

MARTIN DESSART

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Research and Engineering Experience

10/2024 – Present

Department of Biochemistry
Virginia Tech - Blacksburg, VA

Postdoctoral Associate – Neuroethology

Investigating sensory integration and chronobiology in mosquitoes.
Mentor: Dr. Clément Vinauger

02/2021 – 02/2024

IRBI – UMR 7261, CNRS
University of Tours
Tours, France

Research in Neuroethology and Sensory Ecology

Examined the impact of pollutants on mosquito larvae cognition.
Assessed the role of larvae as bioindicators of freshwater ecosystems.
Supervisors: Prof. Claudio Lazzari & Dr. Fernando Guerrieri

07/2020 – 10/2020

CRCA, GEODE, CNRS
University Paul Sabatier
Toulouse, France

Research Internship

Collected flower reflectance in the field using spectrophotometry.
Modeled flower visual saliency using honeybee-vision models.
Supervisors: Dr. Sylvie Guillerme & Prof. Martin Giurfa

01/2020 – 07/2020

Animal Minds Lab
University of Auckland
Christchurch, New Zealand

Master's Final Project

Designed and conducted judgment bias tests on kea *Nestor notabilis*.
Analyzed keas vocalizations using Raven and Praat softwares.
Supervisors: Dr. Alexander Taylor & Dr. Amalia Bastos

04/2019 – 06/2019

UMR MARBEC, CNRS
University of Montpellier
Montpellier, France

Research Protocol Design / Assistant

Designed an experiment on fish gut methane emissions.
Performed field sampling and molecular analyses.
Supervisors: Dr. Jean-Christophe Auguet & Dr. M.C. Cheutin

09/2014 – 09/2017

Clemessy Aeronautics & Space
Toulouse, France

Apprentice Engineer

Designed and integrated automated cable-testing system.
Supervised electrical checks, managed client relationships.
Supervisor: Jean-Paul Herrgott

09/2016 – 02/2017

Auckland University
Auckland, New Zealand

Engineering Thesis / PhD Assistant

Analyzed wind-farm electricity generation.
Supervisors: Prof. Tek Tjing Lie & Dr. Gianni Goretti

05/2015 – 08/2015

TESEO – Clemessy Entity
Torino, Italy

Intern in Computing Design

Automated a maintenance procedure using VBA macros.
Conducted radar calibration in anechoic chamber.
Supervisor: Jean-Louis Menu

07/2013 – 08/2013

Tunisia Plastic Systems
Sousse, Tunisia

Intern in Production

Shorts assignments in production, logistics, and mechanical services.
Supervisor: Marcel Guillet

Education

02/2021 – 02/2024

University of Tours
Tours, France

PhD at Insect Biology Research Institute

Designed and conducted experiments in cognition, ecotoxicology.
Performed data analysis, programming, field work, teaching.

09/2018 – 09/2020

University of Strasbourg
Strasbourg, France

MSc (High Honours)

Studied neurobiology, ecophysiology, ethology, cognition.
Developed skills in statistical analyses.

11/2017 – 08/2018

Udacity & Google School, online

Front-End Web Developer Nanodegree

Developed front-end designs and learned how to use frameworks.

09/2014 – 09/2017	Engineer's Degree – Automation & Control Systems
Institut Catholique des Arts et Métiers Toulouse, France	Studied programming, project management, electronics engineering.
09/2012 – 09/2014	Preparatory Class
Institut Catholique des Arts et Métiers Toulouse, France	Studied electrical engineering, automation, industrial organization.

