

COGNITIVE VIDEO SERVICES FRAMEWORK

Accurate | Automated | Scalable

AIVA

AI Based Video Analytics

Unlocking new revenue streams using AI

Operators are shifting focus & also eyeing business opportunities in areas like Smart Home Services, Security & Surveillance Services, Smart Infrastructure Service, etc.

Buying Trends survey shows a massive boost in AI and machine learning adoption in the broadcast and media industry, with 68% of organizations stating they are likely or very likely to deploy AI in the next 2-3 years.¹ Applications for Digital Asset Management (DAM) is estimated to reach \$8.1 billion by the end of 2024.

The arrival of thinking machines

Artificial Intelligence offers exciting cognitive video applications for broadcasters and operators, such as automatic cataloguing of metadata, video search results personalized for action, genre, highlights, timing, characters, etc. , facial recognition, object detection, audio effects detection, speech to text, analysis of the sentiment of images, transcription, and automatic translation.

Conquering challenges to unlock potential

Unlike conventional automation processes(which are mostly rule-based) AI algorithms can analyze a massive amount of data, mine patterns, correlate data from various sources and can generate intelligent insights.

However, effective indexing and metadata tagging require advanced search techniques, that aim to discover media content snippets. Traditionally quality checks, subtitle and closed caption creation are done manually. AI has the potential to automate these using techniques like Anomaly detection and Natural Language Understanding (NLU). Further, AI can enhance customer experience by analyzing viewing patterns, social media footprint, demographic details of local communities that result in increased click-throughs and also for dynamic insertion of highly relevant advertisements.

Deep Learning algorithms should be fine-tuned using appropriate cost functions and hyper-parameter tuning. Combination of algorithms like CNN, RNN/LSTM, NLP/NLU should be optimized as per the application use cases to obtain optimum accuracy and efficiency.



Broadcast Use Cases

Highlights generation, immersive and targeted advertising, Closed Caption creation for the hearing-impaired audience, Interactive Gaming Analytics, Content performance (interest, emotion, attentiveness, demography)

Success Stories



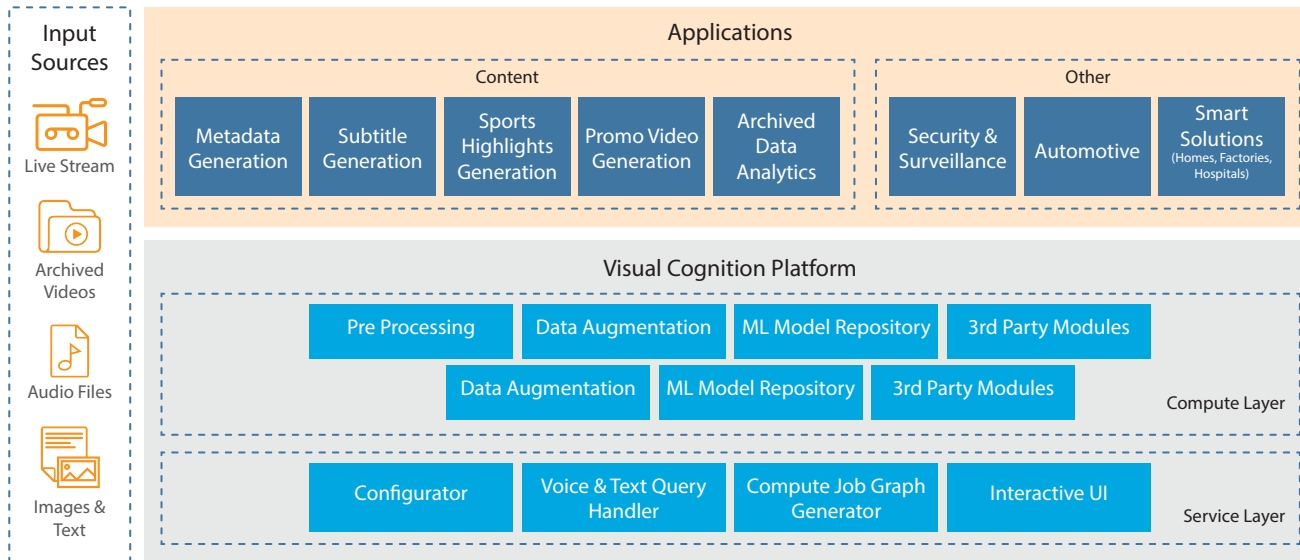
Reduction in the time taken to generate Sports Match Highlights



Automation of Highlights & Violence Detection workflow is 80% more effective compared to manual process

COGNITIVE VIDEO

Service Framework



Core Features

- Image tagging
- Hierarchical object detection
- Named entity recognition such as
 - Action detection
 - Scene recognition
 - Face recognition
- Emotion Recognition
- Strong Language
- Explicit content & Violence detection
- Automatic highlights generation for sports
- Talk show Magic Moments creation

Service Features

- Generic data repository
- AI model repository for different applications
- Speech & text-based query engine
- Compatible across platforms
- Cloud
- Application Software

- *No dependency on training data collection*
- *Generic data repository*
- *Customized inference packages*
- *Requirement specific expert systems*
- *Flexible architecture*
- *Ability to compute at edge*
- *Self-evaluating, continuous learning system*
- *NLP/NLU/Context awareness*

The Analytics Challenge

- Millions of hours of video data need tagging for easy Search and Insights generation
- The conventional metadata generation process is manual and extremely slow
- Most of the available tools are not customizable for specific requirements and have a minimal use case support

Machine Vision along with neural networks like CNN, RNN help in understanding visual content and generates useful metadata such as objects, actions, descriptions, face recognition & scenes

Natural language processing (NLP)/ Natural Language Understanding (NLU) methods are used to analyze audio and textual data and automate workflows.

Anomaly detection systems can track hundreds of parameters simultaneously and analyze any abnormal trending of individual parameters.