# JACOPO RAZZAUTI

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

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

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

## EDUCATION

**PhD Neurosciences** Laboratory of Neurogenetics and Behavior                    *07/2021-Present*
The Rockefeller University, New York, USA

*Visiting Student*, Columbia University, New York, USA                    *01/2022-05/2022*
Ethology and the Evolution of Behavior, Grade: A
Course taught by Dr. Andrés Bendesky

**BSc Neurosciences** Grade: First Class (Honours)                    *09/2017-06/2021*
University of Dundee, Scotland

*Visiting Student*, University of Northern British Columbia, Canada                    *09/2018-05/2019*
$2^{nd}$ Year Exchange Program, GPA: 4.27/4.33

## RESEARCH EXPERIENCE (LABORATORY)

**The Rockefeller University**, New York, USA                    *07/2021-Present*
PhD Student; Supervisor: **Dr. Leslie Vosshall**

**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.

*First Year Rotations*                    *07/2021-09/2022*
$1^{st}$ **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.

$2^{nd}$ **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.

$3^{rd}$ **Rotation** (04/2022-07/2022): Mentor: **Dr. Daniel Kronauer**
- Designed and implemented a protocol for bright-field imaging of abdominal tip of *Ooceraea biroi* pupae. Work published in *Nature.*

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

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

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

Project: Optogenetic dissection of descending behavioural control in zebrafish larvae

**University of Northern British Columbia**, Prince George, Canada                    *01/2019-04/2019*
*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)

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

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

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|---|---:|
| **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

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|---|---:|
| **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

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

### Graduate Awards

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|---|---:|
| The Price Family Center for the Social Brain PhD Fellowship ($100,000) | *2023* |
| The Boehringer Ingelheim Fonds (BIF) PhD Fellowship | *2022* |

### Undergraduate Awards

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|---|---:|
| 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

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

### Other Prizes

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|---|---:|
| Oscar Livornesi, Italian Naval Academy, Livorno, Italy | *09/2023* |

## PRESENTATIONS AND ORGANIZED EVENTS

**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*

## SCIENTIFIC COURSES AND ADVANCED TRAINING

Machine Learning for Automated Quantification of Behavior
**Jackson Laboratory**, Maine                                                                     *10/2024*

Communicating Science, BIF Seminar
**Banbury Center, Cold Spring Harbor Laboratory**                                                 *04/2024*

Imaging Structure & Function in the Nervous System
**Cold Spring Harbor Laboratory**                                                          *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
**Memorial Sloan Kettering Center**, taught by Melissa Marshall                            *02/2020-06/2020*

Introduction to Data Analysis and Advanced Data Analysis
**LMU Biocenter**, Munich; taught by Dr. Nicholas A. Del Grosso                                   *08/2019*

## SKILLS AND CERTIFICATIONS

**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

**Oxford University Press (OUP)**

*OUP Bioscience Student Panel member* *2020-2021*

**The Physiological Society**

*Member* *2018-2021*

**The Genetics Society**

*Member* *2020-2021*

## REFERENCES

**Dr. Leslie Vosshall**  PhD Advisor
Robin Chemers Neustein Professor
Laboratory of Neurogenetics and Behavior
**The Rockefeller University**
leslie@rockefeller.edu

**Dr. Herwig Baier**  Undergraduate Mentor
Director
**Max Planck Institute for Biological Intelligence**
herwig.baier@bi.mpg.de

**Prof. Jeremy Lambert**  Undergraduate Mentor
Professor of Neuropharmacology
**University of Dundee**
j.j.lambert@dundee.ac.uk