

# How project INDIGO automatically turns graffiti photos into orthophotomaps



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**Benjamin Wild** | Technische Universität Wien | benjamin.wild@geo.tuwien.ac.at  
**Geert Verhoeven** | LBI ArchPro | geert.verhoeven@archpro.lbg.ac.at  
**Martin Wieser** | Independent researcher | scene2map@gmail.com  
**Stefan Wogrin** | SprayCity | stefan.wogrin@spraycity.at  
**Norbert Pfeifer** | Technische Universität Wien | benjamin.wild@geo.tuwien.ac.at

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## 1 - Why orthophotomaps?

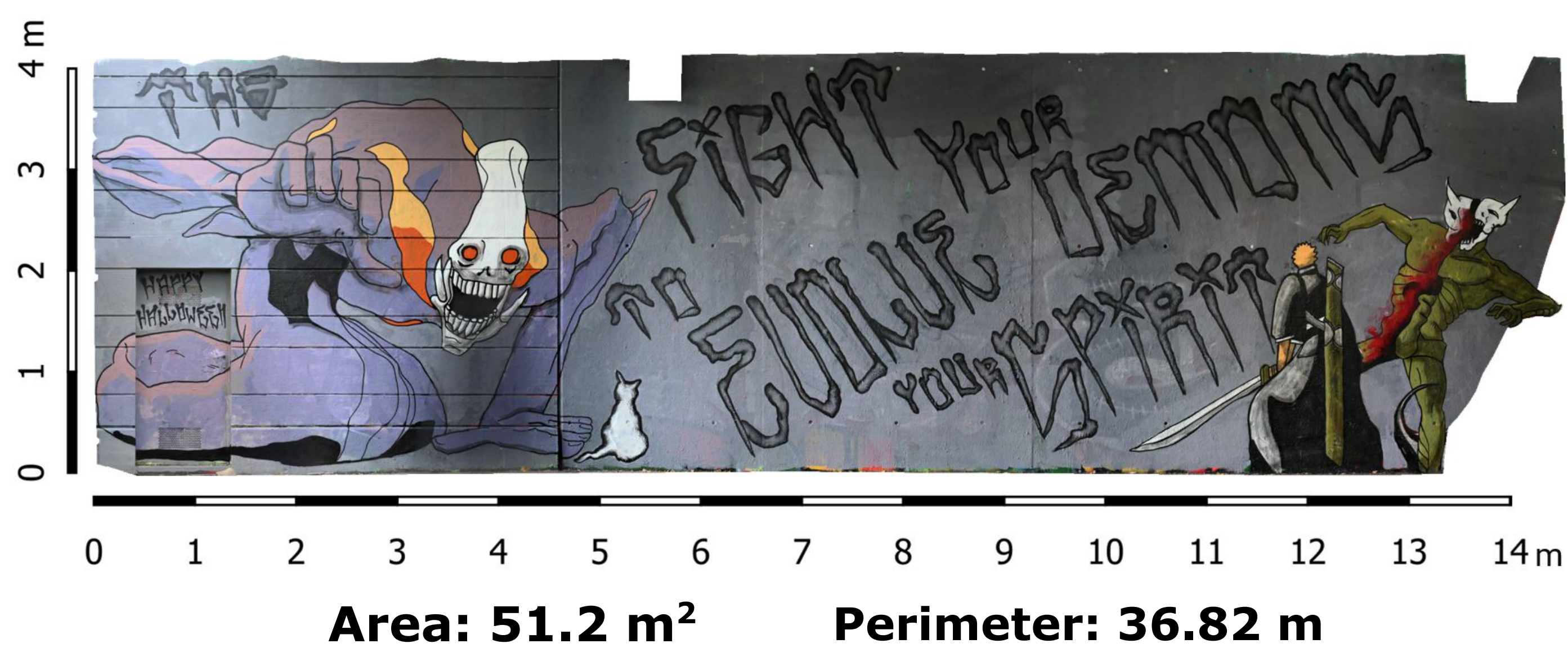
**Conventional photographs** suffer from various distortions:

- (1) Perspective distortions
- (2) Topographic distortions
- (3) Lens distortions (not well visible but they exist!)



