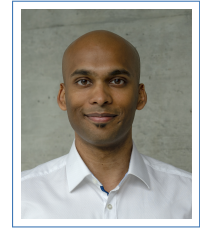


Eklavya Sarkar

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Nationality: Swiss



Research Interests

Speech Processing, Bioacoustics, Computer Vision, Self-Supervised Learning.

Work Experience

- 2025–Present **Postdoctoral Researcher**, *Earth Species Project*.
Supervisor: Dr. Olivier Pietquin & Dr. Matthieu Geist, Chief and Principal Scientists.
- Designing, implementing, and optimizing foundation models for bioacoustics research.
- 2021–25 **Research Assistant (PhD)**, *Idiap Research Institute*, EPFL, CH
(4 years) Supervisor: Dr. Mathew Magimai Doss, Senior Researcher, Speech and Audio Processing.
- Led interdisciplinary research bridging deep learning, speech processing, and bioacoustics, with a focus on transferability of speech models for decoding non-human communication.
 - Published multiple first-author, peer-reviewed papers in top machine learning conferences and journals, including ICASSP and Interspeech, accumulating 130+ citations.
 - *Research areas*: Self-supervised learning, foundation models, fine-tuning, audio processing, bioacoustics, voice activity detection, call-type classification, discrete acoustic tokens.
- 2020 – 21 **Research Intern**, *Idiap Research Institute*, Martigny, CH
(10 months) Supervisor: Dr. Sébastien Marcel, Senior Researcher, Biometrics Security and Privacy.
- Designed and implemented novel generative models by adding losses to StyleGAN2.
 - Investigated vulnerabilities of modern facial recognition systems against deepfake attacks.
- 2017 **Research Intern**, *CERN*, Geneva, CH
(3 months) Supervisor: Dr. Archana Sharma, Principal Scientist, CMS Experiment.
- Refined production code efficiency by completing pull requests on data acquisition tools.
 - Contributed to open-source data acquisition tools and radiation physics R&D experiments.

Education

- 2021–Present **PhD Machine Learning**, *Ecole Polytechnique Fédérale de Lausanne*, CH, (5.2/6.0).
2018 – 19 **MSc Data Science**, *University of Bath*, UK, Distinction.
2015 – 18 **BSc Computer Science**, *University of Liverpool*, UK, Distinction.

Publications

- NeurIPS 2025 **Sarkar, E.**, Magimai-Doss, M., *Towards Leveraging Sequential Structure in Animal Vocalizations*. AI for Non-Human Animal Communication Workshop.
- ICASSP 2025 **Sarkar, E.**, Magimai-Doss, M., *Comparing Self-Supervised Learning Models Pre-Trained on Human Speech and Animal Vocalizations for Bioacoustics Processing*.

- Bioacoustics 2025 **Sarkar, E.**, K. Wierucka, A. B. Bosshard, J. M. Burkart, Magimai-Doss, M., *On Feature Representation for Marmoset Vocal Communication Analysis*.
- Interspeech 2024 **Sarkar, E.**, Magimai-Doss, M., *On the utility of Speech and Audio Foundation Models for Animal Call Analysis*, 4th International Workshop on VIHAR.
- Interspeech 2024 Ben Mahmoud, I., **Sarkar, E.**, Manser, M., Magimai-Doss, M., *Feature Representations for Automatic Meerkat Vocalization Classification*, 4th International Workshop on VIHAR.
- Interspeech 2023 **Sarkar, E.**, Magimai-Doss, M., *Can Self-Supervised Neural Representations Pre-Trained on Human Speech distinguish Animal Callers?*
- Interspeech 2022 **Sarkar, E.**, Prasad, R., Magimai-Doss, M., *Unsupervised Voice Activity Detection by Modeling Source and System Information using Zero Frequency Filtering*.
- ICASSP 2022 **Sarkar, E.**, Korshunov, P., Colbois, L. and Marcel, S., *Are GAN-based Morphs Threatening Face Recognition?*

Thesis

- Ph.D. Transferability of Learnt Speech Representations for Decoding Non-Human Vocal Communication.
- M.Sc. Optimising Facial Information Extraction and Processing using Deep Learning.
Grade: Distinction.
- B.Sc. Unsupervised Machine Learning: Kohonen Self-Organizing Maps.
Grade: Distinction (90%).

Leadership Experience

- 2022–24 **Organizer**, *Perspectives on AI Symposium Series*, Idiap Research Institute.
 - Participated in organization: finding sponsors, budgeting, designing the event website.
- 2017–18 **President**, *Students Residence Society*, University of Liverpool.
 - Elected President of a student residence by ballot vote majority to represent 270 students.
 - Led ten member committee, generated team vision, chaired meetings, managed events.

Academic Duties and Mentorship

- Fall '21-24 **Lead Teaching Assistant**, Master in Artificial Intelligence, UniDistance Suisse.
 - Led TAs to grade assignments, exams, & provide critical feedback for a 4 ETCS module.**Reviewer**, IEEE Signal Processing Letters, IEEE Transactions on Technology and Society.

Awards

- Aug 2020 **International Create Challenge**, *3rd Prize*, AI-Hackathon. Adversarial Attacks Detection.

Programming Skills

- Languages Python, Java, Javascript, PHP, SQL, C++, C#, T_EX, HTML, CSS.
- Frameworks Hydra, PyTorch, Lightning, Optuna, Keras, SkLearn, D3.js.
- Misc. Git, Unix, W&B, Mamba/Conda, SGE, Jupyter, Kaggle, Colab, xCode, Eclipse.

Languages

Fluent: English, French, Hindi. Intermediate: German.