

Non-linear Editing Technology and Post-print of Television Program Production

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Abstract

Television editing constitutes a crucial phase in television program production and represents a significant determinant of program quality. With the advancement of science and technology, the utilization of computer and digital technologies in television editing has become increasingly pervasive, substantially enhancing production efficiency while reducing editing time. This non-linear editing technology offers substantial advantages over linear editing, and its powerful functionalities have led to widespread adoption within television production departments. This paper primarily investigates the concept, characteristics, and common methodologies of non-linear editing technology, along with its specific applications in television program production.

Full Text

Non-linear Editing Technology and Television Program Production

Abstract: Television editing constitutes a critical component of television program production and significantly influences program quality. With advances in science and technology, the integration of computer and digital technologies in television editing has become increasingly widespread, substantially enhancing production efficiency and reducing editing time. Compared to linear editing, non-linear editing offers considerable advantages, and its powerful editing capabilities have led to its extensive adoption by television production departments. This paper primarily explores the concept, characteristics, common techniques, and specific applications of non-linear editing technology in television program production.

Keywords: Non-linear editing technology; Program production; Application

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The application of computer and digital technologies in the television industry is primarily manifested in non-linear editing technology, which has become commonplace in contemporary television program production. Compared to linear editing, non-linear editing offers significant advantages, most notably its convenience, speed, and efficiency. By integrating computer technology into television program production and utilizing various editing software, editors can rapidly process video footage, incorporating backgrounds, special effects, and audio to create more vivid and dynamic content. Moreover, non-linear editing technology delivers high editing efficiency and realistic visuals while reducing both editing time and production costs. The emergence of non-linear editing technology represents a major breakthrough in program production and has effectively advanced the field of video editing.

1. Overview of Non-linear Editing Technology

Non-linear editing technology refers to the application of computer and digital technologies in the editing process, utilizing editing software to manipulate video files stored on computer hard drives or portable storage devices. In essence, the workflow involves several key stages: first, video signals from cameras are captured via a video capture card; these analog signals are then converted into digital format; the resulting data files are compressed and saved; editing is performed on a computer using specialized software to add backgrounds, audio, special effects, and other elements; finally, the completed video file is either converted back to analog signals or stored on a hard drive.

2. Advantages of Non-linear Editing Technology

Non-linear editing technology offers numerous advantages over its linear counterpart, which accounts for its widespread adoption. These benefits can be categorized into several key areas.

2.1 High Efficiency

Non-linear editing primarily utilizes storage media such as hard drives or optical discs for video processing. When using optical discs, for instance, video is stored in encoded form, enabling rapid data scanning by computers—a far simpler and more convenient method than traditional approaches. Conventional editing techniques require scanning magnetic heads on cameras to access video sequentially, whereas non-linear editing allows simultaneous access to multiple video files, significantly reducing read times and enhancing overall editing efficiency.

2.2 Enhanced Video Preservation

Long-term preservation of edited video has long been a concern. Traditional editing techniques relied on camera footage stored on magnetic tapes, which could not ensure permanent preservation. Non-linear editing technology addresses this issue by employing hard drives or optical discs for storage. Furthermore, since the read heads do not make physical contact with the storage medium during data retrieval, there is no degradation over time, enabling permanent preservation of video content.

2.3 Greater Editing Convenience

Non-linear editing provides substantially greater convenience in video editing compared to linear methods. By utilizing a timeline-based approach, this technology allows editors to rearrange, reorganize, and playback multiple stored video segments freely. Operations such as cutting, copying, inserting, and pasting can be performed at any point during the editing process, dramatically improving efficiency. Additionally, the application of editing software further simplifies these operations; for example, certain video editing programs enable direct video clipping, background insertion, and audio integration immediately after footage is imported, making the entire process highly convenient.

2.4 Improved Visual Realism

The integration of computer and digital technologies in non-linear editing not only accelerates the editing process but also enhances video quality. Digital technology allows for the reorganization of video data without affecting the original source material, thereby improving visual quality. For instance, editing software can adjust brightness, color, and other visual parameters to create more vivid, lifelike images that provide viewers with an immersive experience.

2.5 Reduced Production Costs

Non-linear editing technology effectively lowers video production costs by eliminating the need for consumable materials such as magnetic tapes or film. Instead, video capture cards convert video data into digital signals for computer storage, where editing software completes the post-production process. This approach requires only essential equipment—including cameras, computers, effects processors, and editing software—to accomplish video editing. The software's capabilities enable independent video production, reducing filming requirements and equipment wear, thereby generating significant cost savings.

