Eklavya Sarkar

EPFL PhD Graduate

Avenue de Mategnin
1217 Geneva, CH
+41 78 82 50 754
eklavya.sarkar@idiap.ch
https://eklavyafcb.github.io
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 (4 years) **Research Assistant (PhD)**, *Idiap Research Institute*, EPFL, CH
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 (10 months) **Research Intern**, *Idiap Research Institute*, Martigny, CH
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 (3 months) **Research Intern**, *CERN*, Geneva, CH
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#, TEX, 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.