 Workshop Empowering Global South AI*, 2026.
6. A. Kumar, **S Aarthi**, A. Agarwal, “Beyond Perfect Scans: Understanding and Classifying QR Code Corruptions in Real-World Conditions,” *AAAI 2026 Workshop Empowering Global South AI*, 2026.
7. **S Aarthi**, A. Agarwal, “[Unmasking the Audio Illusion: A Survey on Spoofing and Deepfake Detection](#),” *IEEE International Joint Conference on Biometrics (IJCB)*, Osaka, Japan, 2025.
8. G. S. Yeole, **S Aarthi**, S. Srivastav, A. Agarwal, “[Family Resemblance or Fraud? Face Morphing Attacks on Kinship Verification](#),” *IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, pp. 1–6, 2025 [**h5-index: 40**].
9. R. C. Poonia, **S Aarthi**, D. Samanta, “[An Intelligent Model for Post COVID Hearing Loss](#),” *International Conference on Intelligent Systems Design and Applications (ISDA)*, pp. 39–46, Springer, 2023.

COMPETITIONS & BENCHMARKS

AV-Deepfake1M++ Challenge 2025
 Participant (Team name: *TrueSight*) — Top 10

- Built a dual-stream pipeline combining an MAE v2-initialized Multiscale Vision Transformer (MViT) leveraging motion magnification for visual streams alongside SSL audio embeddings, fusing features for robust binary classification.

Explainable Deepfake Detection (XDFD) Challenge 2026
 Participant (Team name: *GhostChamber*) — Top 25

- Leveraged a Qwen 2.5 (7B) model to convert CLIP-based detection framework’s output into comprehensive natural language explanations, giving tiered (simple and complex) technical reasoning for deepfake flags.

RESEARCH INTERESTS

Audio deepfake generation and detection · Trustworthy and fair AI · Multilingual hate speech detection · Self-supervised speech representations · Audio-language model safety · Generative AI

TEACHING EXPERIENCE

Teaching Assistant

Institute: IISER Bhopal, India

Course	Students	Semester
Machine Learning	BS/MS (Bachelor's)	Sem 1, 2026–2027
Deep Learning Lab	BTech (Bachelor's)	Summer course, 2025–2026
Deep Learning	BS/MS (Bachelor's)	Sem 2, 2025–2026
Computer Vision	BS/MS (Bachelor's)	Sem 1, 2025–2026
C Programming	BS/MS (Bachelor's)	Sem 2, 2024–2025
Computer Vision	BS/MS (Bachelor's)	Sem 1, 2024–2025

SCIENTIFIC DUTY

- Reviewer, NeurIPS WiML and Global South.
- Reviewer, BMVC Workshop RVSSE.
- Reviewer, IJCAI-ECAI Global SouthAI.
- Reviewer, ICML Global South.
- Reviewer, AAAI Empowering Global South AI (EGSAI).
- Reviewer, IEEE International Joint Conference on Biometrics (IJCB).
- Reviewer, Frontiers in AI.

VOLUNTEERING AND OUTREACH

- **Volunteer**, Symposium on AI in Energy Systems, IISER Bhopal, 2026.
- **Conference Attendee**: Participated in the 16th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), held at IIT Mandi from December 17-20, 2025.
- **Volunteer**, Department of Data Science and Engineering (DSE) Day, IISER Bhopal, 2025.
- **Volunteer**, Engineering Day, IISER Bhopal, 2025.
- Successfully completed the 1st year of the **Research Education Advancement Programme (REAP)**-Physics in Jawaharlal Nehru Planetarium, Bangalore, during 2018-2019.
- Attended **IWM Workshop** (Winter School in Mathematics for Young Women) at IISER Thiruvananthapuram in December 2019 and the follow-up online in December 2020.
- Attended **Summer School for Women in Mathematics and Statistics**, ICTS, 2019.

SKILLS

Programming	Python, LaTeX
Frameworks	PyTorch, HuggingFace Transformers, LangChain, Azure AI, scikit-learn
Research	Audio deepfake detection, SSL speech models (WavLM, XLS-R, HuBERT), contrastive learning, multimodal AI, RAG systems, Prompt Engineering
Tools	Git, MS Office, Jupyter
Languages	English, Hindi, Tamil, Sanskrit