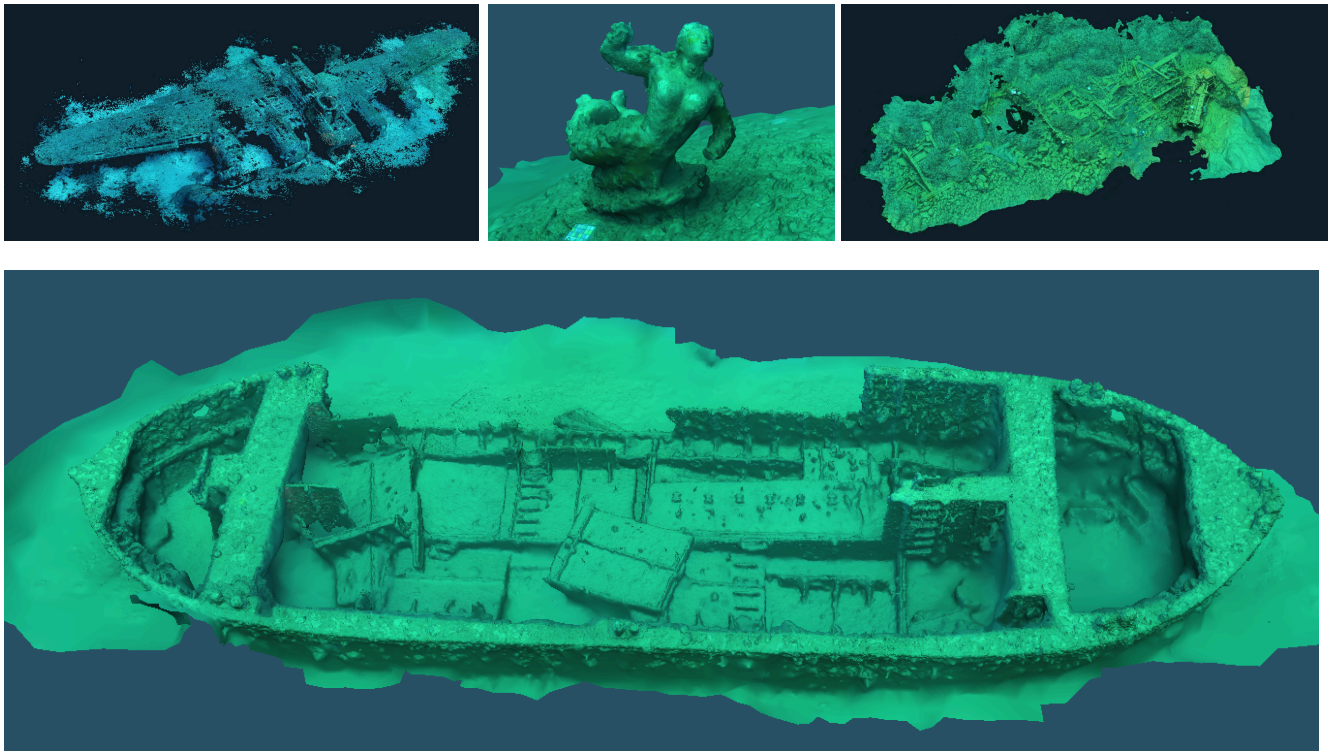


AI-Based Digital Twins of Seafloor Environments



The ocean plays a central role in today's environmental challenges. Building high-resolution digital twins of underwater habitats is essential to better understand, monitor, and protect these poorly known ecosystems.

Traditionally, 3D reconstruction relies on photogrammetry, where each image is analyzed to estimate camera poses and generate dense 3D models. This project explores a new generation of AI-driven methods (DuST3R, MaST3R, MonST3R...) capable of producing textured 3D meshes directly from images.

Students will test, compare, and benchmark these approaches to:

- evaluate the scientific quality of the reconstructed models against photogrammetry baselines,
- measure the computational cost (time and hardware requirements),
- assess their suitability for real-world underwater monitoring tasks.

Required skills

- Python
- Curiosity and interest in computer vision, image-based AI, or underwater environments

Additional Information

- Supervision: Loïca AVANTHEY & Laurent BEAUDOIN (LRE - TIRF, EPITA)
- Location: Paris
- Contact: loica.avanthey@epita.fr, laurent.beaudoin@epita.fr