ARIA
APPLIED RESEARCH IN ACTION

Automatic Gameplay Highlight Reel Generation Using Multimodal Learning

Detect and merge interesting events in first person shooting games using multimodal video transformer model to generate highlight clips

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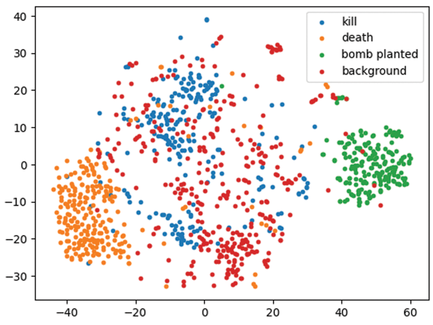

	X-CLIP	VideoMAE
CS:GO	95.2 %	85.2 %
Valorant	95.7 %	84.9 %

Event detection accuracy using X-CLP and VideoMAE models in popular first-person shooting games such as CS:GO and Valorant

PROJECT SUMMARY

In this work, we enable gamers to share their gaming experience on social media by automatically generating eye-catching highlight reels from their gameplay session. Gaming is a fast-growing segment of entertainment, particularly around E-sports and Twitch. Our automation will save time for gamers while increasing audience engagement. We approach the highlight generation problem by first identifying intervals in the video where interesting events occur and then concatenate them. We develop an in-house gameplay event detection dataset containing interesting events annotated by humans using VIA video annotator [1] [2]. We finetune a general-purpose video understanding model such as X-CLIP [3] using our dataset. Prompt engineering was performed to improve the classification performance of this multimodal model. Our evaluation shows that such a fine-tuned model can detect interesting events in first person shooting games from unseen gameplay footage with more than 90% accuracy. We also fine-tuned a video encoder model such as VideoMAE [4]. However, only the final classification layer could be finetuned while keeping the encoder weights frozen. This was done to prevent overfitting due to the small size of our dataset. To conclude, we show that natural language supervision leads to data efficient video recognition models.

REFERENCES

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