Scientific Journal of **Applied Social and Clinical Science**

ARTIFICIAL INTELLIGENCE REVOLUTION IN VIDEO EDITING

Isaque de Oliveira Teixeira
Bachelor's degree in Industrial Design with a specialization in Visual Programming from Universidade da Cidade (2006-2009). Technician in Video Tape Editing from Senac São Paulo (2011). Film Editing Pro (2017-2018).

Abstract: This article critically analyzes the impact of artificial intelligence (AI) on audiovisual post-production processes, with an emphasis on video editing. It addresses how machine learning algorithms and computer vision are transforming traditional workflows, automating technical tasks and influencing aesthetic decisions previously exclusive to human sensibility. The study maps the main AI tools available on the market, evaluating their functionalities and applicability in different contexts, from large studios to independent producers. It also discusses the ethical challenges arising from the adoption of these technologies. It concludes that AI is promoting a revolution in video editing, democratizing access to advanced resources and requiring professionals to adapt and retrain in order to preserve creative autonomy in the digital age.
Keywords: audiovisual post-production, video editing, artificial intelligence, machine learning, computer vision.

INTRODUCTION

The main aim of this article is to critically analyze the impact of artificial intelligence (AI) on audiovisual post-production processes, with a specific focus on video editing. It seeks to understand how machine learning and computer vision algorithms are transforming traditional workflows, automating technical steps and influencing aesthetic decisions previously reserved for the editor's human sensibility. In addition, it aims to map the main AI-based tools currently available on the market, evaluating their functionalities and practical applications in a variety of contexts - from large studios to independent producers. The study also aims to discuss the challenges and ethical implications of adopting these technologies. The relevance of this research lies in the moment of profound technological transition experienced by the audiovisual industry, in which AI not only optimizes

processes, but also redefines professional roles and raises questions about originality and cultural diversity in content production. With the accelerated advance of these technologies, it is essential to reflect on how professionals in the field can adapt, retrain and preserve their creative autonomy in the face of increasingly autonomous and predictive systems. The study thus contributes to the academic and professional debate on the direction of video editing in the age of artificial intelligence, proposing a critical, ethical and innovation-oriented approach.

Keywords: Audiovisual Post-Production, Video Editor, Artificial Intelligence, Learning Machine, Computer Vision.

ORIGINS OF VIDEO EDITING, EMERGENCE OF TECHNOLOGIES AND IMPACTS OF THE APPLICATION OF ARTIFICIAL INTELLIGENCE

Traditional video editing has its roots in early cinema, when filmmakers had to cut and join pieces of physical film, using scissors and glue to create the desired narrative. These manual cuts and the process of organizing the tapes were extremely laborious and time-consuming. For decades, video editing was a craft practice, with editors using large cutting tables and precise techniques to adjust the rhythm, fluidity and coherence of films.

Traditional video editing was a time-consuming but deeply creative process, where the editor had total control over every aspect of the film's editing and aesthetics. The technique evolved over the years, with the introduction of new tools and resources, but human intervention remained essential to the creative process.

With the evolution of film technologies came the first innovations in editing, such as magnetic video and, later, digital video. At the end of the 20th century, the introduction of

non-linear editing (NLE) systems profoundly transformed the field. Software such as Avid Media Composer, Adobe Premiere and Final Cut Pro (2011) began to offer editors the ability to work with digital files, creating a revolution in the way videos were manipulated. These systems allowed editors to cut, rearrange and apply effects with much more agility and precision than in the physical editing process.

However, despite the sophistication of digital editing programs, the task of editing video still required considerable human intervention. Many stages, such as color correction, audio synchronization and the application of transitions or special effects, required manual work that consumed a lot of time and energy on the part of the professionals. Although editing software was powerful, the creativity and technical judgment of the editor remained crucial to bringing the product to life.

The emergence of new technologies, especially artificial intelligence, however, has begun to challenge this paradigm, offering solutions that automate many of the repetitive tasks and, at the same time, expand the editor's creative possibilities with editing tools and software that have begun to incorporate machine learning algorithms and computer vision, allowing many of these manual tasks to be automated. Platforms such as Adobe Sensei (the AI and Machine Learning technology that drives Adobe's products) and Runway AI are clear examples of how AI can optimize video editing, identifying key elements in a sequence and suggesting cuts, transitions and visual effects based on learned aesthetic patterns. This not only speeds up the workflow, but also improves the accuracy and consistency of the results (PCVIDEO.RIO, 2025).