Teaching and Mentoring

Mentoring

2024 – Present	Richard Rust (Graduate, Neuroscience) Lily Smith (Senior, Neuroscience) Jasmine Adams (Senior, Neuroscience) Sydney Luff (Junior, Biology & Entomology) Hayden Sunman (Freshman, Biochemistry)
03/2021 – 05/2021	Tristan Robineau (MSc Student, Ecology & Evolution) Effect of light and turbidity on habituation of <i>Aedes aegypti</i> larvae.
06/2017 – 08/2027	Eva Daoud (Engineering Student, ESTACA Engineering School) Database design & conception

Teaching

2021 – 2023	University of Tours
University of Tours	Arthropod identification (32h, TP) Neuroscience: conditioning and addiction (6h, TD) Arthropod systematics (7.5h, TD) Ethology (25h, TP)

Publications

Published

- 2025 **Dessart M.**, Lazzari C.R., Guerrieri F.J. (2025). *Acute and chronic sublethal chemical pollution affects locomotion, learning and memory in mosquito larvae*. Journal of Experimental Biology; jeb.250493. <https://doi.org/10.1242/jeb.250493>.
- 2024 **Dessart M.**, Lazzari C.R., Guerrieri F.J. (2024). *Habituation leads to short but not long-term memory formation in mosquito larvae*. Journal of Insect Physiology 155:104650. <https://doi.org/10.1016/j.jinsphys.2024.104650>
- 2024 **Dessart M.**, Aguiar J.M.R., Tabacchi E., Guillerme S., Giurfa M. (2024). *Color-advertising strategies of invasive plants through the bee eye*. Frontiers in Plant Science. 15, 1393204. <https://doi.org/10.3389/fpls.2024.1393204>
- 2023 **Dessart M.**, Piñeirúa M., Lazzari C.R., Guerrieri F.J. (2023). *Assessing learning in mosquito larvae using video-tracking*. Journal of Insect Physiology. 149, 104535. <https://doi.org/10.1016/j.jinsphys.2023.104535>

In preparation

- a. **Dessart M.**, Luff S., Smith L., Sun H., Vinauger C. *Light-induced shift effect on mosquito circadian rhythms*. In preparation
- b. **Dessart M.**, Rust R., Adams J., Smith L., Wynne N., Chandrasegaran K., Wolff G., Vinauger C. *Modulation of mosquitoes' responses to visual threats*. In preparation
- c. Wynne N., Aronson H., **Dessart M.**, Luff S., Applebach E., Ajayi O., Chandrasegaran K., Benoit J., Lahondère C., Vinauger C. *Larval growing conditions affect the daily rhythms and thermal preferences of adult Aedes japonicus*. In preparation
- d. **Dessart M.**, Lazzari C.R., Guerrieri F.J. *From field to lab, how environment shapes cognitive abilities in mosquito larvae?* In preparation

e. Cheutin M.C., Balland J., Roso E., **Dessart M.**, Rieuvilleuve F., Villeger S., Bouvier T., Auguet J.C. *Sulfate-reduction prevents marine fishes from farting methane*. In preparation

