AI IN THE MEDIA SPOTLIGHT

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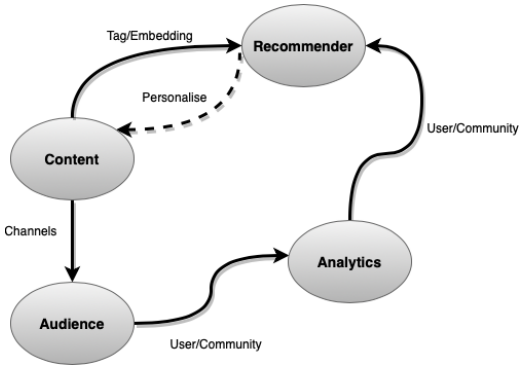
ABOUT THE EBU

- The European Broadcasting Union (EBU) is the world's foremost alliance of public service media (PSM). We have 119 member organisations in 56 countries in Europe, and an additional 33 Associates in Asia, Africa, Australasia and the Americas.
- Our Members operate nearly 2,000 television and radio channels alongside numerous online platforms. Together, they reach audiences of more than one billion people around the world, broadcasting in more than 160 languages.
- We strive to secure a sustainable future for public service media, provide our Members with world-class content from news to sports and music, and build on our founding ethos of solidarity and co-operation to create a centre for learning and sharing.
- Eurovision Services, our business arm, has an outstanding global reputation and is the first choice media services provider for many media organisations and sport federations around the world.
- Discover more about the EBU on www.ebu.ch

AI IN THE MEDIA SPOTLIGHT

- How AI is impacting the Broadcasting Industry ?
- Moving from linear to non-linear content



- Among PSM EBU Members
  - 100 % are active on social networks (facebook, Instagram, Twitter, Snapchat ….)
  - 98 % offer free on demand video services
  - 74 % offer connected TV apps
  - 56 % offer dedicated app for news content

CONTENT PRODUCTION

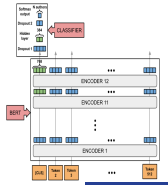
Automated production
Content Enrichment
Content Tagging

REACHING THE AUDIENCE

Content dissemination
Content recommendation

PSM REMIT

Values
Consequences



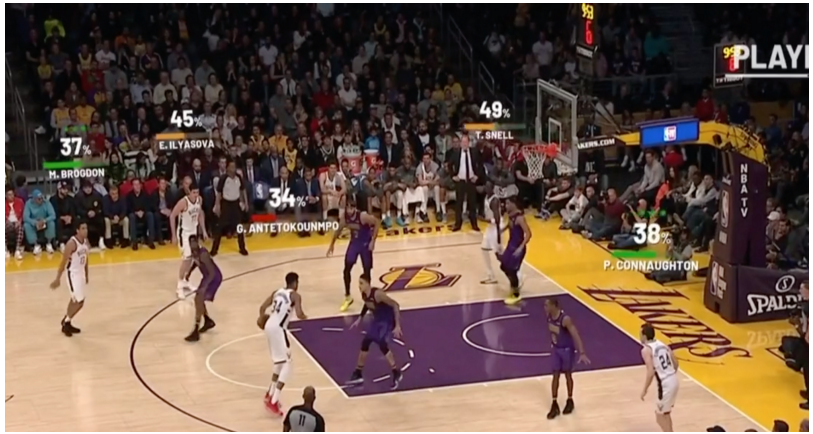
EBU AI PROJECTS

AI-Benchmarking
High level tagging

AUTOMATED VIDEOS PRODUCTION

- To produce sports videos in quasi-real time, machine learning and deep learning algorithms run in real time, in embedded systems:
  - Track the ball
  - Game phase identification
  - Highlights detection
  - Track the players, the scorers

REAL-TIME ANALYTICS



- Transform the audience experience : content enrichment with new capabilities
- Provide rich statistics to optimise teams strategy