The application of AI in post-production allows for a more efficient approach, where the machine performs repetitive tasks, such as color correction or audio synchronization, while the human editor can focus on more creative aspects, such as storytelling and visual composition.

The impact of these technologies is not limited to large studio productions, but is beginning to spread to small production companies and independent creators. The democratization of these AI-based editing tools offers new opportunities for creating high-quality content, even without the need for large budgets or sophisticated equipment, "Now, anyone with a computer and access to AI tools can create professional videos with ease." (TEXUGOFILMES, 2025). In this way, AI in post-production not only reconfigures professional practices, but also shapes the future of the audiovisual industry, making it more accessible and innovative.

Inventors have long dreamed of creating machines that think. This desire dates back to at least Ancient Greece (Goodfellow et al., 2016). The application of Artificial Intelligence (AI) in video editing does not come about by chance, but is the result of decades of technological development in the fields of computer science, statistics, artificial cognition and data engineering. Among the pillars of this revolution are Machine Learning (a subfield of artificial intelligence dedicated to developing algorithms and techniques capable of learning from data and improving their performance over time without being explicitly programmed for each specific task) and Computer Vision, interdependent areas that provide machines with the ability to learn from data and interpret moving images, replacing or enhancing human work in audiovisual post-production, for example. This is a paradigm shift: instead of programming step by step what a machine should do, it is trained to recognize patterns and behaviors from massive examples, adjusting its internal parameters to make predictions or decisions without direct human intervention (Russell & Norvig, 2020). Historically, this area gained momentum in the 1980s with the advance of computing power and the exponential growth in the availability of digital data. In the context of video editing, ML allows:

Analysis of narrative and stylistic patterns: by studying thousands of videos with similar characteristics (for example, romantic comedies or hip-hop music videos), algorithms detect temporal structures, types of cuts, associated soundtracks and editing styles.

Automation of editorial decisions: algorithms learn to choose the best angles, the most efficient sequence of scenes, or the ideal transition rhythm based on audience engagement or previous success.

Assisting creativity: instead of suppressing originality, the systems act as editorial assistants, offering stylistic suggestions that the editor can adopt or reject, based on predictive models (Goodfellow et al., 2016).

In addition, there are three main categories of learning:

Supervised: the system is trained with labeled data, such as "exciting", "neutral" or "sad" scenes, which allows it to create predictive models based on features such as color, music and facial expressions.

Unsupervised: identifies patterns in unlabeled data, useful for discovering groups of similar scenes (clustering is an unsupervised machine learning technique used to group similar data into sets based on common characteristics), or moments outside the pattern.

Reinforcement: the system learns by trial and error, receiving "rewards" when it gets it right. In video editing, it can be used to learn which order of scenes best holds the audience's attention, adjusting automatically.

Computer Vision is the field of AI that studies how to make computers "see", i.e. extract meaning and useful information from images and videos. Based on convolutional neural networks (CNNs), computer vision has become capable of identifying and tracking human faces, objects, texts and even emotions in real time.

Therefore, mastering the concepts of machine learning and computer vision is not only a technical necessity, but also a critical requirement for audiovisual professionals to be able to participate consciously and ethically in the ongoing digital revolution.

Various AI algorithms are used in video editing, each with specific functions. Main algorithms and techniques used:

- Optical Flow: Technique used for smoothing movements and interpolating frames, ensuring more natural transitions.
- Generative Adversarial Networks (GANs): Applied to restore old videos and increase resolution, recreating lost details.
- Transformers for automatic subtitling: Models that analyze dialogues and generate precise subtitles, adjusting the text according to the emotional context of the scene.
- Deep Learning for super-resolution: Algorithms that improve the quality of low-resolution videos, enabling conversions to high-definition standards.
- Semantic segmentation: A technique that identifies objects and people in videos, facilitating editing such as removing backgrounds and applying visual effects.
- In addition to algorithms, some innovative techniques have been widely used in video editing with AI:
- Intelligent color correction: Automatic adjustment of light balance and contrast based on cinematic references.
- Intelligent audio correction: Algorithms adjust noise and equalize sound automatically.
- Automated cut editing: Software analyzes speech and expression patterns to suggest precise cuts.

