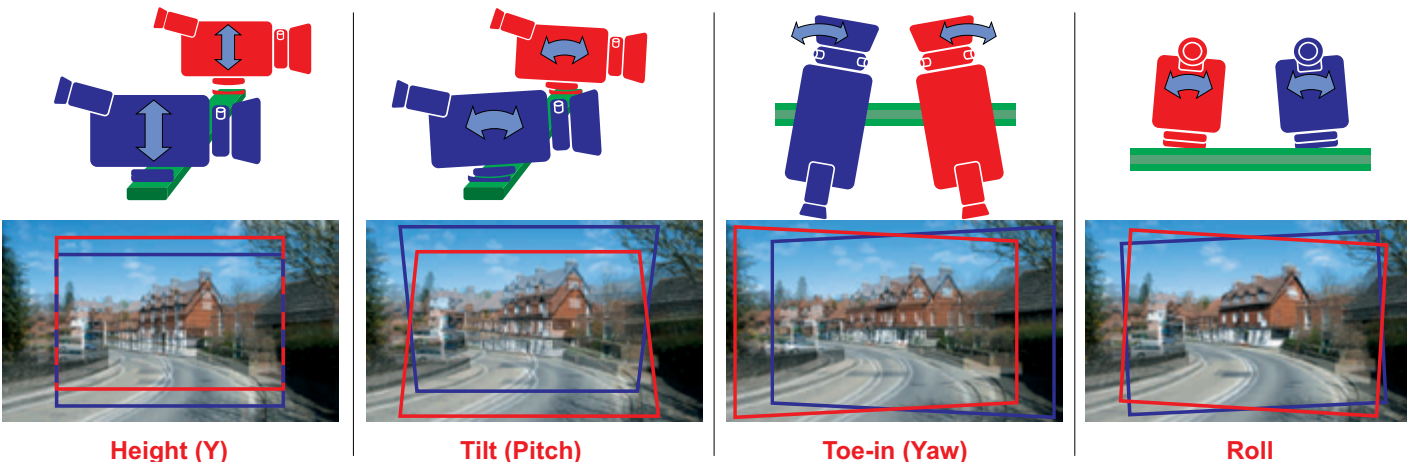


Camera rig errors

Camera rig misalignment

The most common errors when working with 3D are misalignment of the cameras in the camera rig. Both cameras must be set at the set at the appropriate inter-axial distance for the scene (See **Inter-axial Distances**). They must also be perfectly aligned with one another so that the two images can be mapped on top of one another on the display to provide a good 3D image.



Lens pairing errors

Another common error in 3D is lenses that are not properly matched or a lens pair that does not operate correctly as a pair. The same kind of lens should be used for both cameras in a 3D camera rig. For supreme quality the lenses should be selected and matched to have the same optical and mechanical characteristics.

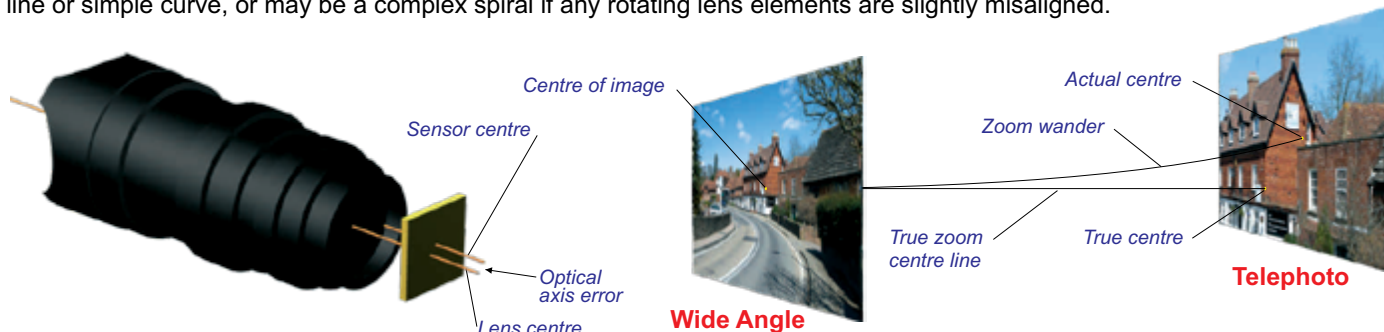
Common lens related errors include badly coupled zoom, focus and iris controls. Both lenses should track each other exactly through these three parameters, either by electrically coupling the lenses together, or by providing accurate remote control to both lenses at the same time.



Lens misalignments

The lens may be misaligned to the sensor in the camera, or may suffer from misalignment within its own mechanics. Any misalignment between the lens and the camera sensor shows up as an optical axis error. This can be corrected by remounting the lens to the camera, or electronically in post-production. It is better to perform this adjustment in the camera and lens as this maintains the best image quality. However this may be impossible and may need to be performed electronically.

Any misalignment in the camera lens mechanics may show up as **zoom wander** or **focus wander**. This is the small deviation in the optical axis as the lens is zoomed or focussed. This error is not normally a problem in single cameras, but may be significant in a 3D camera rig where the cameras need to be perfectly matched. Zoom and focus wander may be a straight line or simple curve, or may be a complex spiral if any rotating lens elements are slightly misaligned.



Camera characteristics mismatch

Ideally both cameras in a 3D camera rig should be the same type, possibly selected and matched. If the two cameras are different, they may have different video formats or resolutions. Their video processing characteristics may differ. Cameras should also be colour matched, and white balanced so that their colour and brightness characteristics are the same.