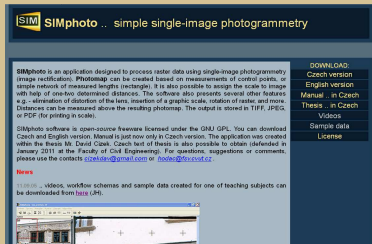


# SIMphoto - free software for single-image photogrammetry

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**Development of software SIMphoto** has been driven by efforts to create simple, functional, single-purpose tool for image processing by using of **single-image photogrammetry (SIP)**. Created tool should be exploitable by professionals from cooperating areas (e.g. cultural heritage, archeology ..). The authors' experiences show that the documentation of historical buildings and archaeological sites in a form of **photomap** arises often by "self-help". This way does not really meet the requirements and methods known in SIP. Software which are not intended to photogrammetric processing, are commonly used. Whatever is the reason for this situation, it is important that this fact often significantly affects the quality of produced documentation. **The aim of authors** is to help to create an exact documentation, as is viewed from the angle of photogrammetry.



SIMphoto - web pages

SIMphoto software was created as **free software** based on **open-source** approach. For users this means that its use is for free. Software is also open to the further development done by any candidate.

Software **functionality** can be divided into two main parts - image transformations and auxiliary functions.

Removing of effect of lens distortion on the basis of the parameters of lens determined in PhotoModeler software belongs to image transformation.

Transformations associated with removal of perspective distortion are core of software. Network of measured lengths or network of measured control points can be used as a reference frame. You can also assign exact scale through one or two measured lengths for frontal images.

Auxiliary functions include e.g.: possibility to measure distances over photomap, insert a graphic scale, create map layout and print to PDF format. Basic information about transformation and photomap are stored in form of protocol (transformation table ..).

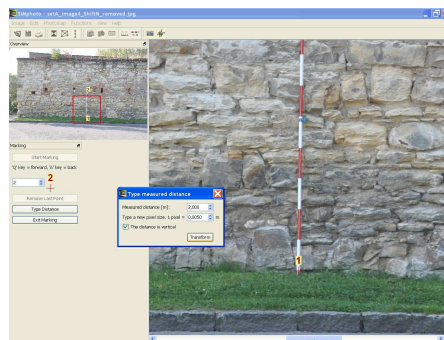
We believe that we created a tool that will help you and we look forward to your **feedback**.



Original distorted image

## Lens distortion removing

- lens parameters determination  
=> SW PhotoModeler  
.. calibration - special process
- image correction  
=> SW SIMphoto  
.. parameter settings + creation of corrected image



Frontal image - scale setting

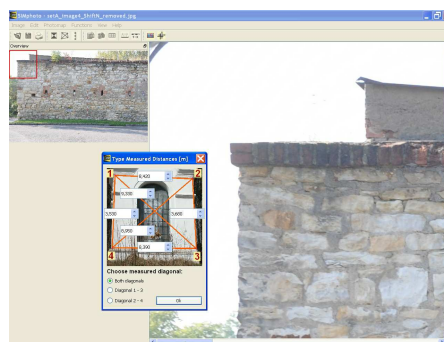
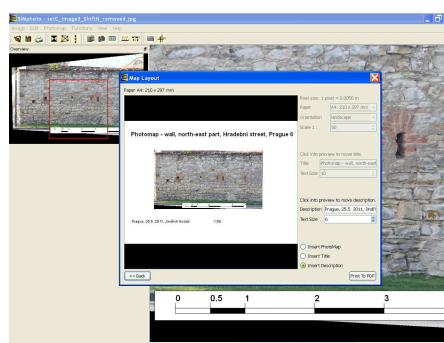


Image rectification by - network of lengths (left), network of control points (right)

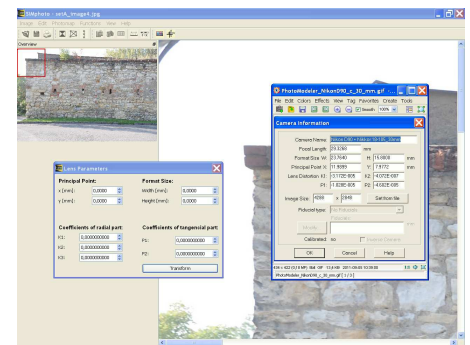


Print of photomap

## SIMphoto - photomap creation

### Input data

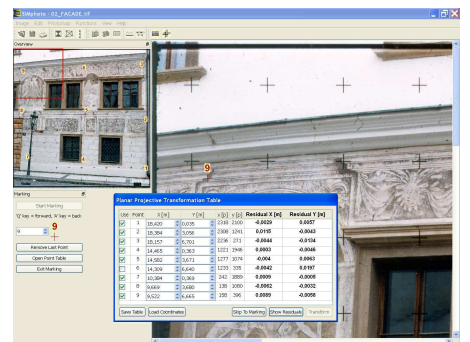
- image .. from „ordinary camera,,  
=> distorted due to:
  - lens quality = *lens distortion*
  - configuration = *perspective*
- measured values .. lengths, coordinates



Lens distortion removing

## Perspective distortion removing

- frontal case  
.. setting of exact scale by *known length* - stake, leveling rod, measured length ..
- general case  
.. rectification + scale setting by  
- network of lengths or control points



## Other functionality

- graphic scale setting
- map layout creation
- print directly to pdf format
- saving of outputs to jpg, tif formats
- measurements over photomap
- image rotation by defined line

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