- Visual effects generation: AI creates transitions and animations based on predefined styles.
- Generating videos from text: Platforms such as InVideo AI turn text descriptions into complete videos, allowing visual content to be created without the need for manual filming.
- Object recognition and tracking: enables effects such as automatic "blur" (an image smoothing technique used to reduce details or noise and highlight important elements) on faces, background replacement (even without chroma key), or the insertion of graphic elements that follow movement.
- Detection of facial expressions and micro-expressions: used to determine the most emotionally intense moments in a scene and suggest dramatic cuts or the application of tracks.
- Framing and composition analysis: systems can analyze the application of the rule of thirds, symmetry, lighting, depth of field, suggesting improvements to maintain cinematic aesthetics.

Image stabilization and quality improvement: using machine learning, AI tools can remove camera shake, improve the resolution of old images (upscaling with AI) and correct technical flaws in videos recorded with poor quality.

Tools such as RunwayML, Pictory, Descript, Lumen5, Wisecut and Magisto already make extensive use of these features and are being used by journalists, content producers, advertising agencies and independent filmmakers to create short, social media-optimized videos in a matter of minutes.

The integration of AI with editing software has been one of the main advances in audiovisual production. Tools such as Adobe Premiere Pro, DaVinci Resolve and Final Cut Pro incorporate AI algorithms to optimize editing processes.

In addition to traditional software, AI-based platforms such as RunwayML and Kaiber offer innovative solutions for video editing. These tools allow users with no technical experience to carry out advanced editing with a few clicks, facilitating access to audiovisual production.

In short, when ML (machine learning) and Computer Vision are integrated in video editing, a real revolution takes place: they operate in an integrated way, allowing AI tools to understand audiovisual contexts (computer vision), learn from previous data (machine learning), make autonomous decisions or suggest editorial options.

MAIN AI-BASED EDITING TOOLS

A number of AI tools have been developed in recent years with the aim of making life easier for professional and amateur editors, offering everything from basic automation to complex solutions such as image reconstruction, voice synthesis and remote collaboration. Below are some of the main platforms in this scenario.

ADOBE SENSEI: AUTOMATION AND SMART SUGGESTIONS

Adobe Sensei is Adobe Inc.'s artificial intelligence and machine learning engine, integrated into products such as Adobe Firefly, After Effects, Photoshop, etc. This technology is designed to turn data into creative decisions, providing real-time analysis that helps users automate repetitive tasks and improve the visual and narrative quality of audiovisual projects involving various company products.

The main features offered by Adobe Sensei include:

- **Auto Reframe**: allows videos to be automatically resized for multiple platforms (such as Instagram, YouTube or TikTok), keeping the main subject of the image centralized, through facial recognition and motion analysis.

- **Scene Edit Detection**: analyzes previously edited video files and identifies the cut points, automatically dividing the content into clips, which is extremely useful in post-production workflows that involve re-editing old material.
- **Color Match and Lumetri AI**: suggest color corrections and adjustments based on reference scenes, maintaining aesthetic consistency and cinematic tonality across different scenes.
- **Speech-to-Text (S2T)**: automatically recognizes speech in videos and generates time-synchronized subtitles, enabling more efficient accessibility and indexing for search engines.

In addition to these features, Adobe is investing heavily in **generative AI** through the **Firefly** project, launched in 2023, which makes it possible to generate images, videos and graphic elements from text commands (text-to-image and text-to-video), expanding the horizons of audiovisual creation (Adobe, 2023).

RUNWAY AI: VISUAL EFFECTS AND REAL-TIME COLLABORATION

Runway AI is one of the most innovative and accessible tools on the AI content creation market. Launched in 2018, Runway was designed with a focus on integration between creators and technology, providing a browser-based interface with features that would traditionally require in-depth technical knowledge in software such as After Effects or Nuke. The platform's main features include:

- **Green Screen (background removal)** with one click, without the need for a physical chroma key.
- **Video Inpainting**: allows you to delete unwanted objects or people from a video and fill them in based on the surrounding context.
- **Automatic motion** tracking: automatically follows moving objects and applies effects to them.
- **Real-time video stylization**, using templates trained in specific artistic or cinematographic styles.
- **Text-to-Video with Gen-2**: the new model launched by Runway allows short video clips to be generated from natural language descriptions, with visually impressive results.

Another distinguishing feature of the tool is its cloud-based collaborative environment, which enables simultaneous editing by multiple users, making it ideal for remote teams. Runway is now widely used in marketing campaigns, social media videos and even independent film productions.

"The future of video creation lies in making creative flows accessible to anyone, anywhere" (RUNWAY, 2024).