Conference Presentations

- 2025 “Modulation of mosquitoes’ responses to visual threats” – **Oral presentation** – 2025 Entomology, Portland, OR
- 2025 “The plasticity of mosquito circadian clock” – **Poster presentation** – Animal Behaviour Live 2025 Online Conference
- 2025 “How to jetlag a mosquito” – **Poster presentation** – 2025 CeZAP Infectious Disease Research Symposium - Virginia Tech, Blacksburg, VA
- 2024 “The cognition of mosquito larvae as a biological indicator of environmental quality” – **Oral presentation** – Club de Neuroéthologie – Société des Neurosciences – Albi, France
- 2024 “La cognition des larves de moustique comme indicateur biologique de la qualité des écosystèmes aquatique - **PhD Defense** - University of Tours, France
- 2023 “Cognitive abilities in mosquito larvae as indicators of environmental quality” – **Oral presentation** – Behaviour 2023 – Bielefeld, Germany
- 2023 “Chemical pollution affects the behaviour of mosquito larvae” – **Oral presentation** – DiPEE “Biodiversité et territoires: une recherche engagée” – CEBC Chizé, France
- 2023 “Chemical pollution affects the behaviour of mosquito larvae” – **Poster presentation** – 52ème Colloque of SFECA – Tours, France
- 2022 “Effect of two herbicides and one medical drug on locomotor activity and learning in *Aedes aegypti*” – **Oral presentation** – 34° Colloque Biotechnocentre – Centre Val de Loire, France
- 2022 “A tracking system to assess activity and learning in mosquito larvae” – **Poster presentation** – Ecology and Behaviour – 15th Edition – Strasbourg, France
- 2021 “Visual learning abilities in mosquito larvae are not impaired neither by light deprivation nor by turbidity” – **Oral presentation** – European PhD Network ”Insect Science” – Florence, Italy
- 2021 “Invasive plant species through the bee eye: an analysis of flower coloration in the French Pyrenees” – **Oral presentation - Laboratory seminar** – IPHC UMR 7178 CNRS – Strasbourg, France
- 2021 “The influence of physico-chemical characteristics of aquatic ecosystems on prey-predator interactions. A behavioural-neuroanatomical approach” – **Oral presentation - Laboratory seminar** – IRBI UMR 7261 CNRS – University of Tours, France
- 2021 “Invasive plant species through the bee eye: an analysis of flower coloration in the French Pyrenees” – **Poster presentation** – 50ème Colloque of SFECA – Marseille, France
- 2020 “Effects of the warble call on optimism in Kea (*Nestor notabilis*)” – **Oral presentation - Laboratory seminar** – Research Center on Animal Cognition – University Paul Sabatier – Toulouse III

Academic and Professional Honors

- 2025 Travel grant to Entomology 2025 - Office of Research and Innovation, Virginia Tech
- 2024 Travel grant – French Society of Animal Behavior (SFECA), Albi, France
- 2024 Ph.D. obtained with High Honors, University of Tours, France
- 2023 Travel grant – Behaviour Conference, Bielefeld, Germany - University of Tours
- 2022 Regional finalist of My thesis in 180 seconds program, University of Tours, France
- 2021 3-years doctoral Fellowship, Region Centre Val de Loire, University of Tours, France
- 2019 Master’s degree obtained with High Honors, University of Strasbourg, France
- 2019 Travel grant – Region Alsace GrandEst, Strasbourg, France
- 2017 Scholarship – 9-month training Udacity & Google online formation

2017 Engineering degree obtained with High Honors, Institut Catholique des Arts et Métiers, Toulouse, France

Service and Other Experience

- 2025 - Present Board member of the Postdoc & *Research Faculty Committee* in the Department of Biochemistry, Virginia Tech
- 2025 - Present Board member of the *Virginia Tech Postdoctoral Association*, Virginia Tech
- 2025 - Present Review of manuscripts for *Scientific Reports* and *Ecology and Evolution*
- 2025 - Present Member of the *Entomological Society of America*
- 2023 - Present Member of the *French Society of Neuroethology*
- 2023 - Present Member of the *International Society of Neuroethology*
- 2021 - Present Member of the *French Society of Animal Behavior*
- 2023 - 2024 Member of the *German Society of Ethology (Ethologische Gesellschaft)*
- 2021 - 2024 Member of the *French Union for the Study of Social Insects (UIEIS)*
- 2020 - 2021 Contributed to the writing of a successfully funded 3-years PhD project ([IPPY](#))
- 03/18 - 04/18 Volunteering: Assisted a vet and conducted interviews with farming communities.
[*Melindika Solidarity Association*](#) - Kafue National Park, Zambia
- 01/18 - 02/18 Fieldwork assisting a PhD student with a protocol on cats to study their biological rhythms.
[*AVA Sanctuary*](#) - Normandie, France
- 10/16 - 12/16 Volunteering: Assisted in the realisation of cognitive enrichment items for primates.
[*Auckland Zoo*](#) - Auckland, New Zealand
- 2014 – 2017 Volunteering: Activity leader in France, Morocco, and Madagascar.
[*Terres en Mêlées Solidarity Association*](#) — Toulouse, France