# Presentation on Final Project of Artificial Intelligence (CSCI-6660-01-S20)
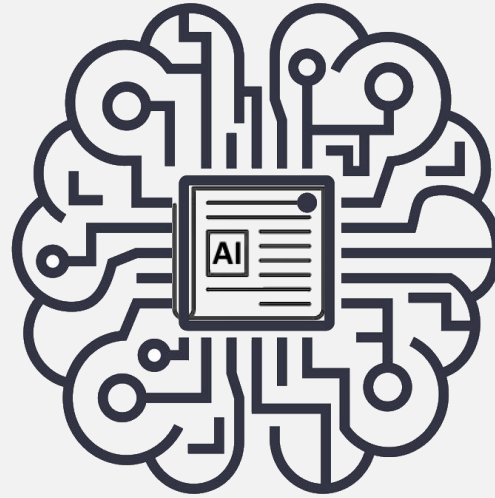


## Automated Podcast Generation

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# Problem

- More than 51% of US population has listened to Podcast in 2019
- Only 35% of those listen to the whole podcast
- The reason behind this is that the content was not interesting for them

Q. How can we make Interesting Podcast?

Let's use **AI** to create Podcast.

## Objective

- To create a project to satisfy the requirement of final project for Artificial Intelligence (CSCI-6660-01-S20)
- To use the available knowledge of artificial intelligence and technology to create an application
- To develop an automated system that creates a podcast by itself and publish the podcast to respective platform
- To develop an automated podcast generation system that automatically creates the podcast by using available content in the web

# Approach



1. PODCAST STUDIO

2. BROADCAST MEDIUM

3. PODCAST LISTENERS

1. AI BASED AUTOMATED PODCAST GENERATION SYSTEM

2. BROADCAST MEDIUM

3. PODCAST LISTENERS

- On the left it is typical podcast system, where podcast host creates and publish the podcast on respective platform
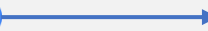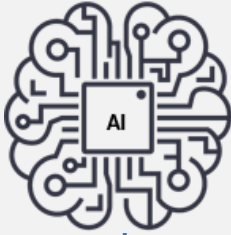
# Approach

- Our objective is to replace the podcast host by generating the podcast using AI

- We are going to use AI to create an interesting content for a particular user

- We will be creating a podcast for an artificial intelligence news

- The technology we are going to use are

  - Python

  - Google WaveNet for speech generation

  - Google API

  - Apple iTunes platform to host the podcast

# Approach

**Website #1**

## HOW DOES THE SYSTEM WORK?

**Step1:** We will extract the news content from the respective website

**Step2:** We will filter the content and separate each news.

**Step3:** the system will takes those Speech Files and use Google API to convert them into speech files

**Step 4:** the system will combine the speech files and background music to create a full podcast episode

**Step 5:** The system will generate and update the .XML file and submit to Apple iTunes to publish the podcast

**System Algorithm**

**Podcast Episode**

# Evaluation Methodology

- An executable python code that will do the following things

  - Display the title and content of the cleaned news

  - Will create an audio podcast generated by the system

  - An .XML file that auto-updates for publishing podcast

  - Link to the iTunes for published and approved  podcast.

# Methodology

- Environment Setup

  - Create a virtual environment

  - pip install google-cloud-texttospeech

  - pip install feedparser

  - pip install AudioSegment

  - pip install pydub

- Google Credentials for API: Get the .json credentials from Google Cloud

- .XML File setup: Need to follow the iTunes podcast rss format for the .XML file

- The program extract the text content from https://artificialintelligence-news.com/feed/ . The text is first cleaned via cleanText() function

# Few important notes:

- Google only allows <5000 characters to be converted so the recursive function feed_fragmentation() function slice the larger text and convert them into smaller audios and later these audios are combined.
- For each episode the xml file need to be updated
- For the headline audios, the algorithm makes sure that the background music automatically increase-decrease in volume.