OTHER RELEVANT PLATFORMS (DESCRIPT, TOPAZ VIDEO ENHANCE AI, SYNTHESIA, CAPCUT, VEO3)

In addition to giants like Adobe and Runway, several specialized tools offer powerful solutions in specific areas of video editing with AI support.

Descript revolutionizes video editing by allowing users to edit content verbatim: simply delete a word from the transcript and it will be removed from the corresponding video. Key features include:

- Non-linear editing via text.
- Automatic transcription of audio and video with high precision.
- Overdub: voice cloning based on audio samples.
- Removal of noises, silences and language vices ("hmm", "ééé", etc).

Topaz Video Enhance AI: A platform for restoring and improving video quality. With a focus on **upscaling**, its neural network models are trained to increase the resolution of old or low-quality videos, recovering details and smoothing out compression artifacts.

- Support for 4K and 8K with stunning clarity.
- Reduction of noise and grain in old videos.
- Smooth motion restoration (frame interpolation).

Synthesia: AI-based tool that allows you to create videos with realistic synthetic avatars from typed text. Widely used in e-learning, marketing and corporate training.

- Realistic human avatars with lip sync.
- Automatic translation into multiple languages.
- Video generation without the need for a camera, microphone or technical team.

This section demonstrates how AI-based tools not only optimize the video editing workflow, but also expand the creative and narrative possibilities. The professional of the future will not be replaced by the machine, but empowered by it - with more time to focus on aesthetics, storytelling and innovation.

Capcut: a free video editing app developed by ByteDance, with versions for mobile, desktop and web. It is ideal for content creators looking for practicality and professional results quickly. Main functions:

- **Video cutting and editing** - allows you to easily trim, split, merge and resize clips;
- **Filters and visual effects** - offers dozens of filters, transition effects and stylized animations;
- **Automatic subtitles** - generates subtitles from the audio, with support for several languages;
- **AI background removal** - removes the background from the video without the need for chroma key;
- **Text-to-speech (automatic voice)** - transforms typed texts into narrations with human voices.

Veo3: Launched in May 2025, the tool allows you to create videos with realistic speaking characters, ambient sound, based on verbal language or images. Searching on social media, you'll find several videos made with this tool that portray biblical and historical figures in different situations, offering one of the best qualities of the category. However, there are no free versions available, except for students. The main features include

- **Native audio generation**: includes lines, sound effects and ambient noise, all perfectly synchronized with the image;
- **Realistic lip sync**: move the character's lips as they speak;
- **Multimodal input**: prompt in text, image or reference video;
- **Visual and narrative consistency**: maintains style and characters between shots, with good interpretation of prompts.

IMPACTS OF AUTOMATION ON THE AUDIOVISUAL WORKFLOW

One of the most immediate and tangible impacts of automation on the audiovisual workflow is the drastic reduction in time spent on repetitive and monotonous tasks. Processes that used to consume hours, or even days, of intensive manual labor can now be completed in fractions of that time, allowing teams to focus on more complex and creative aspects of the project.

A devaluation of human labor? No. The automation of repetitive tasks does not imply the obsolescence of professional editors, but rather a fundamental reconfiguration of their role. Historically, the editor was a performer

of tasks that required not only an aesthetic sense, but also considerable technical dexterity and patience to carry out manual and repetitive operations. With the rise of automation, the editor is moving from a predominantly executional role to a position of creative supervisor and strategist.

- **Curation and Selection:** With automated tools that can pre-select takes, identify the best moments or even generate rough "first cuts", the editor can focus on curating the material, choosing the best performances, the most impactful angles and the sequences that best tell the story.
- **Narrative Decision Making:** The energy released from mechanical tasks is reinvested in building the narrative. The editor has more time to experiment with different rhythms, structures, transitions and dramatic arcs. Automation serves as an intelligent assistant that prepares the ground, allowing the editor to delve into the nuances of editing.
- **Aesthetic Refinement:** With automation handling the initial correction, the editor or colorist can devote themselves to more expressive *color grading*, sound design, audio mixing and other elements that raise the aesthetic quality and immersion of the audience.
- **Workflow Management:** The editor takes a more proactive role in managing the entire pipeline, ensuring that automated tools are configured correctly and that data flows efficiently between the different stages of the project.
- **Enhanced Collaboration:** With more time available, the editor can engage more deeply with directors, producers and other members of the creative team, exploring ideas and iterating on edits more effectively.

This transition to a creative supervisor role requires a new set of skills from the editor. It is no longer enough to be a software operator; one must have an in-depth understanding of the capabilities of AI tools, know how to "train" or configure them for the best results and, crucially, keep a critical eye to discern when automation fails or when human intuition is indispensable. The editor becomes a "maestro" of automation, orchestrating technologies to achieve an artistic vision.

