METHOD AND DEVICE FOR CHARACTERIZING OPTICAL ABERRATIONS OF AN OPTICAL SYSTEM

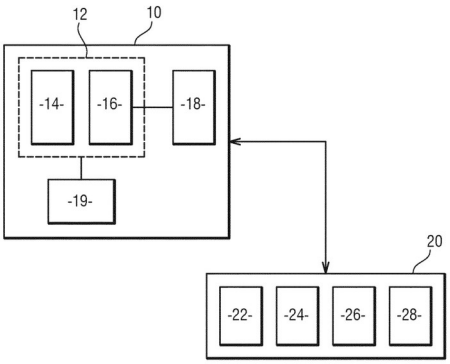
Technological advantages

- Evaluation of optical aberrations from 2 or more images,

- Can be applied to images with slight additional aberrations.

Invention synthesis

The invention relates to a characterization process of at least one optical aberration in an optical system.
Two images of the same area of the field of view are acquired with a differential aberration between the images. Each image acquisition has its own optical transfer function. An image convolutive model is applied using an optical transfer function depending on at least one aberration. At least one parameter characterizing at least one optical aberration is computed by minimizing a functional using a relative estimation method.



Logic diagram of the main steps

10) Image acquisition device
12) Optical system
14) Optics to acquire the image
16) sensors
18) digitizing module
19) focal plane offset module
20) processing device
22) image acquisition module
24) image processing module
26) computational module
28) module using the characterized optical aberration parameters

Potential applications

- Active optics,
- Space imagery,
- Pushbroom imaging devices,
- Imaging consumer devices (camera, ...)

Commercial benefits

- Method to compensate for optical defects,
- Applicable to common defects such as focusing issues,
- Reduction in the optical systems complexity.

Patented invention - under license.

For more information :

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