

Comparing Video Editing Tools

I. Introduction and Significance of the Topic

Digital video has increasingly become a critical technology in a wide range of activities in our everyday lives from creating home movie for special occasions to designing multimedia products. Along with the fast growing number of people who are engaged in producing digital video, different software manufacturers have developed and introduced various editing tools to their consumers' needs. Differences in the softwares reflect such diversity in the video production environment as systems available and degree of artistic completeness required of the movie producers. Comparing different tools will then be necessary to selecting appropriate tools in a specific condition.

This paper aims to present and discuss the differences in several digital video (DV) editing tools. Research was conducted on the market availability and the functional strengths of video editing softwares. Review articles of trade magazines and manufacturers home pages have provided resources of identifying what functions a specific tool is packaged with, i.e., pros and cons of the tool.

II. Video Editing Products: Beginner-Friendly or Professional producer-oriented?

The most addressed and recommended in the current magazines were Apple's iMovie 2.0.1, Final Cut Pro 2.0, Pinnacle Sytems Studio DV, and Adobe's Premiere 6.0. They appear to procure popularity with different points to appeal to many DV producers. I will

discuss iMovie and Studio DV which are known as beginner-friendly tools, and then the other two tools equipped with more professional functions within them.

1. iMovie 2.0.1

Apple's iMovie has often been addressed as the most powerful video editor for Mac users mostly due to two factors. It is extremely easy to use, thereby attracts amateur video editors, but still provides various functions to professionals who are engaged in a simple project. Also, iMovie has strength in its speedy creation of QuickTime videos. It combines an easy drag-and-drop interface with a standard Timeline editing window. A movie can be generated simply by dragging the elements of one's project, e.g., video clips, sound effects, special effects, titles etc., into the Timeline window. The completed video is then to be copied and saved as a QuickTime movie.

To elaborate its features, this version includes a great number of special effects. A video can be easily generated with more professional look through motion effects (slow/fast motion, reverse) and coloring (Sepia Tone, black and white). An audio track can be extracted and pasted on another clip. Text is more controllable on screen in terms of modifying its size and location. In addition to the various functions, production process is much more labor saving due to its capability to preview edited films at a full 30 frames per second through any types of monitor (e.g., camcorder). Therefore one can detect how his/her productions look on every editing phase. Printed manual is unnecessary since the help menus deal with any topics in a very comprehensive fashion.

The only drawback in using this software even for beginners should rest on recording an original video for iMovie. Although one can capture video from a file or download

video from the Net, s/he still needs a DV camcorder to record an original video for iMovie. For an older non-DV camcorder, an adapter interface should be available.

iMovie can be run on any FireWire-equipped iMac DV,

2. Studio DV

PC counterpart of iMovie is Studio DV manufactured by Pinnacle Systems. It is iMovie counterpart in terms of its beginner-friendliness and other provisions this software provides. This editor comes in package with video capture card, i.e., a 1394 FireWire PCI card, that directly connects a camcorder to the PC. It is therefore fast and easy to import a video from a recording device to a computer.

As a powerful editing tool, Studio DV can auto-detect and capture individual scenes within videotape. Editing process saves efforts with its Timeline interface, which resembles a musical score. Each media track (such as video tracks, soundtracks, and transitions) resides in its own separate layer. This layout shows the producer where media elements start and stop, so s/he can simply click and drag sounds and images. Another attractive tool is the SmartCapture tool. SmartCapture records video at a lower resolution, in order to save storage space during editing phase. (e.g., storing a video as 150MB instead of 13GB of disk space). Once the movie has been trimmed down to a manageable size, Studio DV automatically redigitizes the final video at full DV resolution. The movie then can be exported to QuickTime, or DV.

One of Studio DV's weakest points is its Timeline interface. This editing package offers only the basics, such as dissolves, where one image fades into the next. Special effects such as the one in which one clip seems to explode into another cannot be generated with this tool.

3. Final Cut Pro

In comparison with the first two rather beginner-friendly editors, Apple's Final Cut Pro 2.0 displays a number of capabilities required of a professional digital video production suite. A review (CNET.com commentary) states that it excels Premiere's Mac version, armed with rich functional features and powerful interface. This professional software-based video-editing program provides most comprehensive video creation tool when installed on a Power Macintosh G3 equipped with firewire and attached to a DV camera. It imports nearly all major, professional video formats, from the highest broadcast video standard to a full motion-picture-resolution image of up to 4000 by 4000 pixels. This feature contrasts with Premiere 6.0 which edits primarily DV footage.