Given these advantages, examples of application are not uncommon:

In a recording of an interview, the system can recognize the natural pauses in speech, identifying when the interviewee expresses strong emotions and automatically selecting the most engaging passages to form a video summary with automatically generated subtitles. This type of process reduces hours of manual work and makes editing accessible even to people without technical training in audiovisual.

Netflix already uses machine learning systems to generate personalized trailers based on each user's browsing data (Gomez-Uribe & Hunt, 2015), automatically editing the most compelling excerpts according to individual preference history.

In January 2024**, NBCUniversal** launched One Platform Total Audience technology. This platform uses AI and advanced automation to redefine audience-based advertising, seeking to optimize the reach and effectiveness of campaigns across multiple media, including linear TV and streaming. Initial tests have shown a 25% increase in brand engagement rates, outperforming traditional demographic targeting methods, which reinforces the potential of AI to generate more engagement and efficiency in advertising.

Young content creators on TikTok and YouTube: They use **Topaz Video Enhance AI** to restore videos recorded in poor quali-

ty or enhance archive material. The software is powered by neural networks trained on millions of video samples and can even add intermediate frames to simulate fluidity.

Runway AI in independent short films: The AI was used in edits for rotoscoping, applying style effects (such as turning the scene into an oil painting), and adjusting lighting. In productions such as the short film *The Safe Zone* (2023), written and directed by AI, without compromising the artistic expressiveness of the project.

CHALLENGES AND LIMITATIONS OF ADOPTING AI IN VIDEO EDITING IN BRAZIL

Access to hardware and infrastructure in Brazil is unequal, despite being one of the world's largest economies. This disparity manifests itself not only in the availability of internet connection, but also in the ownership or access to suitable devices (computers, state-of-the-art *smartphones*) and the quality of network infrastructure, directly impacting the country's socio-economic development and digital inclusion. Inequality manifests itself in various ways, encompassing geographical, socio-economic and educational factors. Rural regions and peripheral urban areas often suffer from a lack of broadband coverage or the provision of low-quality services at prohibitive costs, in contrast to the dense infrastructure available in large urban centers.

Socio-economic disparity is a critical factor, as low-income people are less able to afford computers, *smartphones* and internet packages that guarantee robust and continuous access, and many have never even used a computer. Data from the ICT Households and Businesses survey by the Regional Center for Studies for the Development of the Information Society (Cetic, 2024) consistently shows a significant gap in internet access and use between different social classes and educational levels. This gap widens when we consider more specific hardware, such as cutting-edge equipment for video editing or graphic *design*, which are crucial for entering job markets such as the audiovisual industry. Lack of access to these resources not only perpetuates the digital divide, but also limits opportunities for distance education, professional qualification and access to public and private services, reinforcing a cycle of inequality. Overcoming this challenge requires continued investment in infrastructure, public policies for digital inclusion and programs for subsidized access to hardware and connectivity for the most vulnerable populations.

Although the use of post-production resources brings undeniable benefits, the risks of homogenization and loss of creative innovation are a concern. If all videos are generated based on similar data, there is a risk of losing aesthetic and creative diversity (PEREIRA, 2023).

PROSPECTS FOR THE BRAZILIAN AND GLOBAL MARKET

The rapid evolution of automation and Artificial Intelligence (AI) technologies is shaping a new horizon for the audiovisual market, both in Brazil and globally. The transformations are not limited to the optimization of internal processes, but reverberate in the competitive structure of the sector, in the accessibility of production and in the reconfiguration of demands for professional skills. This emerging scenario suggests a future in which efficiency and creativity are enhanced by the synergy between humans and machines, but which also imposes significant adaptation and training challenges. The dichotomy between the opportunities generated by technology and the inequalities of access, particularly evident in the Brazilian context, defines the complexities and potential of this new ecosystem.

Globally, the search for scalability, personalization of content and cost reduction is driving the adoption of automated solutions. The ability to generate multiple versions of the same content for different platforms and audiences, or to speed up the post-production of massive volumes of material, becomes a competitive differentiator. In Brazil, the scenario is marked by the resilience and innovation of producers operating in an environment of sometimes precarious infrastructure and unequal access to technological resources. Automation, in this context, can either deepen the existing gaps, if access to technology remains restricted, or become a vector for democratization, if digital inclusion and training policies are effective. The outlook is therefore a mixture of optimism about the productive potential and caution about the need to ensure an equitable transition.

