

SPHEREPIX: A DATA STRUCTURE FOR SPHERICAL
IMAGE PROCESSING

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ABSTRACT

- The “spherepix” data structure for efficient implementation of low-level image processing operations on spherical images.
- Efficient implementation of low-level image processing depends heavily on separability of the convolution kernels that form the fundamental building blocks of most algorithms.
- Due to the curvature of the sphere, it is not possible to place an orthogonal grid pixelation globally on its surface, making direct application of classical separable kernel convolutions impossible



EXISTING SYSTEM

- Omnidirectional cameras are continuing to grow in importance in robotic and computer vision applications.
- Such cameras provide important peripheral vision capability to robotic vehicles moving in complex dynamic environments as well as improving the robustness of bundle adjustment methods in computer vision
- as wide-angle or fish-eye lenses, or curved mirrors to reflect light to the image sensor, such is the case of catadioptric cameras. The light signal is still captured on a planar silicon surface, resulting in heavy distortions in the output image.



PROPOSED SYSTEM

- The spherepix data structure we propose an alternative approach consisting of a collection of overlapping (near orthogonal) grid patches covering the sphere's surface. The boundaries of patches we introduce data interpolation between patch grids to ensure information flow between grid patches.
- Image processing subroutine, we reconcile data in the overlapping regions to homogenize the global data representation.
- The additional computational cost of data interpolation and data reconciliation is easily compensated by the computational saving and algorithmic simplicity.



HARDWARE REQUIRMENT

- Processor - Intel
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Monitor - SVGA

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SOFTWARE REQUIRMENT

- Tool - MATLAB R2012
- Operating system - Windows Xp, 7

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