

JACOPO RAZZAUTI

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

EDUCATION

PhD Neurosciences 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
BSc Neurosciences Grade: First Class (Honours) University of Dundee, Scotland	09/2017-06/2021
<i>Visiting Student</i> , University of Northern British Columbia, Canada 2 nd Year Exchange Program, GPA: 4.27/4.33	09/2018-05/2019

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

1st 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.

2nd 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.

3rd 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*.

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

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

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

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

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

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
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Dr. Herwig Baier Undergraduate Mentor
Director
Max Planck Institute for Biological Intelligence
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Prof. Jeremy Lambert Undergraduate Mentor
Professor of Neuropharmacology
University of Dundee
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