INTRODUCTION

The art of three-dimensional imaging has been in constant evolution ever since Charles Wheatstone introduced the Stereoscope in 1833. Since then our understanding of the physiological and psychological mechanics of human perception has only expanded. The recent renaissance in 3D filmmaking has lead to the proliferation of new stereoscopic camera rigs along with production and post-production workflows, which are providing filmmakers with new levels of storytelling capabilities. High quality digital stereoscopic theatrical venues are now commonplace and almost every flat panel television sold is 3D capable.

The 3D feature film markets in the United States and Canada are significant. Viewer demand generated $10.2 billion in the 2011 feature film box office receipts, of which 18% was from 3D content.\(^1\) Theatrical screens totaled 42,390 in 2011, of which 13,695 (32%) were 3D capable.

ADOBE

In the professional video editing market, Adobe Premiere Pro is the market leader among non-linear editing systems with more than 3 million users worldwide.\(^2\) Adobe Premiere Pro has garnered this position because of its steadfast focus on meeting its user’s needs. The addition of timesaving features, such as the ability to work natively with RED, ARRI Alexa, Canon C300, and DSLR camera footage, has had an enormous impact on production efficiency. The enhanced Mercury Playback Engine continues to increase workflow speed and 64-bit compatibility provides Adobe Premiere Pro with a seamless operational future. This is all reinforced with Adobe Premiere Pro’s ability to integrate across the board with other Adobe products like After Effects®, Speedgrade™, and Photoshop®. With its sleek design and easy-to-use interface, Adobe Premiere Pro is trusted by many editors.

Now Vision III® (v3®) has added stereoscopic 3D editing to Adobe Premiere Pro’s litany of tools and effects.

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STEREOSCOPIC TOOLSET

Vision III recently teamed up with Adobe to become a 3D partner. v3 is a leader in parallax visualization technologies for military and entertainment applications. Over the years v3 has developed a series of critical alignment tools for parallax image processing. This wealth of knowledge and experience has now been applied to stereoscopic post-production with the introduction of the QuickS3D plug-in for Adobe Premiere Pro.

v3 has developed a cross-platform stereoscopic 3D plug-in toolset for Adobe Creative Suite 6 and future versions. The plug-in can import independent left and right stereoscopic three-dimensional (S3D) video channels and manage the demultiplexing of side-by-side or over-under formats. Precision tools are incorporated for adjusting left/right alignment, convergence, rotation, scale, skew, and keystone correction in source stereoscopic digital content. All parameters are updated live to the editing program window and external S3D displays. Edited S3D footage can be exported in a variety of rendered formats conforming to 3D industry standards.3

The plug-in contains a v3 Parallax display feature that provides users with a quick method to review stereoscopic source footage on any standard 2D display. This feature makes any issues and differences in the left/right source footage obvious, allowing a user to make immediate judgments about the footage and determine what corrections will be required. The function presents the left/right imagery alternately in a square-wave switching manner at 4.3 Hz. Alternating imagery in this manner is effective for reviewing in-camera convergence settings and determining what transformations are necessary to bring the imagery into an accurate alignment. The human eye is an excellent comparator when presented with alternating images. This method makes any stereoscopic imagery difference errors like luminance, zoom, rotation, focus, and others immediately apparent. These judgments can be difficult to make using the traditional 50/50 overlay (onionskin) or difference map methods.

The QuickS3D plug-in is the only 3D tool available in both Adobe Premiere Pro and After Effects and, so, is able to take advantage of Adobe Dynamic Link. Users save an enormous amount of time by linking their workflows in Adobe Premiere Pro and After Effects rather than having to render and export in order to share media. This seamless integration means that changes made in one application appear in the other, offering obvious benefits.

In a similar light, v3 has developed a pop-up parallax visualization toolset (PV Toolset) that communicates with the plug-in. The PV Toolset is designed to make precise alignments on still images grabbed from 3D video in the Adobe Premiere Pro timeline. Users can make corrections in real time while the two images alternate, like the v3 Parallax display type. The pop-up application allows for sub-pixel alignment and other features from the plug-in. The corrections are then reflected in the timeline and in the program monitor. This provides editors with a level of precision and control currently unavailable with any other workflow.

v3 has also produced a version with limited capabilities for Adobe Premiere Pro and After Effects, which is aimed at users with more moderate needs. QuickS3D Lite maintains the necessary functions for stereoscopic video editing. This version is designed for the amateur and prosumer markets that do not require as many features to meet their 3D needs. If more functionality is required, one can seamlessly upgrade to the full version.

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Mayhew C. A. et al., Critical alignment methods for stereoscopic production and post-production image registration, Proc. SPIE 8648, Stereoscopic Displays and Applications XXIV, 864811 (March 12, 2013); doi:10.1117/12.2005230
WORKFLOW

IMPORT

STEREO PAIRS

APPLY PLUG-IN TO LEFT CLIP

MUXED

APPLY PLUG-IN TO CLIP

FRAME OFFSET/FRAME SYNC

CORRECTIONS

ZOOM/SCALE

VERTICAL

HORIZONTAL

ROTATE

KEYSTONE

AUTO-CROP

AUTO-SCALE

AUTO-CENTER

SELECT 3D DISPLAY TYPE

EXPORT
Quick S3D Feature Set
CONTENT SOLUTIONS

It is projected that 191 million tablets will be sold worldwide in 2013, potentially surpassing PC sales. The introduction of new autostereoscopic 3D (AS3D) tablets will increase the demand for 3D content across the globe. The QuickS3D plug-in is the perfect tool to meet this demand. The plug-in is uniquely designed with a large array of tools for editors and stereographers to create content for all S3D mediums. Home users will be able to display their 3D content on their tablets as well as their televisions. This will present advertisers with a literal in-your-face advertising opportunity. All of this and more is fueled by the QuickS3D plug-in.


CONCLUSION

Creating professional quality 3D content quickly and easily is crucial in today’s competitive environment. There is an enormous 3D market on the horizon bringing new opportunities for all content producers. The Adobe workflow with the QuickS3D plug-in is the 3D solution. By bringing a 3D tool to the large and growing Adobe Community, users will have everything they need to create compelling, immersive content.

CONTACT

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