**Job type**  
Research engineer

**Location**  
STORM group, IRIT Laboratory, Toulouse, France

**Starting date**  
September 2019

**Duration**  
18 months

**Contact**  
Prof. Mathias PAULIN, Mathias.Paulin@irit.fr

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**Project description**

The recruited research engineer will work on developing robust research software prototypes within the SI3DCO project. The SI3DCO project aims at developing mesh simplification methods with topology, structure and parameterization preserving. In this project, we will extend the Quadric Error Metric mesh simplification algorithm by integrating into the metric structural (topology, contact and functionality) and appearance (mesh parameterization, surface properties and local visibility function) constraints. The mesh simplification process will then preserve these constraints while generating a new mesh given a global polygon budget. Some initial mesh properties (e.g. differential properties) will be transformed into additional mesh attributes such as textures or on surface functions. Starting from available research prototypes in the IRIT-STORM group, the recruited engineer will develop a C++ generic library for 3D mesh simplification. Several technological demonstrators will then be developed to manage and validate the mesh simplification process.

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**Overview of the hosting structure**

The STORM research group at IRIT develops its activities in the field of Computer Graphics; it is composed of 4 permanent researchers, 10 PhD students and postdocs, 2 engineers. From geometric modeling to realistic rendering, the group aims at developing computationally efficient models and tools for digital content creation and edition. This project is part of the Structural Color Processing project.

STORM is hosted at IRIT (Institut de Recherche en Informatique de Toulouse – Informatics Research Institute of Toulouse), one of the major potential of the French research in computer science, with a workforce of more than 700 members including 272 researchers and teachers 204 PhD students, 50 post-doc and researchers under contract and also 32 engineers and administrative employees.

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**Education**

- PhD in Computer Graphics, Computer Science or Applied Mathematics
- Master degree in Computer Graphics, Computer Science or Applied Mathematics
- Engineer degree in Computer Graphics, Computer Science or Applied Mathematics

**Key Qualifications**

- Familiarity with 3D programming
- Strong C++ development skills
- Strong problem-solving skills
- Strong OpenGL skills
- Vulkan or Metal knowledge will be helpful
- Good knowledge on linear algebra
- Must be able to work collaboratively and communicate with researchers and engineers
- English or French language (Written and spoken)