One of the most promising impacts of automation in the audiovisual sector is the increase in competitiveness for independent studios and small producers. Historically, high-quality audiovisual production required substantial investments in equipment, expensive software licenses and large teams of specialized professionals. This created a high barrier to entry, favoring large production companies with greater capital and infrastructure. With automation, this panorama is starting to change significantly.

AI-based tools such as Topaz Video AI for video restoration and enhancement, or platforms such as Descript for automated editing and transcription, are examples of technologies that democratize access to capabilities that were once exclusive to large budgets. These tools allow studios with fewer resources to achieve visual and sound quality standards that were previously unattainable without astronomical investment.

This reduction in costs and time allows independent studios to be more agile, experiment more and release content more frequently. They can explore niche markets, produce highly personalized content and compete on digital platforms where production speed and relevance are crucial. Automation enables them to scale their production without necessarily scaling their team in the same proportion, making them more efficient and profitable. This fosters innovation and diversity of narratives, as more voices and production styles can emerge in the market. For the Brazilian context, where many independent producers operate on tight budgets, this increased competitiveness is a transformative factor, allowing local talent to reach a wider audience with high-quality productions, overcoming some infrastructure and capital limitations.

Automation and AI not only level the playing field for independent studios, but also drive an unprecedented democratization of audiovisual production. The power to create video content professionally is becoming accessible to a much wider audience, which goes beyond traditional film and television professionals. This democratization is driven by the intuitive interface of many AI tools, which simplify complex processes, and by the drastic reduction in the costs and time required for production.

Individuals, small businesses, educators and even amateurs can now produce high-quality videos without the need for large crews or in-depth technical knowledge at every stage of the process, eliminating the need for expensive locations, complex camera and microphone equipment, and even hiring actors, significantly lowering the barrier to entry for professional video creation.

The proliferation of platforms such as TikTok and YouTube is testimony to this democratization, where content creators with limi-

ted resources can reach millions of viewers. Automation, in this context, serves as a "superpower" that allows these creators to improve the quality of their productions, optimize workflows and experiment with innovative formats more easily. The result is a more diverse content ecosystem where creativity and originality can flourish, regardless of access to large budgets or professional studios. This democratization has profound implications for education (with the creation of more engaging teaching materials), for the marketing of small and medium-sized businesses, and for freedom of expression and the dissemination of information itself, although it also brings with it challenges related to the quality of information and ethics in content creation (West & Allen, 2020).

Despite the obvious benefits of automation and the democratization of production, the transformation of the audiovisual market requires an urgent and continuous need for professional training and adaptation. The idea that AI will completely replace professionals is simplistic; reality points to a redefinition of roles and valued skills. The automation of repetitive tasks does not eliminate the need for human intervention, but requires professionals to upgrade their skill set to more strategic, creative and supervisory roles (Davenport & Kirby, 2016).

Editors, for example, will not be obsolete, but will need to transition from "executors" to "creative supervisors", as discussed above. This implies mastering not only traditional tools, but also AI platforms, understanding their limits, knowing how to "dialog" with them (via *prompt engineering*, for example) and how to integrate them effectively into the workflow. Skills such as critical thinking to assess the quality and authenticity of AI-generated content, the ability to manage projects using automation, and adaptability to new technologies will be crucial.

The demand for specialists in "machine learning for audiovisuals", "prompt engineers", "AI designers for storytelling" and "audience data analysts" based on AI will start to grow. Educational institutions and professional training programs have a vital role to play in providing this training, updating curricula to include modules on AI, workflow automation, AI ethics and new digital tools. In Brazil, where unequal access to quality education and technology is already a challenge, ensuring that this training reaches all sections of the population is key to preventing the digital divide from deepening. Continuous professional adaptation will be the key for audiovisual workers to thrive in this new environment, transforming automation from a potential threat into a powerful ally for innovation and growth.

ETHICAL CONSIDERATIONS AND FUTURE TRENDS

The integration of artificial intelligence (AI) into video editing not only redefines technical processes, but also imposes a critical reflection on its ethical implications and charts future innovations. This section addresses the main emerging ethical issues, the evolution of human-machine interaction and projections for the future of AI-driven video editing.