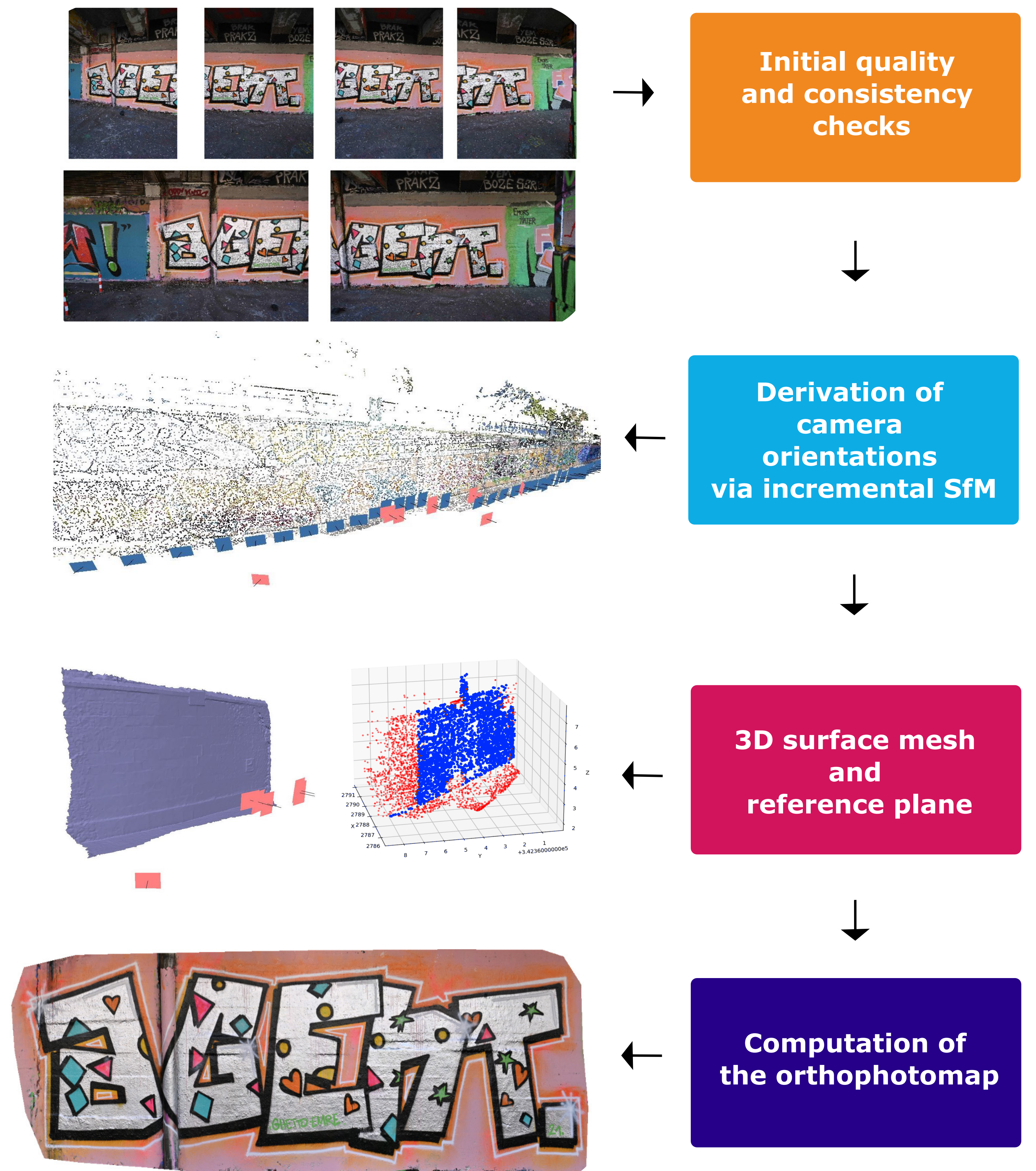
**Orthophotomaps** have the distortions removed, making them:

