



Unrolling Virtual Worlds for Immersive Experiences

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Abstract

This research proposes a novel method for conversion of 2D panoramas into 3D scenes using equirectangular projections, addressing the distortions in perception that occur as observers navigate within the encompassing sphere. Our approach employs a technique similar to "inpainting" to rectify distorted projections, enabling the smooth construction of locally coherent worlds. Examples of such worlds can be found on the project page https://altsoph.github.io/immersive_spaces.

Generating scene from projection

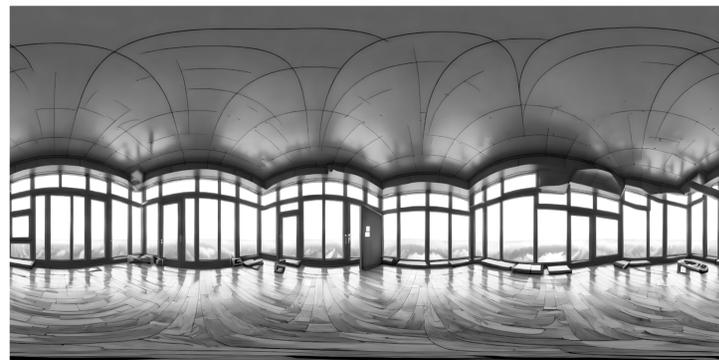


Fig 1. Initial panorama



Fig 2. Mapped on sphere

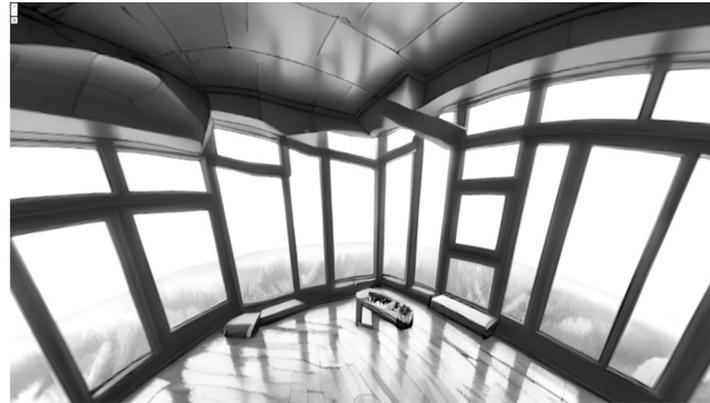


Fig 3. View from inside

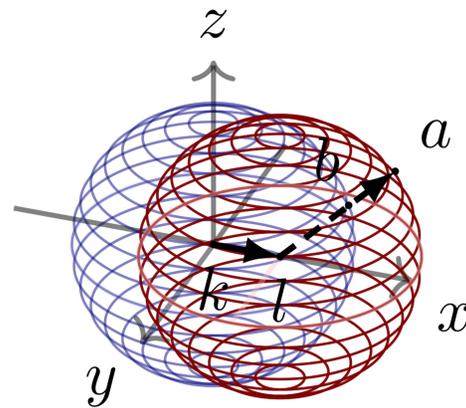


Fig 4. Shift to new position

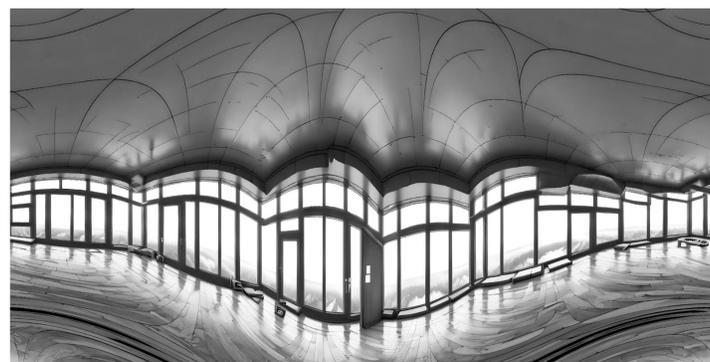
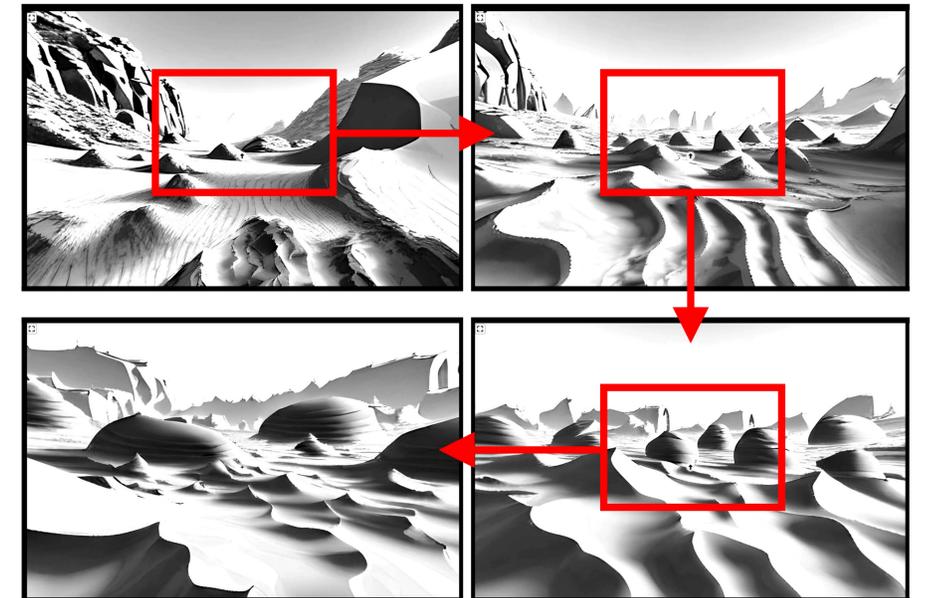


Fig 5. Distorted projection



Fig 6. Restored from distortion

Example of transition sequence



Sequence of scenes with forward movement between them. When combined, such scenes create an immersive experience of movement in the virtual world.