The growing sophistication of AI in generating and manipulating audiovisual content raises complex ethical questions, especially regarding intellectual property and the definition of authorship. When an AI contributes significantly or even autonomously generates a video cut, who owns the copyright? The use of vast datasets, often containing protected works, to train AI models raises debates about originality, algorithmic plagiarism and fair compensation for the original creators. In addition, liability for AI-generated content that may be defamatory, misleading (such as deepfakes), especially in journalistic, political

or educational contexts, or that perpetuates biases present in the training data, requires in-depth reflection on regulatory frameworks (CAMPOS, 2025) and the need for transparency in automated creation processes. Discussing the attribution of responsibility and the creation of ethical guidelines for the development and use of these tools therefore becomes imperative in order to guarantee a fair and reliable creative ecosystem.

The interaction between human editors and AI systems is constantly evolving, moving towards an increasingly synergistic collaboration. The user interfaces (UI) and user experiences (UX) of video editing tools are being redesigned to incorporate AI functionalities in an intuitive way, transcending the simple automation of repetitive tasks. A transition to co-creation models is expected, where AI acts as an intelligent assistant, offering contextual suggestions, real-time optimizations and creative insights based on the analysis of large volumes of visual and narrative data. Natural language-based interfaces, improved gestural controls and adaptive feedback systems promise to make the technology more accessible and allow editors to focus on more strategic and subjective aspects of audiovisual storytelling, enhancing human creativity rather than replacing it.

The future of video editing with AI is projected to be marked by even deeper automation and advanced generative capabilities, radically transforming workflows and creative possibilities. We foresee the advance of systems capable of carrying out the complete editing of short videos from textual scripts (text-to-video), the automatic generation of multiple versions of the same content adapted for different platforms and target audiences, and the creation of complex visual and sound effects on demand. AI could facilitate predictive analysis of viewer engagement, helping in editorial decision-making. In addition, tools are expected to emerge that allow semantic editing, where changes are made based on the meaning and context of the content, and not just on technical parameters.

CONCLUSION

Artificial Intelligence (AI) has established itself as a transformative force in audiovisual post-production, fundamentally redefining the landscape of video editing. This study sought to critically analyze the impacts of this technology, from the automation of technical processes to the reconfiguration of professional roles and the ethical implications arising from its widespread adoption.

Historically, video editing has evolved from an artisanal, manual process to the sophistication of non-linear editing (NLE) systems. However, the real revolution is manifesting itself with the integration of Machine Learning (ML) and Computer Vision. As detailed, algorithms such as GANs, Transformers, Deep Learning and Semantic Segmentation, along with innovative techniques such as intelligent color correction and automatic background removal, optimize workflow. Tools such as Adobe Sensei, Runway AI, Descript, Topaz Video Enhance AI and Synthesia exemplify how AI not only speeds up, but expands creative possibilities, enabling the generation of videos from text, voice cloning and the creation of synthetic avatars, democratizing audiovisual production beyond the big studios.

Automation, rather than devaluing human labor, has reconfigured the role of the video editor. This professional transitions from a performer of repetitive tasks to a creative supervisor and strategist, dedicating themselves to curation, narrative decision-making, aesthetic refinement and workflow management. Application examples, such as Netflix's personalization of trailers and NBCUniversal's optimized campaigns, demonstrate the effectiveness of AI in generating engagement and efficiency.

However, the adoption of AI in Brazil faces significant challenges, notably unequal access to hardware and infrastructure. Socio-economic and geographical disparity prevents a significant portion of the population from having access to cutting-edge technologies, accentuating the digital divide. In addition, the rapid spread of AI-generated videos raises concerns about homogenization and the potential loss of aesthetic and creative diversity.

Despite these challenges, the outlook for the audiovisual market, both in Brazil and globally, is promising. AI and automation increase the competitiveness of independent studios and small producers, who can now access tools that previously required large investments, democratizing the production of high-quality content. This fosters a more diverse ecosystem where creativity can flourish regardless of budget.

In short, the AI revolution in video editing is not a question of substitution, but of synergy between human and artificial intelligence. The future of video editing lies in the ability of professionals to adapt, retrain and use AI as a tool to enhance their creativity, navigate ethical challenges and ensure that technological innovation promotes more accessible, diverse and high-quality audiovisual production.

REFERENCES:

ADOBE. What is non-linear editing? 2024. Disponível em: www.adobe.com/creativecloud/video/hub/ideas/what-is-non-linear-editing.html. Acesso em 02/06/2025.

ADOBE. Adobe Sensei e IA generativa: criatividade com inteligência artificial. Disponível em: www.adobe.com/br/sensei/generative-ai.html.

