R&D engineer – Development of implicit surface processing algorithms

Job Type: Software development (fixed-term employment contract)
Location: Loria, Nancy, France
Starting Date: immediate hiring possible
Duration: 12 months
Contact: cedric.zanni@loria.fr
Eligibility criteria: Master or PhD in Computer Science

Context

The MFX team is a joint research team between Inria, Université de Lorraine and CNRS, within the LORIA laboratory. The team focuses on challenges related to shape complexity in the context of Computer Graphics and Additive Manufacturing. We consider the entire chain from modeling, visualization to interaction and part geometry processing before fabrication. We make our techniques available to the public through our software IceSL which the teams constantly improves. The ANR Project IMPRIMA seeks to explore novel implicit representations in order to provide a unified approach for the modeling and slicing of both macro geometry, microstructures and gradient of material as well as a complete, tight integration of both standard boundary representations and novel implicit volume representations, allowing the best choice of representation for different parts of a design.

Main tasks

The main task, to be carried out by the engineer, is to develop a new library for implicit surface visualization and processing (eg. slicing) on both CPU and GPU based on the techniques developed during the Project IMPRIMA. Development will be carried out collaboratively with the project coordinator. The engineer tasks will include :

- familiarize herself/himself with implicit modeling techniques by implementing state-of-the-art methods and algorithms
- integration of internal works done by other team members
- participate in the creation of new algorithms

In addition, the developed library should be integrated for useage in the IceSL slicing software.

Skills required

- advanced skills in **C++ programming**
- **GPU programming** (at least one of OpenGL, Vulkan, OpenCL or CUDA)
- motivated to work collaboratively (collaborations are expected with other team memebers)
- knowledge of **Computer Graphics** and **Mathematical Analysis**
- conversational English

Compensation and benefits

- gross monthly salary 2930€
- includes medical insurance
- 45 days of annual paid leaves

In order to apply, please send your resume and cover letter to cedric.zanni@loria.fr