22 months Post Doc position
Geometric deep learning for surface completion

Team and Lab : IMAGE team, GREYC (UMR CNRS 6072) Research lab, Caen, France.

Advisors : Olivier Lézoray (Full Professor at UNICAEN) and Sébastien Bougleux (Associate Professor at UNI-CAEN).

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Project objectives : With the development of 3D acquisition techniques, 3D data in the form of 3D meshes (triangulated surfaces) have become highly popular. At the same time, the emergence of extended reality has increased demand for high-quality 3D models, particularly for the creation of 3D avatars as realistic representative digital representations of people. However, while it is now easy to acquire 3D data, retouching it is far more difficult, even though users are demanding it. In particular, consolidating colored 3D meshes from people scans is essential to fill in gaps or modify elements of the mesh surface. This problem, known as 3D data completion, can be carried out at either geometric or colorimetric level. In the COSURAI project (COmpletion of SURfaces by Artificial Intelligence), we propose to design methods and algorithms to perform geometric and color completion on 3D colored meshes of people scans. We aim at using artificial intelligence techniques based on generative neural networks, which have shown their benefits for image completion, but have not yet been fully explored for 3D mesh completion. The techniques and algorithms developed will be exploited in the consolidation of 3D scans of people to create 3D avatars for extended reality.

Skills :
— PhD in Artificial Intelligence or Computer Science
— MSc or engineering degree in a field related to computer science, electrical engineering, or applied mathematics
— Strong publication record in computer vision and/or deep learning
— In-depth knowledge of machine learning, deep learning methodologies
— Proficiency in Python (in particular with deep learning frameworks) and eventually in C++ programming
— Abilities to write scientific reports and communicate research results at conferences in English.

Contract :
— Starting December 2023 (depending on candidate availability)
— Duration : 22 months
— Salary : Postdoc statutory salary determined by the CNRS (around 2500€ net)
— Caen, France. Ideally located in the heart of Normandy, two hours from Paris and just 10 minutes away from the beaches, Caen, William the Conqueror's hometown, is a lively and dynamic city.

Application : Candidates are invited to email their detailed CV and a motivation letter to olivier.lezoray@unicaen.fr and sebastien.bougleux@unicaen.fr.