Acesso em 02/06/2025.

RUNWAY. Runway – Creative tools powered by artificial intelligence. Disponível em: runwayml.com/. Acesso em 02/06/2025.

PCVIDEO.RIO. Inteligência Artificial no Audiovisual: Revolução Criativa e Tecnológica. 2025. Disponível em: pcvideo.rio/o-futuro-da-inteligencia-artificial-como-a-ia-esta-transformando-o-mundo. Acesso em 03/06/2025.

TEXUGOFILMES. O impacto da inteligência artificial na edição de vídeo. 2025. Disponível em: www.texugofilmes.com/post/o-impacto-da-inteligencia-artificial-na-edicao-de-video. Acesso em 02/06/2025.

GOODFELLOW, Ian; BENGIO, Yoshua; COURVILLE, Aaron. Deep Learning. MIT Press, 2016. https://www.deeplearningbook.org. Acesso em 03/06/2025.

CHEN, Michael. O que é machine learning? 25 nov. 2024. Disponível em: www.oracle.com/br/artificial-intelligence/machine-learning/what-is-machine-learning. Acesso em: 02/06/2025.

RUSSELL, Stuart J.; NORVIG, Peter. Artificial Intelligence: A Modern Approach. 4. ed. Pearson, 2020.

INVIDEO. Gerador de vídeo com IA. Disponível em: https://invideo.io/pt/criar/ai-video-generator/. Acesso em 03/06/2025.

REBELO, Miguel. Best AI video generators. 2025. Disponível em: https://zapier.com/blog/best-ai-video-generator/. Acesso em 04/06/2025.

GUIMARÃES, Lucas. Saiba como criar vídeos gerados por IA com o Veo 3 do Google. CNN Brasil, 2024. Disponível em: https://www.cnnbrasil.com.br/tecnologia/saiba-como-criar-videos-gerados-por-ia-com-o-veo-3-do-google/. Acesso em: 19/06/2025.

GOMEZ-URIBE, Carlos A.; HUNT, Neil. The Netflix Recommender System: Algorithms, Business Value, and Innovation. ACM Transactions on Management Information Systems (TMIS), v. 6, n. 4, 2015. Disponível em: https://ailab-ua.github.io/courses/resources/netflix_recommender_system_tmis_2015.pdf. Acesso em 03/06/2025.

AI EXPERT NETWORK. Case Study: NBCUniversal – AI-driven audience engagement. [s.d.]. Disponível em: https://aiexpert.network/case-study-nbcuniversal-ai-driven-audience-engagement/. Acesso em 04/06/2025.

THE SAFE ZONE. The Safe Zone – Official film website. [s.d.]. Disponível em: https://thesafezonefilm.com/. Acesso em: 04/06/2025.

BRASIL. Comitê Gestor da Internet no Brasil – CGI.br. Pesquisa TIC Domicílios 2024: tabela B1 – indivíduos que utilizaram a Internet nos últimos três meses, por localização urbana/rural, idade e sexo. São Paulo: Cetic.br, 2024. Disponível em: https://www.cetic.br/pt/tics/domicilios/2024/individuos/B1/. Acesso em: 04/06/2025.

PEREIRA, Henrique da Silva. A enunciação imagética em tecnologias de inteligência artificial: algoritmos e produção de sentido. 2023. 145 f. Tese (Doutorado em Comunicação) – Faculdade de Arquitetura, Artes, Comunicação e Design, Universidade Estadual Paulista (UNESP), Bauru, 24 mar. 2023. Disponível em: https://repositorio.unesp.br/server/api/core/bitstreams/dc2f348d-24af-45ca-8f1c-56cd77a78482/content. Acesso em 02/06/2025.

WEST, Darrell M.; ALLEN, John R. How artificial intelligence is changing the world. Washington, DC: Brookings Institution, 2020. Disponível em: https://www.brookings.edu/articles/how-artificial-intelligence-is-transforming-the-world/. Acesso em: 04/06/2025.

Davenport, T. H., & Kirby, J. (2016). Only Humans Need Apply: Winners and Losers in the Age of Smart Machines. HarperBusiness.

CAMPOS, Thainá Loise Grangeiro. **Direito, novas tecnologias e o Big Data: desafios éticos na utilização da inteligência artificial**. Revista FT. Disponível em: https://revistaft.com.br/direito-novas-tecnologias-e-o-big-data-desafios-eticos-na-utilizacao-da-inteligencia-artificial/. Acesso em: 04/06/2025.