**Distortion-free  
High-resolution  
Georeferenced** } maps of graffiti



## 3 - INDIGO's AUTOGRAF tool

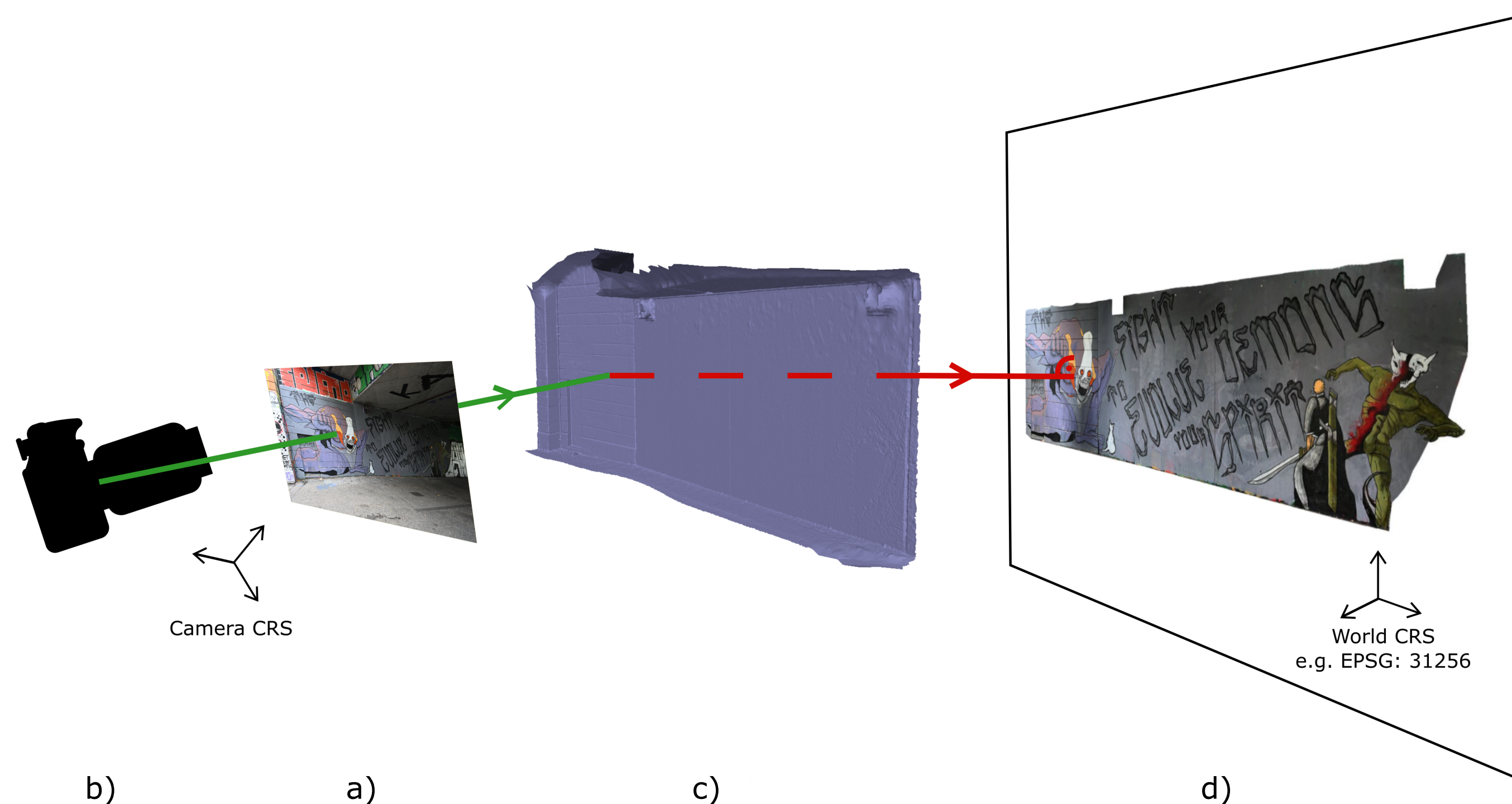
To **automatically** generate orthophotomaps from 1000s of photos, the open-source tool **AUTOGRAF** was developed within INDIGO [ *AUTomated Orthorectification of GRAffiti photos* ]



## 2 - How to make them?

**Four types of data** are required:

- (a) a set of **graffito-specific photographs**
- (b) the **camera orientations** (interior and exterior)
- (c) a **3D model** of the graffito-covered **surface**
- (d) a **reference plane** to project the orthophotomap on



## 4 - The 100-graffiti test

AUTOGRAF was tested on a sample dataset of **826 images** corresponding to **100 graffiti** along the Donaukanal

**97%** of the tested graffiti were successfully orthorectified

AUTOGRAF needed **<6min** to process one graffiti photo set

The average orthophotomap raster cell size is below **1mm**



[1] Benjamin W., Geert V., Stefan W., Martin W., Johannes O. S. and Norbert P.: Urban creativity meets engineering. Automated graffiti mapping along Vienna's Donaukanal. goINDIGO symposium 2022 proceedings, Urban Creativity, in preparation.  
 [2] Benjamin W., Geert V., Jona S., Stefan W., Martin W., Camillo R., Johannes O. S. and Norbert P.: AUTOGRAF - AUTomated Orthorectification of GRAffiti photos. Heritage, in preparation.