



SIMON SENEAL, ESR13

Digital Cultural Applications

Augmented and mixed reality services for tourism and learning

The partner from the University of Geneva is the leader of Work Package 5: "Digital Cultural Applications" that began the 1st of March 2015. ESR 13 Simon Sénécal and ER4 Louis Cuel have been recruited the 1st of June 2014 and the 1st of January 2015 respectively. They have been working on the project respectively since 12 months and 5 months. Several research achievements have been focused on to reach the goals of the work packages 5 that constitutes the main task of MIRALab.

Miralab is developing several online-based interactive applications. ESR13 is involved in the following research's aspects.

Supervisor : Professor Nadia Magnenat-Thalmann



Virtual Environment

Work in progress



Virtual construction of the Brandenburg portal placed in virtual environment

Integration of cultural digital assets for perceptual rendering and real-time application:

- Use of existing 3D models made from geometry reconstruction / photogrammetry
- Simplifying meshes complexity for real-time rendering requirements

Pipeline for dissemination application:



Interaction & Augmented reality

Secondments in August



Interactive session with an avatar using Kinects

We have been developing a real-time interaction system using depth sensors:

- User presence acquisition from Kinect
- Statistic **Markov Model** to process the data
- A virtual avatar to respond to stimulus for the visualization

Research's goal: Development of believable intelligent virtual human behaviour in interaction with the user.

Final Applications

Work in progress



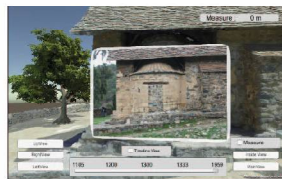
Achieving immersiveness in augmented and virtual reality in case of intangible cultural heritage scenario.

Semantic enrichment

Work in progress



Geometric multilayered semantically enriched model of Asinou church



Displaying real photos inside the application

Different strategies:

- Displaying additional information such as **photos or text** depending on the location in the virtual world.
- Links to **external viewers** (huge point clouds) or external datasets
- Layers of visualization depending on an interactive **timeline**

Intangible Acquisition

Secondments in June



Motion capture of a professional dancer in MIRALab

A secondments is planned in CUT partner to motion capture an **orthodox priest** related to the church of Asinou.

Together with Louis Cuel, ER4, we will record the priest during a particular **ceremony** to digitize old religious movements carrying special meanings.



Home Country



Host Country



UNIVERSITÉ DE GENÈVE

MIRALab

Host Organization

