

# Oviya Mohan

## PhD Candidate

Brain and Cognitive Sciences  
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My research takes an innovative and interdisciplinary approach to studying collective decision-making. I use various tools, including multiplayer behavioral experiments, eye-tracking, and 3D tracking in humans and non-human primates, to study the emergence of efficient solutions to coordination problems. I have gained proficiency in tools across several domains by building my research projects from the ground up. I also have extensive experience holding leadership positions across my academic career and managing teams of undergraduate research assistants. I am eager to expand my experiences by engaging in industry projects that will allow me to utilize and hone my technical and managerial skills. I am also passionate about outreach and constantly strive to share my enthusiasm for research with a wider audience.

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## Research Experience

**Skills:** Online Multiplayer Experiment Design and Implementation, Data Collection, and Statistical Analysis

**Tools:** Python (oTree), R, Heroku, MTurk

**Skills:** Stimuli Creation (Video Curation), Eye Tracking (Design and Data Analysis)

**Tools:** Python (OpenCV), MatLab (PsychToolBox, Statistics, and Machine Learning Toolbox)

**Skills:** Deep Learning, Machine Vision, 3D triangulation, Animal Behavior

**Tools:** Python (DeepLabCut), BORIS

**Skills:** Machine Learning, GPS, and Movement Data analysis

**Tools:** Tensorflow

**Skills:** Online Data Collection and Analysis, Formal Logic Modeling

**Tools:** jsPsych, HTML, CSS

**Skills:** Agent-Based Modeling

**Tools:** Python (Mesa)

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## Multiplayer Behavioral Experiment | Emergence of conventions

2021 - PRESENT | University of Rochester, New York

Studying the emergence of conventions under various conditions through computerized multiplayer tasks with humans to address questions that promise to yield significant advances for our understanding of how groups solve recurring multi-agent coordination problems

## Eye Tracking | Gaze following in marmoset monkeys

2021 - PRESENT | University of Rochester, New York

Studying gaze-following (directing one's attention to where someone else is looking, essential for successful social interaction involving coordination) in marmoset monkeys (*Callithrix jacchus*) to address open questions about the evolution of this ability in humans using naturalistic video stimuli and high-precision eye tracking

## 3D Marker-less Tracking | Coordination in marmoset monkeys

2021 - PRESENT | University of Rochester, New York

Developing a paradigm to study the cognitive mechanisms underlying coordinated problem-solving by using deep learning and machine vision tools to track and quantify visual attention in free-moving, socially interacting marmosets

## Unsupervised Machine Learning | Movement data analysis

2022 | University of Rochester, New York

Used unlabelled data from GPS and accelerometers on wild baboons (from Mozambique) to classify their behavior using unsupervised deep learning

## Formal Logic | Executive function and reasoning

2019 - 2021 | Indian Institute of Technology, Kanpur, India

Designed and conducted experiments, using rules of formal logic, to understand the connection between executive functions and reasoning

## Agent-Based Modeling | Emergence of cooperation

2019 | Indian Institute of Technology, Kanpur, India

Used an agent-based model to understand the role of cooperation in the survival of both individuals and groups in a community

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## Work Experience

**Skills:** Data Visualization

**Tools:** Python (Tkinter)

**Skills:** Psychophysics Experiment Design and Analysis

**Tools:** PsychoPy

**Skills:** Tribological Characterization, Coating Deposition

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## Education

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### Research Associate | Applied Dynamics and Vibration Laboratory

2020 - 2021 | Dept. of Mechanical Engineering, IIT Kanpur

Designed an intuitive GUI to display multi-dimensional data from a gas pipeline health monitoring robot (PHMR)

### Research Assistant | Department of Cognitive Sciences

2018 - 2021 | Indian Institute of Technology, Kanpur, India

Designed and conducted behavioral experiments to understand the role of an object's self-relevance when used as a distractor in visual search paradigms

### Research Intern | Department of Tribology

2017 | Defense Research and Development (DRDO), Hyderabad, India

Utilized a tribometer to characterize frictional properties of various coatings

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### Brain and Cognitive Sciences | Doctor of Philosophy

2021 - PRESENT | University of Rochester, New York

### Cognitive Science | Master of Science by Research (GPA 9.35/10)

2018 - 2021 | Indian Institute of Technology, Kanpur, India

### Physics | Bachelor of Science (GPA 9.66/10)

2015 - 2018 | Amrita University, Coimbatore, India

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## Awards

### Diverse Intelligences Summer Institute Fellow | July 2025

### Kuczaj Memorial Travel Grant | March 2025

32<sup>nd</sup> International Conference on Comparative Cognition

### Donald M. and Janet C. Barnard Fellowship | 2024-25

Awarded by the University of Rochester in recognition of achievements in research, mentoring, outreach, and service.

### Best Research Talk | October 2023

Graduate Research Day, University of Rochester

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## Publications and Conference Presentations

**Mohan, O.,** Biro, D., & Mitchell, J. (2025). Gaze following in marmoset monkeys is context dependent. *Journal of Vision*, 25(9), 2615-2615.

**Mohan, O.,** & Biro, D. (2024). Experimental Emergence of Conventions in Humans: Emergence, stability, and cognitive implications. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 46).

**Mohan, O.,** Bucklaew, A., Biro, D., & Mitchell, J. F. (2024). Free-viewing of static natural images and movies in marmoset monkeys. *Journal of Vision*, 24(10), 1166-1166.

### *Experimental Emergence of Conventions in Humans*

**Oviya Mohan** and Dora Biro

**Talk**, 31st International Conference on Comparative Cognition | April 2024

**Poster**, Gordon Research Conference - Collective Behavior | August 2023

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## Certifications and Other Skills

Public speaking, Leadership, Outreach, Science Communication

Languages: **English, Tamil**

**German (A1), French (A2)**

**Deep Learning - Machine Vision** - Neuromatch Academy | July 2023

**Writing about Science for Non-Scientific Audiences** | December 2020

**Introductory Machine Learning Workshop** - IIT Madras | October 2020

**Bayesian Statistics: From Concept to Data Analysis** | August 2020

**Improving your statistical inferences** | July 2020

**Winter School on Cognitive Modelling** - IIT Mandi | February 2019

**Natural Language Processing** - IIT Kanpur | December 2018