

# 3D Scene Reconstruction Using Multiple RGB-D Cameras



**ULTRA VIDEO GROUP** is looking for several motivated BSc/MSc/PhD students to kick-start the career as a part of the leading academic video group in Finland (<http://ultravideo.fi/>). We are a research group in the unit of [Computing Sciences](#) at [Tampere University](#) and we have over 20-year experience in conducting pioneering research on media processing systems in a close collaboration with industry. Our main research interest lies in tailored video coding, processing, and streaming solutions on various platforms ranging from low-power embedded devices to highly distributed cloud environments. Our primary research focus is on:

- VVC and HEVC video encoding and streaming
- Vision-based environment perception for human/machine consumption
- Photorealistic modelling of future driving and transportation
- Video codec acceleration on embedded platforms with high-level synthesis
- Content-aware video coding, annotation, and tagging
- Volumetric video coding for extended reality (XR)

## Job description

The project aims to reconstruct in real-time scenes captured with multiple RGB-D cameras.

The context of this project is the conception of a photorealistic volumetric video communication system that supports real-time holographic-like interaction between multiple participants.

Your job will be to take care of the acquisition and the preprocessing of the point cloud using the RGB-D cameras. After an automated calibration the different cameras, you will need to merge acquired data into a reconstructed 3D scene.

This position is a good opportunity to gain some experience in domains like computer vision, 3D synthesis, game development.



## Qualifications

### Essential skills:

- C/C++
- Python

### Desirable skills:

- Knowledge in computer vision
- Knowledge in video compression
- Experience using computer vision libraries such as OpenCV
- Experience using game engine such as Unity
- Software optimization/Complexity Reduction
- Single Instruction, Multiple Data (SIMD)

## How to apply

Each position will be tailored to the applicant's skills, background, and level of studies, incl. the starting date and working time. To apply, please complete the following form

<https://forms.office.com/r/9CZ2k7AC3S>

with your resume and transcript of records. The closing date for applications is **November 14<sup>th</sup>, 2022** (at 23.59 EET / UTC+2). Interviews will be started on a rolling basis.

## Contact

For more information, or any question regarding the application, please contact (in English, Finnish, or French):

- Postdoctoral Researcher Guillaume Gautier [guillaume.gautier@tuni.fi](mailto:guillaume.gautier@tuni.fi)
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