INTRODUCING ARUMAI'S A.I. FOR OTT – Making Media & Entertainment Twice as Fun

INTRODUCTION

Media & Entertainment has been identified as one of the industries that will realize the benefits from AI right away. So as the technology accelerates, Arumai's Strategic Leadership Team (SLT) thought it would be helpful to review a number of exciting ways AI will impact our industry: from the minimization of buffering on any WiFi network and delivery of an exceptional video experience with conveniences.

WHAT IS ARTIFICIAL INTELLIGENCE?

A branch of computer science dealing with the simulation of intelligent human behavior in computers. Basic examples include voice-powered assistants, automated customer, support, fraud protection, suggestive searching and personalized entertainment, among many other things. Wherever a choice needs to be made, AI is the provider.

Expert System

An expert system is a computer program that simulates the judgment and behavior of a human or an organization that has expert knowledge and experience in a particular field. Typically, such a system contains a knowledge base containing accumulated experience and a set of rules for applying the knowledge base to each particular situation that is described to the program. Sophisticated expert systems can be enhanced with additions to the knowledge base or to the set of rules.

Knowledge Base

A knowledge base which encompasses what is presently known about the network, is normally given a starting point of data. The knowledge base includes the network's intended operations and what is known of having it operate other than as intended, or less optimally. For instance, Arumai's buffering minimization, adaptive ad insertion, video search in a software platform, peer to peer system, and deep network DRM that function to defensively support its proprietary Streaming Video Protocol, Transcoding and Streaming System for Media Companies, and Multiscreen OTT Platform with Social Media Layers for OEMs are all powered by AI and patents are pending where the inception was in 2015.

Neural Network Algorithms

A computer system, modeled on the human brain and nervous system, that contains a number of connected processing units that analyze information and pass weighted results to lead to a final output. Pattern recognition is a good example: a program can determine the artist of a particular

painting by running it through a neural network of indicators. Each "neuron" evaluates the image using its uniquely programmed "knowledge" and provides information that leads to a final output.

Genetic Algorithms

Genetic programming is a model of programming in which programs compete to survive or cross-breed with other programs to continually select the most effective programs that approach closer to the desired result. Genetic programming is appropriate for problems with a large number of fluctuating variables such as those related to artificial intelligence.

BACKGROUND

Many believe that AI is a new technology, but it has actually been around for decades. AI is considered to have been "born" at the Dartmouth Conference in 1956, where it was given its name and formal designation as a topic of study by the scientific community.

Over the years, AI has evolved to become widely adopted throughout the technology industry. This has mostly happened behind the scenes, where deep learning and neural networking have had a big hand in processing big data and automating many useful programs. These days however, AI is really starting to take off as its capabilities are being applied to many of our everyday activities. Arumai believes its October 2016 disclosures to Google Ventures which subsequently formed an AI department made the rest of the industry take notice and they followed in suit.

From personal assistants like Amazon's Alexa, to the personalization of media and entertainment, AI has the very real and exciting potential to impact our daily lives. A leading indicator of this adoption is the amount of spending being funneled into AI. Forecasted by International Data Corporation (IDC) to be approximately $13 billion this year, AI spending will grow by more than 3x to a projected $46 billion in 2020.

AI IN MEDIA & ENTERTAINMENT

Turning the discussion to how AI is changing the media and entertainment industry. AI relies on data to be effective. And considering the very large amounts of data surrounding our very human need to consume media, AI is poised to make a big impact in this field.

One Foundation: Buffering

More content on more devices is certainly a positive development, but online streaming is not perfect. The main drawback tends to be overloaded WiFi networks and channels that lead to video that does not load, content that plays slowly and media that constantly lags. Significant is the lagging problem, commonly referred to as "buffering" to those skilled in the art.

If the network is fast enough to keep up with the playback, buffering is not necessary. However, this is not the case over the Internet where packets can traverse numerous routers from source to destination, and delays can be introduced at any juncture. To counter this, Arumai makes use of

the Shannon-Hartley Law – a measurement of noise on the network -- where the maximum date transfer rate of the transmission channel can be determined by its bandwidth.

In this context, when the wanted signal is not significantly higher than the background noise, AI will direct the protocol to flick to the next lowest encoding quality to compensate, re-encode, and minimize interruption (buffering) powered by use of the aforementioned Expert System, Knowledge Base, Neural Network Algorithms, and Genetic Algorithms. This is as far as we can disclose until the patent application is published and assigned a U.S. Patent Application No. Blame the America Invents Act of 2011, not us. The same holds true for Arumai's video search, adaptive ad insertion, selecting peer to peer networks on Arumai's Multiscreen OTT Platform with Social Media Layers for OEMs, and it Deep Network DRM solutions that hands off to PlayReady.

Applied Insights

So, if you are making business decisions based on performance metrics and key data insights, then you are on the right track. But what if you did not need to make those decisions? What if they were made for you? Imagine asking an AI program what type of content to produce next? Which syndication partners to expand on? Which platforms to focus on or which talent is providing the best ROI? What if you could ask a computer these questions and get the answers immediately and with a data-based explanation to back it up?

To be clear, decisions like these will always require human participation, as there are nuances AI will not always grasp. But AI this powerful will certainly make it much easier!

CONCLUSION

The benefits of artificial intelligence are exciting, to say the very least. The promise of increased efficiencies and streamlined workflows can sound like fantasy at times. Yet they are quite real.

Certainly, a shift to such a hugely impactful technology has its downsides as well. The increased infringement on our privacy, the complacency that can come with having a computer make many of our decisions for us, and just the general transfer of control to intelligent programs can be a little scary to consider.

But all that said, it is pretty clear that AI will improve just about every single way we produce and consume media and entertainment for decades to come. In certain respects, AI is still very much in its nascent stage but it's picking up steam as the technologies and human resources that support it become more advanced each day.

ARUMAI TECHNOLOGIES, INC.

Arumai is the only leading, independent, pure play OTT products and solutions company in the industry today. Arumai's grounding breaking video frame manipulation techniques, proprietary streaming systems and methods, and OTT Video Suite of products make any video content universally enjoyable in high quality on any screen, by any viewer, across any network, at any

time enabling a pure play OTT products and solutions company. Arumai-TranStream™ individually and when combined with Arumai-Multiscreen OTT Platform with Social Media Layers for OEMs™ is prepared to deliver millions of content streams to mobile phones/handhelds, tablets/laptops/PCs, Blu-ray Players, Game Consoles, and Smart TVs, and in every market in the world on behalf of content owners, mobile service providers, cable companies, satellite companies, telecom operators, streaming video providers – OTT products and solutions.