Common Editing Techniques

3.1 Montage

The term “montage” finds broad application across various industries, fundamentally meaning assembly or combination. In film and television, it refers to

the combination of multiple shots. During video production, to convey rich narrative language or specific artistic concepts, multiple shots must be assembled according to certain principles to effectively communicate content and purpose to the audience. By employing montage techniques, video content can be divided into different scenes and shots, with superior footage selected for editing and recombination. This approach results in more dynamic video sequences that provide enhanced viewer enjoyment.

3.2 Transitions

Transition techniques encompass special effects transitions, hard cuts, and soft cuts. In non-linear editing for video production, hard cutting represents the most common method. Hard cuts primarily involve combining shots to create new visual compositions, requiring strict chronological and spatial sequencing with logical shot combinations that highlight key video elements while maintaining complete narrative coherence. Soft cuts utilize two-dimensional and three-dimensional technologies to transition between different segments, offering less independence than hard cuts but employing gentler methods for intercutting shots to create smoother, more natural transitions.

3.3 Graphics and Charts

In non-linear editing, graphics and charts serve to present television program content more clearly and intuitively. Common forms include portrait photographs, various icons, statistical diagrams, and location schematics. Flexible application of these visual elements adds interest to television programs, making them more vivid and engaging while stimulating audience atmosphere. Graphic representations possess strong emotional resonance, effectively capturing and influencing viewer sentiment.

3.4 Subtitles

Subtitles constitute a crucial element in video editing, facilitating audience comprehension of program content. Non-linear editing technology enables convenient subtitle editing, allowing rapid adjustment of subtitle positioning, style, and playback speed according to specific program content, shot types, scene requirements, motion patterns, and color schemes, thereby enhancing the viewing experience.

3.5 Audio

Audio represents another essential component in television program production, typically employed to complement visuals and create specific effects. Different audio types—such as somber, terrifying, dynamic, graceful, or cheerful sounds—evoke distinct emotional responses. Non-linear editing technology enables precise control over audio speed and effects selection, achieving perfect integration of sound and image to ensure overall video harmony.

Specific Applications in Television Production

4.1 Precise Positioning of Edit Points

Non-linear editing technology enables precise positioning of edit points in television program production. Unlike traditional methods that require sequential material review, non-linear systems offer greater flexibility, allowing editors to quickly locate specific frames and perform fast-forward, slow-motion, single-frame playback, and reverse playback. This precision facilitates more intuitive video clipping and enables accurate copying, cutting, and editing operations.

4.2 Slow Motion Effects

Slow motion is frequently employed in video editing to emphasize specific content by presenting it more clearly and comprehensively to audiences. Non-linear editing technology allows editors to create and configure slow motion effects without compromising video quality.

4.3 Multi-layer Composition

Multi-layer composition involves combining multiple video layers to highlight subjects or events from various perspectives. This process requires editors to collect and organize multiple video clips, performing cutting, connecting, and sequencing operations while adding audio, subtitles, and special effects to ensure final quality. While these operations are cumbersome and complex using traditional editing techniques, non-linear editing technology enables convenient and efficient cutting and splicing of multiple video layers.

4.4 Adding Subtitles and Effects

Subtitles and effects are indispensable elements in video production. Inserting images, subtitles, and special effects during playback not only enlivens program content but also facilitates audience understanding. Non-linear editing technology simplifies the addition of subtitles and effects in television production. Using editing software, producers can process television video subtitles and incorporate creative imagination to ensure subtitles and effects complement the visuals, providing audiences with an enhanced visual experience.

References

- [1] Jiang Yan. Application of Non-linear Editing Technology in Television Program Production[J]. Journal of Jilin Radio and Television University, 2014(10): 3-4.
- [2] Tan Shiyu. Application of Non-linear Editing Technology in Television Program Production[J]. West China Broadcasting TV, 2014(17): 165.
- [3] Wang Shenyang. Analysis of Non-linear Editing Technology Application in Television Program Production[J]. Electronics World, 2016(19): 86.

- [4] Huang Jing. Application of Non-linear Editing Technology in Television Program Production[J]. West China Broadcasting TV, 2016(03): 157.
- [5] Hui Jingli. Analysis of Non-linear Editing Technology Application in Television Program Production[J]. Public Communication of Science & Technology, 2014(24).
- [6] Xu Tao. Application of Non-linear Editing Technology in Television Program Production[J]. TV Guide, 2017(08).
- [7] Wang Lanying. Application of Non-linear Editing Technology in Television Program Production[J]. Electronic Technology & Software Engineering, 2017(17): 146.
- [8] Ma Yujuan. Exploration of Non-linear Editing Technology Application in Television Program Production[J]. Public Communication of Science & Technology, 2017, 9(02).

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