

# JACOPO RAZZAUTI

Graduate Fellow  
The Rockefeller University  
1230 York Avenue  
New York, NY

Website: [jacoporazzauti.github.io/github.io](https://jacoporazzauti.github.io/github.io)  
Email: [jrazzauti@rockefeller.edu](mailto:jrazzauti@rockefeller.edu)  
Phone: +1 (929) 428-4811  
GitHub: [@JacopoRazzauti](https://github.com/JacopoRazzauti)

*PhD student at The Rockefeller University specialized in computer vision, neurogenetics, and sensory ecology.*

## EDUCATION

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<b>PhD Neurosciences</b> Laboratory of Neurogenetics and Behavior The Rockefeller University, New York, USA	07/2021-Present
<i>Visiting Student</i> , Columbia University, New York, USA Ethology and the Evolution of Behavior, Grade: A Course taught by Dr. Andrés Bendesky	01/2022-05/2022
<b>BSc Neurosciences</b> Grade: First Class (Honours) University of Dundee, Scotland	09/2017-06/2021
<i>Visiting Student</i> , University of Northern British Columbia, Canada 2 <sup>nd</sup> Year Exchange Program, GPA: 4.27/4.33	09/2018-05/2019

## RESEARCH EXPERIENCE (LABORATORY)

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<b>The Rockefeller University</b> , New York, USA PhD Student; Supervisor: <b>Dr. Leslie Vosshall</b>	07/2021-Present
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- 1. Animal Tracking:** Design and implementation of state-of-the-art computer vision systems for multi-animal 3D tracking, with focus on mosquito behavior.
- 2. Neuronal Imaging:** Development of custom imaging systems for non-conventional biological samples, specializing in mosquito sensory appendages.

<i>First Year Rotations</i>	07/2021-09/2022
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**1<sup>st</sup> Rotation** (07/2021-12/2021): Mentor: **Dr. Leslie Vosshall**

- Used genetically-encoded calcium sensor to study how the yellow-fever mosquito taste system responds to tastes. Showed that a subset of the tarsal neurons responds to DEET.

**2<sup>nd</sup> Rotation** (01/2022-04/2022): Mentor: **Dr. Vanessa Ruta**

- Quantified courtship behavior of distinct *Drosophila melanogaster* strains pairing two males with one female to establish the role of male-male competition in mating success.

**3<sup>rd</sup> Rotation** (04/2022-07/2022): Mentor: **Dr. Daniel Kronauer**

- Designed and implemented a protocol for bright-field imaging of abdominal tip of *Ooceraea biro* pupae. Work published in *Nature*.

<b>University of Dundee</b> , Dundee, Scotland	09/2020-12/2020
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*Honours Student*; Mentor: **Prof. Jeremy Lambert**

Project: Investigating Tianeptine electrophysiological effects in a mouse model of early-life adversity.

<b>Max Planck Institute of Neurobiology</b> , Munich, Germany	06/2019-09/2019
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*AMGEN Scholar* at Ludwig Maximilian University of Munich; Mentor: **Dr. Herwig Baier**

Project: Optogenetic dissection of descending behavioural control in zebrafish larvae

<b>University of Northern British Columbia</b> , Prince George, Canada	01/2019-04/2019
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*Research Assistant*; Mentor: **Dr. R. Luke Harris**

Project: An Investigation of Acute Exercise Effects on Cognition and its Neural Correlates.

## RESEARCH EXPERIENCE (FIELDWORK AND EXPEDITIONS)

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**The Mars Society**, Mars Desert Research Station, Utah, USA

*Crew Biologist* on multiple missions focused on desert extremophile biodiversity

**Crew 298:** Martian Biology IV 06/2024

**Crew 282:** Martian Biology III 06/2023

**Crew 247:** Martian Biology II 06/2022

- Conducted transect-based ecological surveys focusing on local lizard and insect populations, with emphasis on mosquitoes
- Contributed to collection and cataloguing of local desert flora
- Supported mission logistics and operations in remote location

### Operation Wallacea

*Research Assistant* at multiple field sites

**Krka National Park**, Croatia 08/2020

- Conducted transect-based ecological surveys for census of local tortoise populations
- Developed a citizen-science trap-based system for monitoring butterfly populations

**Mariarano Forest**, Mahajanga, Madagascar 06/2018-07/2018

- Conducted ecological surveys using species-specific techniques (e.g. Pollard counts of butterflies) to map distribution and biodiversity of local fauna

## PUBLICATIONS

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Snir, O., Alwaseem, H., Heissel, S., Sharma, A., Valdés-Rodríguez, S., Carroll, T. S., Jiang, C. S., Razzauti, J., & Kronauer, D. J. (2022). The pupal moulting fluid has evolved social functions in ants. *Nature*. doi:10.1038/s41586-022-05480-9

