Proposta de Projeto de Doutoramento a Desenvolver no Âmbito do 1º Concurso para Atribuição de Bolsas de Investigação na Área de Engenharia Informática

1. Título do projeto

Título: Interactive procedural content creation in immersive VR environments
Palavras-chave: Computer Graphics; Virtual Reality; Human Computer Interaction
Referência: CEE_EI_UNL1

2. Instituições envolvidas

Instituição onde o doutoramento será realizado: FCTNOVA
Outras instituições participantes no projeto de investigação: Sem instituições adicionais nesta fase.

3. Equipa de Orientação

Orientador: Prof. Rui Nóbrega

4. Descrição do Projeto

The main objective of this thesis is to explore metaphors of content creation and extending them to virtual environments. Editing in VR presents several challenges and opportunities. The main opportunity is the fact that the user can be immersed in his own creation. In the ideal editor, the user is inside the scene building, painting, and modeling the surrounding area. The main advantage of immersion is also its main drawback: inside the virtual world it is hard to use input devices (e.g., keyboard) and other third-party applications (e.g., Photoshop, Blender). To overcome this, the goal is to create content using different interaction paradigms (e.g., voice commands) and obtain assets from several automatic sources such as: available web assets, photogrammetry, 360 cameras and procedural content generation. Exploring a wide range of asset sources, procedural generation and AI-supported content creators will enable a rich VR content creation tool. This work will explore the combination of multimodal inputs such as gestures and voice in an immersive environment, together with pre-existing model libraries, procedural generators, and AI-support to create immersive content. This work is done in a multi-disciplinary team at NOVA LINCS (http://nova-lincs.di.fct.unl.pt). Research will be tentatively published on the following conferences: SIGGRAPH, VRST, CHI.