One of the strengths of Final Cut Pro is its excellent interface design. Other than the Timeline window, two image windows dominate its interface. The Catalog window catalogs the original audio and video clips and provides tools to manipulate the clips before adding them to the timeline. Canvas window displays the actual project in process. The Browser window lists all audio and video clips which can be dragged to the Canvas window to add a clip. Also useful are the displays of available types of edits on Canvas. Dropping the video clip icon on an action completes the expected editing.

Another strength often addressed by a video producer who works on a large project is auto-detecting and capturing, compositing, effects, filters, and transitions in both audio and video. Final Cut Pro can deal with multiple tracks of media. For example, the program supports three-point editing, multi-track trimming, graphical ripple and roll, slip and slide trimming, keyboard editing, timeline editing, and match frame editing.

These features enable the producer to easily perform and refine an edit, so that the focus is on the timing and rhythm of the finished piece rather than on the process of performing the edit. Excellent compositing has often been pointed out as a professional-oriented feature of this editor. It is able to layer or composite video and animation, i.e., to integrate animation on top of your live action video. Unlimited compositing layers can be used, and each can be set in carefully controlled motion. With more than 75 built-in filters and over 60 pre-defined transitions, it allows the producer to mold the video very much the way one molds images in Photoshop. The special effects ranges from blurs, distortions, perspectives (3-D, curl, flop, mirror) to stylize (diffuse, emboss, posterize, solarize).

Despite these strengths, this software is not without a weak point. One of them is its incompatibility with Mac OS X. However, according to CNET market information, Apple plans to release an OS X version before the year 2001.

4. Premiere 6.0

Although Premiere can be available both in Mac and in PC, it is often referred to as a best video editing option for the PC (CNET review). Premiere version 6.0 has accomplished many professional features, compared with its earlier version which was a simple program designed to edit small QuickTime movies. As with other programs, its most favorable commentaries are made regarding highly customizable interface which makes its precise timeline editor and stunning special effects tools even easier to use. In order to accommodate beginners as well as experienced video producers, Premiere provides Total Training CD-ROM which is designed to familiarize the users with all features of the editor program. From setup process to setting templates, it helps save

hours of mistakes which its users can be faced with. Additional help is available through Adobe's tech support via the Web.

A few interface enhancements are noticeable in Version 6.0. The users can not only move, reshape, and resize its windows, but also save their customized interface as a preset, so as to call it up from the Windows pull-down menu every time they load the program. It's easy to capture DV footage in Premiere 6.0 with camcorder connected into the PC's 1394 FireWire port. Project window folders can store and organize the footage. Simply dragging it from the Bin into the Monitor window or onto a track on the timeline can add a video clip to project. In the upper part of this timeline, available are all the tools to move or replace clips.

The most strengths as a professional level editor reside in special effects that Premiere provides. Users are to have as much control over the appearance and duration of a movie with a variety of effects and transitions (such as blur, wipe, and dissolve), and its new keyframes feature, i.e., a visual marker that records and displays the state of a particular effect (e.g., amount of blur). Premiere is addressed as one of the best programs due to this keyframe feature. Timeline window containing two keyframes displays how much blur appears on each frame over the course of the effect, thus helping to detect how effects change your video frame by frame.

Another powerful feature added to version 6.0 is its expanded web integration function. One can export movies to a variety of Web video formats, including RealVideo and Windows Media Player.¹ Also one can embed simple commands into movie frames in order, for instance, to open a Web browser to a specific URL or to open a new movie

¹ Previous versions converted only to QuickTime or AVI movies.

from a Web site or a CD-ROM. This is useful, for example, for a training movie that launches a corporate Web site.

Almost unanimously stated weak point of Premiere is its video preview process. Dealing with multiple layers or any transitions between clips, one needs to render previews before viewing them. Adjusting the resolution of these previews may partially, if not completely, solve this problem.

Summary

The features of the four video editors discussed above can be summarized as the following in the table.

Video editor	IMovie	Studio DV	Final Cut Pro	Premiere
Attractive features	-speedy creation of QuickTime videos -beginner friendly - easy preview	- fast and easy video importing - auto-detecting and capturing -Timeline interface -SmartCapture tool	-excellent interface design -auto-detecting and capturing, compositing, effects, filters, and transitions in both audio and video	-highly customizable interface -Total Training CD-ROM - easy DV footage capturing -various special effects -expanded web integration function
Weak features	-DV camcorder is necessary to record an original video	lack of special effects and transitions	incompatibility with Mac OS X	Rendering process for previewing movies
Min operating system/processor type		Windows 98/Intel Pentium 233 MHz	Mac OS 9.1/PowerPC G3-300	Windows 98/Intel Pentium 300
Price range (approximately)	\$ 50 (downloadable version)	\$100	\$950	\$550

III. References Used

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IV. Related Links

<http://www.macworld.com>

<http://www.apple.com>

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