## HONORS, AWARDS AND FELLOWSHIPS

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### Graduate Awards

The Price Family Center for the Social Brain PhD Fellowship (\$100,000) 2023

The Boehringer Ingelheim Fonds (BIF) PhD Fellowship 2022

### Undergraduate Awards

Biomedical Sciences Honours Stream Prize, University of Dundee 2021

Waymouth Reid Prize 2021

Neurosciences Honours Prize, University of Dundee 2021

Biomedical Sciences Stream Prize - Level 3, University of Dundee 2020

Chemers Neustein Summer Undergraduate Fellowship, The Rockefeller University 2020

2 Armistead Bursaries 2018, 2020

Jonathan Glover Core Curriculum Award for Academic Excellence 2018

Ede and Ravenscroft Prize 2018

Level 1 Core Curriculum Prize, University of Dundee 2018

### Academic Distinctions

Member of The Dean's List, School of Life Sciences, University of Dundee 2018-2021

### Other Prizes

Oscar Livornesi, Italian Naval Academy, Livorno, Italy 09/2023

## PRESENTATIONS AND ORGANIZED EVENTS

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### Invited Talks

"To Bite or Not To Bite: Understanding Repellency through Mosquito Tracking" The Price Center Dataclub	11/2024
"Breaking the Unbreakable: Quantifying Mosquito Foraging and Repellency" Mosquito Neuroethology Satellite Meeting, Berlin	07/2024
"Tracking Mosquitoes with Machine Learning" The Price Center Workshop on Tracking and Analysis of Social Behaviors	05/2024
"A Short Adventure in the Mosquito Brain" Museo di Storia Naturale del Mediterraneo, Livorno, Italy	09/2023
"Imaging Molting Fluid Secretion in Ant Pupae" Brainiac Breakdown, Fordham University	12/2022

### Poster Presentations

"Tracking Freely-Flying Mosquitoes using Transformers" The Short Course on ML for Automated Quantification of Behavior, Jackson Laboratory	10/2024
"When Predation Becomes Escape: Quantifying Behavioral Effects of Mosquito Repellents" International Congress of Neuroethology, Berlin	07/2024
"Quantifying Mosquito Foraging to Understand Repellency" HHMI's Janelia Research Campus, Bridging Diverse Perspectives on the Mechanistic Basis of Foraging	02/2024
"The Mosquito HOSTel: a Modular Behavioral Chamber to Study Repellency" European Symposium for Insect Taste and Olfaction, Sardinia, Italy	09/2023
"Optogenetic Dissection of Descending Behavioural Control in Zebrafish Larvae" AMGEN Symposium 2019, University of Cambridge	09/2019

### Scientific Events Organized

Tri-State Mosquito Neurobiology Symposium The Rockefeller University, Princeton University, Columbia University	05/2024
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## SCIENTIFIC COURSES AND ADVANCED TRAINING

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Machine Learning for Automated Quantification of Behavior <b>Jackson Laboratory</b> , Maine	10/2024
Communicating Science, BIF Seminar <b>Banbury Center, Cold Spring Harbor Laboratory</b>	04/2024
Imaging Structure & Function in the Nervous System <b>Cold Spring Harbor Laboratory</b>	07/2023-08/2023
Neuromatch Academy Online Intensive Course	07/2023
Modern Approaches to Behavioral Analysis CAJAL Neurokit course, taught by Dr. Alexander Mathis and Dr. Danbee Kim	11/2022
Scientific Presentation Master Class <b>Memorial Sloan Kettering Center</b> , taught by Melissa Marshall	02/2020-06/2020
Introduction to Data Analysis and Advanced Data Analysis <b>LMU Biocenter</b> , Munich; taught by Dr. Nicholas A. Del Grosso	08/2019

## SKILLS AND CERTIFICATIONS

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**Programming Languages:** Python 3.x, R, Git, Unix

### Coding Achievements

Third Place, Nucleate BioHackathon, New York

11/2023

### Language Proficiency

**Italian:** Native Language

**English:** Advanced (C1) - IELTS Level 8

2017

### Additional Certifications

PADI Open Water Diver License

07/2022

## PAST PROFESSIONAL AFFILIATIONS

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### Oxford University Press (OUP)

*OUP Bioscience Student Panel member*

2020-2021

### The Physiological Society

*Member*

2018-2021

### The Genetics Society

*Member*

2020-2021

## REFERENCES

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**Dr. Leslie Vosshall** PhD Advisor  
Robin Chemers Neustein Professor  
Laboratory of Neurogenetics and Behavior  
**The Rockefeller University**  
[leslie@rockefeller.edu](mailto:leslie@rockefeller.edu)

**Dr. Herwig Baier** Undergraduate Mentor  
Director  
**Max Planck Institute for Biological Intelligence**  
[herwig.baier@bi.mpg.de](mailto:herwig.baier@bi.mpg.de)

**Prof. Jeremy Lambert** Undergraduate Mentor  
Professor of Neuropharmacology  
**University of Dundee**  
[j.j.lambert@dundee.ac.uk](mailto:j.j.lambert@dundee.ac.uk)