

# SOLENE BOURDAS

[solenebourdas@gmail.com](mailto:solenebourdas@gmail.com) | +33 6 95 24 14 32

## PROFILE

Recently graduated, I have conducted several research projects across different institutions, focusing on the application of advanced imaging techniques, particularly CT scanning and three-dimensional modeling, to the study of paleontological and biological systems. My research interests are broad, and my range of skills can be applied to various subjects, although I have tended to specialize in extant and fossil invertebrates during my previous experiences.

I enjoy combining analytical and innovative approaches to project management. I am particularly passionate about scientific communication, as I like sharing my results with both the scientific community and the public by creating engaging and creative materials.

## RESEARCH PROJECTS

### Microtomographic study of Olenelloid trilobite guts from the Lower Cambrian Rosella Formation 03/2024- 03/2025

Museum of Comparative Zoology, Harvard University (US) | Ortega- Hernández Lab

- Conducted CT scans and performed segmentations using ImageJ, Dragonfly, and Paraview, developing **advanced skills in fossil three-dimensional visualization**.
- Identified and described 25 Olenelloid trilobite specimens with preserved gut parts, as well as an arthropod fossil as gut content.
- Created figures and animations of 3D reconstructions using Blender and Photoshop to effectively communicate my results.
- Wrote an [internship report](#) and presented my findings at the 2024 [GSA conference](#), with plans for publication.
- Collaborated with my supervisors Dr. Ortega-Hernández and Dr. Lerosey-Aubril.

#### Additional ongoing projects

- Develop a **method to analyze the three-dimensional configuration and spatial distribution of trace fossils** from the Rosella Formation and their association with body fossils
- Investigating the internal morphology of **remiped crustaceans**, using staining techniques and CT scanning (**manuscript in preparation**).

### Hydrodynamic study of iniopterygian holocephalans 04/2025- present

Okinawa Institute of Science and Technology OIST | Macroevolution unit| Lauren Sallan lab

- Investigating the functional morphology and swimming performance of iniopterygian fishes.
- Studying extant holocephalans and fossil CT scans to produce 3D models for hydrodynamic testing.

### CT scanning of shell beds from the upper Triassic of England 04/2023- 07/2023

Natural History Museum of London (UK) | Palaeontology department

- Developed a novel palaeoecological approach to analyze the content of shell beds, collected from the Langport Member during fieldwork at Pinhay Bay (Devon, UK).
- Received training in CT scanning, segmentation, and 3D reconstruction, enabling detailed visualizations of fossilized structures within shell beds.
- Collaborated with Dr. Richard Twitchett, gaining valuable insights and expertise throughout the project.
- Enhanced communication skills by creating and presenting a [poster](#) of my findings at the Student Museum Conference (June 2023). Additionally, submitted and had an abstract accepted for the Rennes Conference 2023.

### Described a new genus of millipedes from the Siphonorhinidae family, preserved in Cretaceous amber 01/2024- 02/2024

Museum Alexander Koenig (Bonn, Germany) | Section Myriapoda

- Assisted in producing 3D models from CT scan, creating figures, and contributing to manuscript writing.

## OTHER WORK EXPERIENCES AND VOLUNTEERS

### Technical assistant

06/2023- 08/2023

#### Regional Health Agency of Rodez (France)

- Effectively supported the implementation of sanitary control for bathing areas, pools, and drinking water.

### Tutoring

01/2022- 01/2023

- Designed engaging and effective science lessons plans for middle-school students.

### Participation in the Blob study project (CNRS)

2022

### Society for the Prevention of Cruelty to Animals, Toulouse (France)

2022

### Bird populations monitoring (Normand Ornithological Group)

05/2021- 06/2021

## EDUCATION

### Organismic Biology, Evolutionary Biology, and Palaeobiology Master's Degree

10/2023 - 02/2024

#### University of Bonn (Germany)

- Enrolled in the specialized Master's program at the University of Bonn as part of the Erasmus exchange program.
- Modules include Paleontology of Vertebrates, R programming and QGIS utilization.

### Evolutionary Biology Master's Degree

09/2022 - 09/2024

#### Lille University (France)

- With High Honors | Final grade: 14.35/ 20 (equivalent GPA: 3.7)
- Part of the International Graduate Program: Science for a Changing Planet, with all courses in English.
- Modules include Conservation Genetics, Population Dynamics, Statistics, Bioinformatic Tools, Geobiosphere Interactions in Deep Time, and Ecology.
- Wrote a Bibliographic study “ The organization and early evolution of arthropod digestive systems”.

### Biology Bachelor's Degree : Biology of Organisms, Populations, and Ecosystems

2019 – 2022

#### Paul Sabatier University, Toulouse (France)

- With Honors | Final grade: 13.7/ 20 (equivalent GPA: 3.0)
- Principal courses included Genetics, Palaeontology, Ethology, Entomology, Zoology, General Ecology, Microbiology, Functional Anatomy, and Parasitism.
- Completed projects involved group presentations, ornithology report writing, and anatomical adaptations of raptors to hunting.

### Scientific Baccalaureate with Honors (Scientific English European option)

2019

#### Arènes High School, Toulouse (France)

## ADDITIONAL SKILLS

- Laboratory Skills: Microbiology techniques, Dissections, Behavioral studies
- Languages: French (native), English (C1+), Spanish (B1)
- Programming: R, Bash, Python
- Video and Photo Editing