



D3.2 Analysis of Requirements and Prototypes of the Tools



sauce

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1.2 03-12-18	BUT tools, introduction
1.3 12-12-18	TCD contribution integration

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1 EXECUTIVE SUMMARY

The aim of this deliverable is to collect and refine the list of partners' requirements on the tools for the smart asset transformations of Light Field (LF) processing, covered in work package 3. The document briefly describes LF technologies and their current state, specifies use case scenarios, identifies weaknesses and areas that would benefit from improvement.

USAAR provides use cases and requirements focused on capturing and processing data using a multi-camera array. It stresses handling and storing of captured data as well as precise multi-camera array calibration. TCD's requirements involve improvement of captured LFs and extensions of the current tools to the temporal domain. FA focuses on the evaluation of LF technologies under realistic real-world production scenarios and integration into existing workflows.

Based on the requirements, the document describes prototypes and baseline tools researched and developed for specific parts of the LF processing pipeline. TCD provides a description of various innovative tools for quality improvement of LF data and its displaying. BUT introduces a multi-camera array calibration prototype and surveys LF data compression methods.

The document also serves as a base for deliverable D3.4 Accelerated Tools for Creating Smart Assets (M24) which will describe the acceleration of presented tools and algorithms.

Abbreviations and Terminology

BA, Bundle Adjustment, 11
DNG, Digital Negative Format, 7
GMMs, Gauss Mixture Models, 22
JP2, JPEG format, Joint Photographic Experts Group Format, 13
JP3D, JP2 Part 10 standard, 14
LF, Light Field, 5
MVC, Multiview Video Coding, 7
PGM, Portable Graymap Format, 7
PSNR – Peak Signal to Noise Ratio, 15
SAI, Sub-Aperture Image, 7
SfM – Structure from Motion, 11
SLAM – Simultaneous Localization and Mapping, 12
SR, Super-Resolution, 25