



Master Thesis - Augmented Reality and Virtual Reality for Real-Time UAV Video

About Maxar

Maxar Sweden serves the global professional geospatial market with world-leading 3D geodata, 3D visualization solutions, and 3D image processing solutions. We're on a mission to build the Globe in 3D—a revolution in GEOINT tradecraft—that offers decision makers and analysts the entire world in highly accurate, immersive 3D. Maxar's customers are varied and come from the telecommunications, emergency response, defense, and intelligence communities.

We are searching for the best and brightest to join a culture that is open and flexible, inclusive and positive. We offer opportunities for growth and the ability to work with talented people who make a real difference for our clients. Most of our research and development work is done in our Linköping office in Sweden, which employs about 80 engineers who work on cutting-edge technology to produce unparalleled, global, precise 3D geospatial data and software.

The Thesis

The analysis of real-time video streams from Unmanned Aerial Vehicles (UAVs) are today common in many operations on many markets. To improve analysis capabilities and situational awareness, one approach is to augment the video imagery with additional visual layers. Those additional layers can be rendered from e.g., vector data, raster data or 3D mesh data. For accurate rendering, the cameras for the video and virtual contents must be synchronized, and the depth information for the scene must be estimated.

This thesis will explore methods and technologies for adding accurate visual augmentation layers to UAV video streams in real-time, with help of Maxar's 3D data, Maxar Precision 3D Registration (P3DR) and Maxar's real-time rendering engine. The thesis may also explore usage of Augmented Reality or Virtual Reality headsets within this context.

Qualifications

Master of Science student with knowledge and interest in 3D visualization and real-time rendering.

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