

Digitization of the Buchs campus with a laser scanner and then porting to VR.

Graduate



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Introduction: In a world that is becoming increasingly digital, it makes sense to unite the physical and digital realities to unlock new potential. A digital representation of the physical world, known as a digital twin, opens up numerous new possibilities. For example, danger zones can be made accessible or hard-to-reach places can be explored more easily. At the Eastern Switzerland University of Applied Sciences, the path to this digitalization is still largely unexplored, but the will to change is strong.

Objective: This bachelor's thesis aims to identify and evaluate a workflow from the laser scanner capturing with all necessary steps into a virtual environment. The process will be tested and documented, where approaches to solutions that are not considered to be effective for this work should also be documented. The workflow is developed through empirical methods. The use of a laser scanner is mandatory and must be included in the workflow or as a prerequisite. The workflow is generally applicable for reality capture and does not address the problem of a specific space. Consideration of efficiency and feasibility are seen as prerequisites for the success of the workflow.

Result: The result includes a possible workflow. Divided into various work steps, it results in a mixture of interdependent and independent elements. The steps are arranged in a logical order, so that it is likely matching the expected flow. Repetitions or unnecessary work steps are also included as they depend on the specific task.

Advisor

Prof. Laszlo Arato

Co-Examiner

Prof. Dr. Michael Marxer

Subject Area

Computer Science,
Electronics and Control
Engineering,
Computational
Engineering

Laserscanner Leica RTC360
Own presentation



Mesh extraction of the Buchs campus in Leica Cyclone 3DR
Own presentation



Assembly of individual meshes from the Buchs campus in Unreal Engine
Own presentation

