Single camera stereovision for 3D imaging and image processing

Technology #m04-062

Advanced photography techniques enable the construction of 3D images from 2D scenes through depth information. Existing techniques often require complex calibrations or have limited resolution at image edges. This technology is an easy-to-use single camera system with enhanced depth resolution.

Single camera with radial stereovision for depth resolution across entire field of view

Existing depth perception techniques use multi-camera systems that require complex and tedious calibration between cameras. This technology is a single camera system with internal lenses and mirrors to obtain the multiple viewpoints needed for stereovision, which uses various viewpoints to achieve depth perception of an image. This system is easy-to-use and doesn’t require the complex preparation required of multi-camera systems. Additionally, this technology utilizes a recently developed radial viewpoint system for effectively capturing depth resolution across the field of view. By maintaining a radial geometry between stereovision viewpoints, this single camera technology is able to obtain depth perception across an entire image scene, enabling highly resolved image edges. With this technology well-resolved 3D images can be constructed.

A prototype of the technology has been tested.

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Applications:

- 3D cameras
- Virtual reality simulations
- Depth perception software
- Stereophotography
Advantages:

- Simplified camera setup
- 3D perception across entire field of view
- Suitable for dynamic images

Patent Information:

Patent Issued (US 7,420,750)

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Related Publications:


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