**Definition:** 3D Stereo Technology or Stereoscopic 3D (S3D)

3D stereo video or stereoscopic 3D (S3D) video technology is a technique that generates an illusion of depth in moving image form by displaying two offset images separately to the right and left eye of the observer. The two offset images are both seen as 2D to the viewer which are synthesized by the eye and brain as an image with stereoscopic depth; basically as one. Since the two images are merged by the mind into one image as well as accounting for the two images the result is a 3D picture.

There are different techniques used to create an illusionary 3D image with the use of lenses:

* Polarization 3D using active polarized lenses
* Polarization 3D using passive polarized lenses
* Anaglyphic 3D using passive red-cyan lenses or with chromatically opposite colors
* Alternate-frame sequencing using active shutter lenses and special radio receivers
* Head-mounted display (HMD) using a separate display optic positioned in front of one or both eyes, some increase resolution and field of view with multiple micro-displays

There are also different techniques used to create 3D images without using lenses. An autostereoscopic (Auto 3D) display adds 3D depth perception referred to as glasses-free or glasses-less3D.

**Explanation:**

Stereoscopic 3D (S3D) is a technology used for creating an optical 3D illusion of depth perception. It not only displays two offset images separately for both eyes to display images as supposedly 3D but it also creates a parallax. A parallax produces a lack of equality between a set of eyes and invariably causes a stereoscopic cue to the brain. Because each eye sees something different, parallax causes retina disparity. There are different levels of retinal disparity depending on the level of 3D technology used.

Some of the methods of Auto 3D (glasses-free) are:

Single-view displays with one stereo pair at a time

Multi-view using arrays from several cameras

Multi-view displays using head tracking or automultiscopic viewing

Stereoscopy that encapsulates stereo pairs in a two-view setup by splitting the image directly in the viewer’s eyes and using light-sources

Television (TV) sets can also produce a 3D affect. Most 3D TV’s are high-end and usually incorporate a USB player and recorder, USB Wi-Fi, Ethernet or Bluetooth. 3D-ready TV sets function in 3D mode as well as 2D mode. They are supplied with Liquid crystal display (LCD) shutter glasses that produce a stereoscopic image and a set-top box that connects to an exterior signal for content on a TV. There are also full 3D TV set such as the Panasonic full high-definition (HD) TV and the Toshiba liquid crystal display (LCD) 3D TV that is autostereoscopic (glass-free).

There are also human factors that help project 3D illusions such as:

Interactivity that dramatizes visual expression

Delusion of real-life urgency as a player-character in a game

A graphics processing unit (GPU) that creates graphic hardware acceleration

As well, music, sound and narrative affect the 3D stereo viewing experience.

**Sources:**

Wikipedia: <http://en.wikipedia.org/wiki/Stereoscopy>

wiseGEEK: <http://www.wisegeek.com/what-is-stereo-video.htm>

How Stuff Works: <http://science.howstuffworks.com/3-d-glasses2.htm>

How Stuff Works: <http://electronics.howstuffworks.com/3d-tv3.htm>

Samuel P. McMullen: <http://fergasonpatents.com/sm/SMPaperFinal.pdf>