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Using AI services to create short videos from historical sports photos

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Background

Many organisations involved in sports—such as clubs, associations, federations, and media outlets—maintain extensive photo archives documenting key sporting moments. These repositories often serve as valuable historical records, capturing iconic events, athletes, teams and milestones. However, these organisations typically possess fewer historical videos, as video cameras were significantly less accessible than still cameras, especially during the first half of the 20th century. This disparity is particularly noticeable in smaller cities or less-developed countries, where videographic archives are much scarcer than photographic collections. As a result, the historical record of many sporting events remains limited to still images, with fewer motion-based representations.

To address this limitation, this manuscript details and assesses our approach to transforming historical black-and-white sports photos into short videos. This process aims to breathe new life into still images by reconstructing dynamic motion, offering a more immersive way to experience the past.

Methods

The process of creating short videos from black-and-white sports photos involves two major steps:

1. **Colourisation:** The first step is to colourise the historical photo, bringing additional context and realism to the image. This is achieved using advanced AI-driven web services, such as Grok and Nano Banana, which analyse the grayscale image and apply colour based on a prompt, learned patterns and contextual understanding. In some cases, the coloured photo was edited to retouch some details.
2. **Video Creation:** Once the photo has been colourised, the next step is to create a short video. This involves animating the still image by generating motion sequences or interpolating frames to simulate movement, resulting in a video that offers a dynamic representation of the original moment. Again, AI services, like Gemini, PixVerse, and Pippit, play a crucial role in this step, enabling the smooth generation of fluid motion from a single still image.

These two steps depend essentially on the provided photo and on a prompt (i.e., a short text) that indicates to the AI service the aim of the user in creating the video. By combining these techniques, new way to preserve/experience the past and to create new realistic contents is available.

Results

To evaluate our method, we created short videos from historical photographs of Sporting Clube de Braga, a sports club officially inaugurated in 1921 in Braga, Portugal [1, 2]. We selected photos of particular significance in the club history and applied the two-step process to generate around 50 short videos (around 6 to 8 seconds). This procedure was repeated for every photograph until a result was obtained that was both sufficiently realistic and aligned with the intended objectives. The best video segments (39 in total) were used to create a 7-minute video (https://youtu.be/M7ovKEfAt3U) with moments of the history of SC Braga.

During this experiment, we encountered the following seven major challenges.

1. **Prompt issues** – Working with historical photographs requires precise control over visual details, making prompt accuracy essential. A frequent issue was the AI ignoring user prompts.
2. **Ethical limits** – Some photographs include minors, such as children of players or young spectators. AI services often block these images due to strict safety policies, preventing enhancement or video generation.
3. **Cultural bias** – The generated videos often reflect English-speaking contexts. Architectural styles, signage, and other details may look out of place for the intended audience.
4. **Colour errors** – Uniforms and other materials, like flags, are essential for authenticity. AI often miscolours them, e.g., rendering Liverpool FC's red kit as green or blue, which feels inaccurate or disrespectful.
5. **Face distortion** – Athletes' facial features are important for recognition. AI often alters them, producing depictions that no longer resemble the real individuals.
6. **Speed errors** – Video speed can be unrealistic. For instance, football players sometimes move too fast or too slow compared with real match play.
7. **Physics flaws** – AI videos may show impossible things, like a one-wheeled bicycle, distorted bodies, or a ball moving backward. The AI doesn't understand football rules or physics, causing "hallucinations," such as defenders hugging strikers who just scored.

Beyond the technical limitations and visual inaccuracies that still characterise AI-generated videos, the main issue with the use of artificially created content for, in this case, historical reconstruction, lies in the fact that it lacks a human perspective. Historical reconstruction, while it should strive to be generally unbiased and objective, should be done with understanding of the context of the period or event in question, which the AI is currently incapable of. The technical flaws and errors in the video can, in time, be fixed with more advanced and powerful AI models, but the human input which characterises all artistic medium cannot be replicated artificially.

While unsuited as a final product, AI-generated content can be a useful tool for human creators in conceptualisation and technical support. The AI can quickly generate drafts of segments or the final project or help with the repetitive aspects of media creation. This way it can help facilitate the creative process but leaving the meaningful decisions to the human artist.

Conclusion

Automated pipelines are currently insufficient for high-fidelity historical reconstruction. As observed during our experiences, generative AI models frequently introduce anachronistic details or failed to correct specific features solely through text prompts. For instance, the AI often struggled to accurately reproduce the correct acronyms on the SC Braga kits or misinterpreted architectural details of the stadium stands. To mitigate this, we were compelled to adopt a hybrid workflow. This involved exporting the AI-generated photos, performing manual corrections using external image editing software to fix logos, kit colours, and structural elements, and then feed these corrected images into the video generation model. This confirms that while AI can handle the heavy lifting of animation, human intervention remains mandatory to ensure semantic and historical accuracy.

Despite these limitations, the technology proves highly effective for "atmospheric" preservation. While it may not yet be reliable for reconstructing a specific goal scored in 1921 due to physics and semantic errors, it excels at revitalizing static portraits and crowd scenes. This capacity to "breathe life" into archival footage offers museums and clubs a powerful tool for engagement, provided that the content is curated to avoid misleading historical representations.

Keywords: Sports, Artificial Intelligence, Photos, Videos

References

Fernandes JM and Machado JB; A fundação do Sporting Clube de Braga, Bracara Augusta LXVIII(126-127/139-140):503-538, May/2021.

Fernandes JM; A história do Sporting Clube de Braga, Contraponto, Lisboa, Portugal, 2021.