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Jacopo Razzauti

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Gender: Male **Date of birth:** 12/10/1997 **Nationality:** Italian

ABOUT ME

I am a PhD candidate at The Rockefeller University, specializing in computer vision, neurogenetics, and sensory ecology, with a particular focus on understanding mosquito behavior and nervous system. My research combines cutting-edge computer vision techniques for multi-animal 3D tracking with custom imaging systems development.

EDUCATION AND TRAINING

[07/2021 – Current] **PhD Candidate (Neuroscience)**

The Rockefeller University

City: New York | **Country:** United States | **Field(s) of study:** Neuroscience

[01/2022 – 05/2022] **Graduate Visiting Student**

Columbia University

City: New York | **Country:** United States | | **Final grade:** A

[09/2017 – 06/2021] **Neuroscience BSc (Honours)**

University of Dundee

City: Dundee | **Country:** United Kingdom | **Field(s) of study:** Neuroscience | **Final grade:** First Class

[09/2018 – 05/2019] **Undergraduate Visiting Student**

University of Northern British Columbia

Country: Canada | | **Final grade:** GPA: 4.27/4.33

WORK EXPERIENCE

[07/2021 – Current] **PhD Candidate (Neuroscience)**

The Rockefeller University

City: New York | **Country:** United States | **Name of unit or department:** Laboratory of Neurogenetics and Behavior

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.

[07/2021 – 09/2022] **First Year Rotations (Graduate Researcher)**

The Rockefeller University

City: New York | **Country:** United States

1. 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. (07/2021-12/2021)
2. 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. (01/2022-04/2022)
3. Mentor: **Dr. Daniel Kronauer**: Designed and implemented a protocol for bright-field imaging of abdominal tip of Ooceraea biroi pupae. (04/2022-07/2022). Work published in Nature.

[09/2020 – 12/2020] **Undergraduate Researcher (Thesis)**

University of Dundee

City: Dundee | **Country:** United Kingdom

Supervisor: Prof Jeremy Lambert

Thesis project: Investigating Tianeptine electrophysiological effects in a mouse model of early-life adversity

[06/2019 – 09/2019] **AMGEN Scholar**

Max Planck Institute of Neurobiology; Ludwig Maximilian University of Munich

City: Munich | **Country:** Germany

Mentor: Dr. Herwig Baier

Project: Optogenetic dissection of descending behavioural control in zebrafish larvae

[01/2019 – 04/2019] **Undergraduate Research Assistant**

University of Northern British Columbia

Country: Canada

Mentor: Dr R. Luke Harris

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

Crew Biologist

The Mars Society

City: Mars Desert Research Station, Utah | **Country:** United States

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

[08/2020] **Research Assistant**

Operation Wallacea

City: Krka National Park | **Country:** Croatia

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

[06/2018 – 07/2018] **Research Assistant**

Operation Wallacea

City: Mariarano Forest, Mahajanga | **Country:** Madagascar

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

PUBLICATIONS

[2022] **The pupal moulting fluid has evolved social functions in ants.**

Reference: 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

[2025] **Mosquito sex under lock and key: female mating control in Aedes aegypti mosquitoes**

Reference: Houri-Zeevi, L., Walker, M., Razzauti, J., Sharma, A., Pasolli, H.A., & Vosshall, L.B. (2025, in press) Mosquito sex under lock and key: female mating control in Aedes aegypti mosquitoes

[2025] **Further Additions to the "Martian Flora": new vascular plant collections from the Mars Desert Research Station, Utah, U.S.A.**

Reference: Sokoloff, P., Rupert, S.M., McBeth, S.R.M., Murray, D.A., Irvine, M.G., Bimm, J., Razzauti, J., & Drayson, O.G.G. (in preparation). Further Additions to the "Martian Flora": new vascular plant collections from the Mars Desert Research Station, Utah

HONOURS AND AWARDS

[2021] **Biomedical Sciences Honours Stream Prize Awarding institution:** University of Dundee

[2021] **Waymouth Reid Prize**

[2021] **Neurosciences Honours Prize Awarding institution:** University of Dundee

Awarded to the best student in the Neuroscience BSc stream enrolled in his final year of studies

[2020] **Biomedical Sciences Stream Prize - Level 3 Awarding institution:** University of Dundee

[2020] **Chemers Neustein Summer Undergraduate Fellowship Awarding institution:** The Rockefeller University

[2018] **Armistead Bursary**

[2018] **Jonathan Glover Core Curriculum Award for Academic Excellence Awarding institution:** University of Dundee

[2018] **Ede and Ravenscroft Prize**

[2018] **Level 1 Core Curriculum Prize Awarding institution:** University of Dundee

[09/2023] **Oscar Livornesi Awarding institution:** Accademia Navale di Livorno

CONFERENCES AND SEMINARS

[11/2024] **To Bite or Not To Bite: Understanding Repellency through Mosquito Tracking** The Price Center Dataclub

[10/2024] **Tracking Freely-Flying Mosquitoes using Transformers** The Short Course on ML for Automated Quantification of Behavior, Jackson Laboratory

[07/2024] **Breaking the Unbreakable: Quantifying Mosquito Foraging and Repellency** International Congress of Neuroethology, Berlin

[05/2024] **Tracking Mosquitoes with Machine Learning** The Price Center Workshop on Tracking and Analysis of Social Behaviors

[02/2024] **Quantifying Mosquito Foraging to Understand Repellency** HHMI's Janelia Research Campus, Bridging Diverse Perspectives on the Mechanistic Basis of Foraging

[09/2023] **The Mosquito HOSTel: a Modular Behavioral Chamber to Study Repellency** European Symposium for Insect Taste and Olfaction, Sardinia, Italy

[09/2023] **Cosa Penso Quando Pungo: Breve Viaggio nel Cervello delle Zanzare** Museo di Storia Naturale del Mediterraneo, Livorno, Italy

[12/2022] **Imaging Molting Fluid Secretion in Ant Pupae** Brainiac Breakdown, Fordham University

[09/2019] **Optogenetic Dissection of Descending Behavioural Control in Zebrafish Larvae** AMGEN Symposium 2019, University of Cambridge

DIGITAL SKILLS

My Digital Skills

Python 3.x | R | Git | Unix

ADVANCED TRAINING COURSES

Programming; Science Communication and other advanced courses

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

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

HOBBIES AND INTERESTS

Scuba Diving

PADI Open Water Diver License

NETWORKS AND MEMBERSHIPS

[2020 – 2021] **Oxford University Press (OUP)** OUP Bioscience Student Panel member

[2018 – 2021] **Member** The Physiological Society

[2020 – 2021] **The Genetics Society** Member

RECOMMENDATIONS

Name: Dr Leslie Vosshall PhD Supervisor, Robin Chemers Neustein Professor
Laboratory of Neurogenetics and Behavior

Current supervisor and head of the laboratory where I conduct my PhD research

Email: leslie@rockefeller.edu

Name: Dr. Herwig Baier Director Max Planck Institute for Biological Intelligence

Supervisor during my AMGEN Scholarship research project

Email: herwig.baier@bi.mpg.de