VideoAI : Realizing the Potential of Media Analytics

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ABSTRACT

In this work, we describe a unique system and solution, VideoAI, that allows Comcast to rapidly create Artificial Intelligence (AI) and Machine Learning (ML) based media analytics experiences. The unprecedented growth of Artificial Intelligence, Machine Learning and Deep Learning (DL) has enabled a new level of insight into video content from detecting faces objects to understanding sentiment and emotions. However, many of the solutions today are highly customized to the desired solution and do not easily scale when applied to other solutions.

At Comcast we realized that to fully harness the power of latest in Media Analytics techniques – from content creation to consumption – requires a bottoms-up approach. Rather than highly customized solutions, we have developed a growing suite of AI ML capabilities that can be rapidly reused, reproposed, and deployed into a unified solution we call VideoAI. This can be used to quickly develop new Media Analytics powered solution across our media ecosystem.

VideoAI analyzes live/linear streams and files to generate temporal metadata that describes moment by moment what is happening in the video. It scans video, audio, and closed captions, along with other signals to generate time indexes enriched tags describing what is happening in the video. Using this approach, we are able to create solutions that change the way we do Dynamic Ad Insertion (DAI), enable binge watching, automatic chaptering, metadata enhancement, and much more. Leveraging the power of this framework, the machine learning algorithms have processed millions of hours of content that have improved the accuracy and robustness of the detectors and ensemble approaches.

In the proposed presentation we will describe in greater detail the algorithmic and systematic approach used to harness the power of AI/ML/DL in a reconfigurable and reusable way. The technical benefit of this approach results in minimized training cycles, more efficient use of compute cycles, and algorithmic improvements across use cases. We will also describe a set of applications enabled by VideoAI that includes linear and VOD Segmentation, and metadata enrichment for advertisement.

CCS CONCEPTS

• **Information systems → Multimedia streaming**.

KEYWORDS

video streaming, Artificial Intelligence

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