AI Enhanced Learning: Powering Curated Videos with Generative Intelligence

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Abstract -

Instructional videos are becoming increasingly popular among computer science students, with over 78% using YouTube to supplement textbooks and classroom instruction. As finding the right video online is difficult for novice students, surveys indicate that 73% of students prefer instructors curate a supplemental video library for them to use to enhance learning. Video creation can be hard, but generative AI is now revolutionizing this process by allowing instructors to create slides, scripts, and high-quality videos with interactive activities all using AI.

Generative AI also takes the student video learning to a new level by providing AI-generated video summaries, on-demand questions, and exploration of topics in greater depth. Integrating AI into standard videos greatly expands the possibilities of video-based learning. This paper demonstrates how educators can enhance their existing video playlists by incorporating AI to increase student engagement and establish safety measures for AI use in education.

Drawing on insights from computer science courses taught at Princeton and Rutgers Universities, we will highlight the transformative potential of AI-enhanced videos in promoting active learning, particularly in large classes. We will discuss engagement strategies and real-time data visualizations applicable to any video platform. We will utilize the cubits.ai platform, a Princeton University initiative that enables the curation of ordinary videos into a highly interactive video book. The platform is free, and participants are encouraged to bring their own video playlists to curate them into AI-enabled collections by enhancing the student experience through integrated generative AI.

Requirements - A laptop is needed to access the cubits platform.

Keywords: Instructional videos; customized videos; video summarization; AI generated content; contextualized generative AI; data-driven insights; cost-effective videos;