# For every episode, this code is added in .XML file
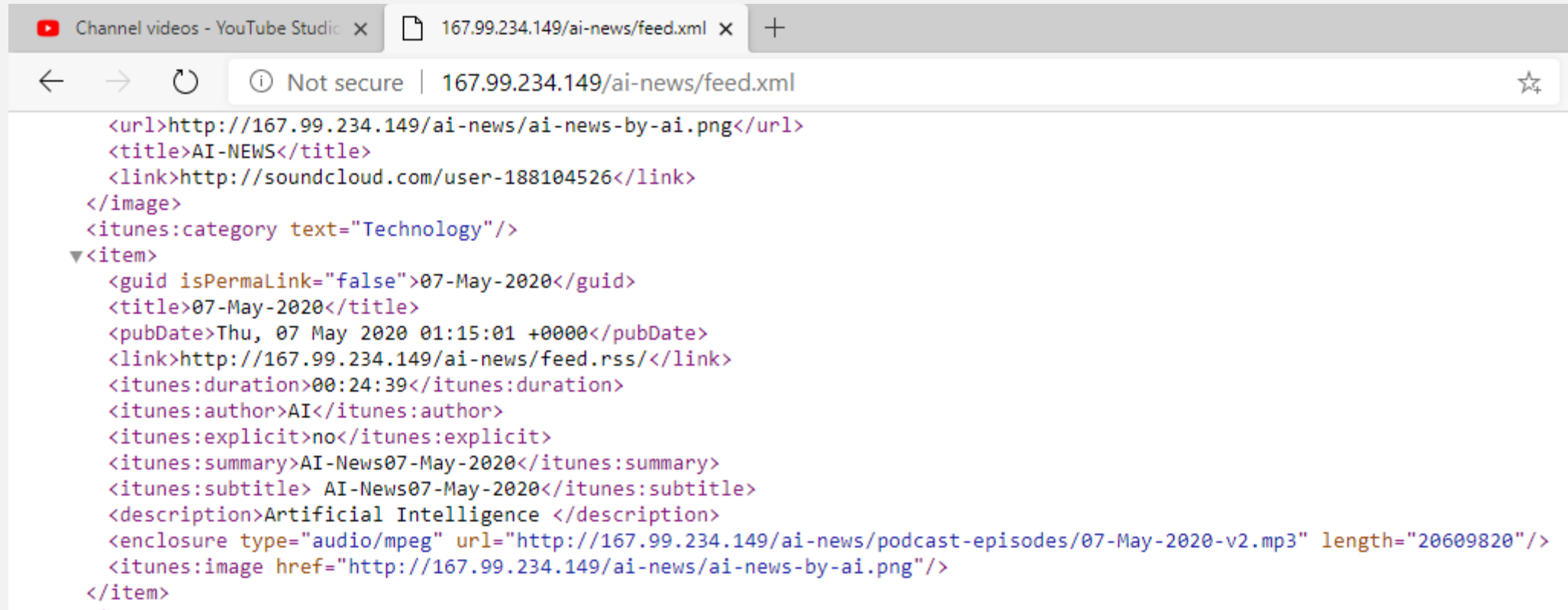
```xml
<item>
<guid isPermaLink="false">"""+this_day+"""</guid>
<title>""" + Title +"""</title>
<pubDate>"""+PubDate+"""</pubDate>
<link>"""+Link+"""</link>
<itunes:duration>"""+Duration+"""</itunes:duration>
<itunes:author>AI</itunes:author>
<itunes:explicit>no</itunes:explicit>
<itunes:summary>"""+Summary+"""</itunes:summary>
<itunes:subtitle> """+Subtitle+"""</itunes:subtitle>
<description>"""+Description+"""</description>
<enclosure type="audio/mpeg" url= "http://167.99.234.149/ai-news/podcast-episodes/""" \
    +todays_date+"""-v2.mp3" \ length="20609820"/>
<itunes:image href="http://167.99.234.149/ai-news/ai-news-by-ai.png"/>
</item>

"""
```

# Files generated after the running the code.

# .XML files updated



```
<url>http://167.99.234.149/ai-news/ai-news-by-ai.png</url>
<title>AI-NEWS</title>
<link>http://soundcloud.com/user-188104526</link>
</image>
<itunes:category text="Technology"/>
▼<item>
    <guid isPermaLink="false">07-May-2020</guid>
    <title>07-May-2020</title>
    <pubDate>Thu, 07 May 2020 01:15:01 +0000</pubDate>
    <link>http://167.99.234.149/ai-news/feed.rss/</link>
    <itunes:duration>00:24:39</itunes:duration>
    <itunes:author>AI</itunes:author>
    <itunes:explicit>no</itunes:explicit>
    <itunes:summary>AI-News07-May-2020</itunes:summary>
    <itunes:subtitle> AI-News07-May-2020</itunes:subtitle>
    <description>Artificial Intelligence </description>
    <enclosure type="audio/mpeg" url="http://167.99.234.149/ai-news/podcast-episodes/07-May-2020-v2.mp3" length="20609820"/>
    <itunes:image href="http://167.99.234.149/ai-news/ai-news-by-ai.png"/>
</item>
```
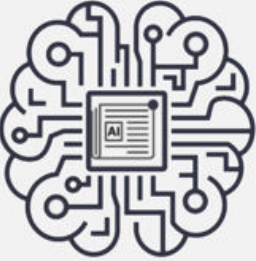
http://167.99.234.149/ai-news/feed.xml

# Output files generated in the server



**Index of /ai-news/podcast-episodes**

| Name | Last modified | Size | Description |
|------|---------------|------|-------------|
| Parent Directory | | - | |
| 01-April-2020-v2.mp3 | 2020-04-01 01:16 | 18M | |
| 01-February-2020-v2.mp3 | 2020-02-01 01:16 | 17M | |
| 01-January-2020-v2.mp3 | 2020-01-01 01:16 | 17M | |
| 01-March-2020-v2.mp3 | 2020-03-01 01:16 | 20M | |
| 01-May-2020-v2.mp3 | 2020-05-01 01:16 | 22M | |
| 02-April-2020-v2.mp3 | 2020-04-02 01:16 | 18M | |
| 02-February-2020-v2.mp3 | 2020-02-02 01:16 | 17M | |
| 02-January-2020-v2.mp3 | 2020-01-02 01:16 | 17M | |
| 02-March-2020-v2.mp3 | 2020-03-02 01:16 | 20M | |
| 02-May-2020-v2.mp3 | 2020-05-02 01:16 | 22M | |
| 03-April-2020-v2.mp3 | 2020-04-03 01:16 | 18M | |
| 03-February-2020-v2.mp3 | 2020-02-03 01:16 | 17M | |

http://167.99.234.149/ai-news/podcast-episodes/

# iTunes Podcast channel



https://podcasts.apple.com/us/podcast/ai-news-daily/id1491115711

# Thank you!