

# Vasudha Kulkarni

Vasudha.Kulkarni@ist.ac.at



## EDUCATION

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<b>Institute of Science and Technology Austria (ISTA)</b> Ph.D. with Prof. Sylvia Cremer	Sept 2024 - Present
<b>Indian Institute of Science Education and Research (IISER), Pune</b> BS-MS in Biology	Aug 2019 - May 2024 CGPA: 8.7
<b>RV PU College, Bangalore</b> Karnataka Board of Pre-university Education	July 2019 Percentage: 92.7

## MASTER'S THESIS

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<b>Behavioural Synchrony in Common Marmosets</b> <i>with Prof. Judith Burkart and Nikhil Phaniraj at the University of Zurich (Thesis)</i> We established an automated 3D pose-tracking pipeline using DeepLabCut to study gaze following and interpersonal behavioural synchrony in common marmosets during a cooperative task.	June 2023 - May 2024
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## RESEARCH EXPERIENCE

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<b>Modelling Disease Transmission in Networks</b> <i>with Prof. Chaitanya Gokhale at University of Wurzburg</i> Modelling disease transmission across networks to understand how different social interactions modulate the spread and suppression of disease in the ant colony.	Jan - Feb 2025
<b>Reinforcement-induced reduction of number of INs in Zebra Finches</b> <i>with Dr. Raghav Rajan at IISER Pune (Report)</i> I conducted a closed-loop behavioural assay using syllable variance measured in real-time to provide negative reinforcement against a high number of introductory note syllables (INs). We saw a significant reduction in the mean number of INs in a test bird.	Spring 2023
<b>Comparative Analysis of Introductory Notes across Four Estrildid bird species</b> <i>with Dr. Raghav Rajan and Nandu T. S. at IISER Pune (Report)</i> We compared the song sequences of four Estrildid species using audio recordings and found that the progression of initial syllables in the song is similar to the introductory notes of Zebra finches.	Fall 2022
<b>Effect of Recent Pathogen Experience on Sanitary Brood Care in Ants</b> <i>with Prof. Sylvia Cremer and L. Sartoris at the IST Austria (Report)</i> We exposed ants to a fungal pathogen for a brief period and later to contaminated larvae, to test if recent pathogen experience modulates grooming behaviour, but we didn't find any effect.	Summer 2022

## POSTER PRESENTATIONS AND TALKS

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- **Kulkarni, V.** Phaniraj, N. Burkart, J. Automated Tracking of Behavioural Synchrony in Common Marmosets. Gesellschaft fur Primatologie (GfP) Conference, Konstanz. March 2024
- **Kulkarni, V.** Phaniraj, N. Burkart, J. Behavioural Synchrony in Common Marmosets. Institute of Evolutionary Anthropology (UZH) Symposium talk. Nov 2023

- **Kulkarni, V.** Rajan, R. Reinforcement-induced Reduction of number of Introductory Notes. IISER Pune Biology Undergraduate Poster Session. April 2023

## COURSEWORK AND WORKSHOPS

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- **Konstanz School of Collective Behaviour** (July 2025) - Over three weeks, students explore collective behaviour with lectures, hands-on tutorials, and projects at the Centre for Advanced Study of Collective Behaviour (CASCB) and Max Planck Institute of Animal Behaviour in Kontanz.

Coursework at IISER Pune -

- **Biology** - Animal Behaviour, Neurobiology I, Evolution, Ecology I and II, Animal Physiology I and II, Chemical Ecology, Mathematical and Computational Biology, Statistics for Life Scientists, Physiology, Genetics, Cell Biology, Biology of Systems
- **Data Science** - Data Analysis, Bioinformatics, Introduction to Statistical Learning, Generalized Linear Models and their Applications
- **Mathematics** - Multivariable Calculus, Linear Algebra, Introduction to Probability and Statistics
- **Humanities** - History of Science, Science and Society, Political Ecology, Political Thought in India, Disasters and Society, Diseases and Discourse, Contemporary Stories from the Subcontinent

## SKILLS

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- **Programming Languages and Applications:** Python, R, Julia, L<sup>A</sup>T<sub>E</sub>X, Matlab, Shell scripting
- **Libraries:** Numpy, Matplotlib, Pandas, Scipy, Statsmodels, PyQt in Python; Graphs and GLMakie in Julia, Computer Vision Toolbox in Matlab
- **Ethological and wet lab skills:** Expertise in handling and maintaining ant colonies, behavioural annotation, designing and building experimental apparatus, DNA extraction and quantitative PCR
- **Languages:** Fluent in English, Kannada, and Hindi

## SCHOLARSHIPS AND AWARDS

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- **A H Schultz Grant** (16,100 CHF) - A support grant from the A H Schultz Foundation for my master's thesis at the University of Zurich
- **KVPY Fellow** ( $\approx$  5,600 USD) - Kishore Vaigyanik Protsahan Yojna (Young Scientist Encouragement Program), 2019 - 2024, Department of Science and Technology, Government of India

## REFERENCES

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Prof. Sylvia Cremer (ISTA)  
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Prof. Chaitanya Gokhale (University of Wurzburg)  
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