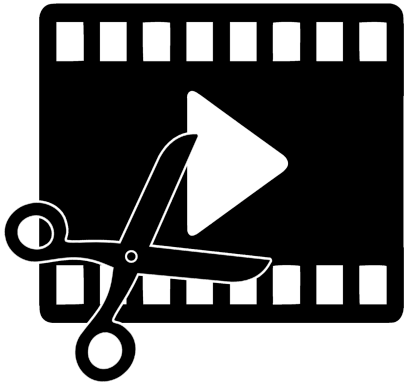
CONTENT CREATION

- Content automatically generated
  - Scriptwriting or fiction writing
  - Music
  - Images and Videos

Assisted landscape generation

Video synthesis

VIDEO EDITING



- AI can analyse the rushes to produce coherent editing
  - Increase productivity
- Generate summarisation for:
  - Trailers, thumbnails, highlights of sport events

AI IN JOURNALISM

Is the robot-journalist already there?

- **AI is used in journalism for:**
  - Assisted news writing : it increases the volume of produced articles by a factor of 10
  - Automated writing for simple content : financial earnings reports, sport event summarization …
  - Fake News, Fake Video, Fake Audio detection
  - Trends analysis on social networks
  - Patterns detection in huge volume of information : Panama papers

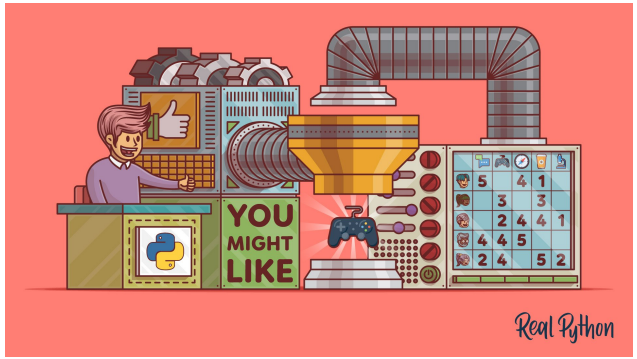
CONTENT TAGGING

- Key technology for archiving and facilitating the discoverability :
  - face or speaker recognition, landscapes, gender …
- Allows a quick editing of sport events : sport highlights …
- For moderation: nudity, violence, emotions
- Can be ambiguous and context dependent

CONTENT DISSEMINATION STRATEGY

- Identify the most appropriate dissemination strategy
  - Right audience
  - Right platform
  - Right time
- Strategy for republishing or repurposing contents

CONTENT RECOMMENDATION



- Recommendation systems are built on collaborative filtering and content based filtering
- Audience analytics with different level of granularity : user, community …
- Contextual data from social networks

PSM REMIT AND VALUE

- PSM are public funding
  - Inclusion and social cohesion
  - Foster democratic process
  - Reflect diversity in opinions
- PSM values :
  - Universality
  - Excellence
  - Accountability
  - Independence
  - Diversity
- Does it fit well with recommendation systems or content personalisation ?

CONTENT RECOMMENDATION FOR PSM

Is AI relevant in addressing societal problems ?

- PSMs specificity presents an opportunity for novel ways to design recommender algorithms :
  - Preserve Fairness, Accountability and Transparency (FAT)
  - Inform, educate and entertain
  - Filter bubble effects and optimise social and cultural diversity
- The criteria optimised by the machine learning algorithms can be different compared to commercial applications. Not only optimise the benefit, the click, time spent watching …

AI PROJECTS AT THE EBU

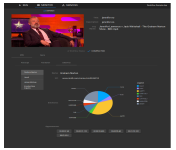
peach

› Recommendation system for PSMs

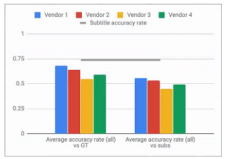
› Written content tagging

EuroVOX

› AI solutions integration platform : subtitling, translation …



› Cloud agnostic serverless cloud computing framework



› AI solutions benchmarking

› Machine Learning Data Pool

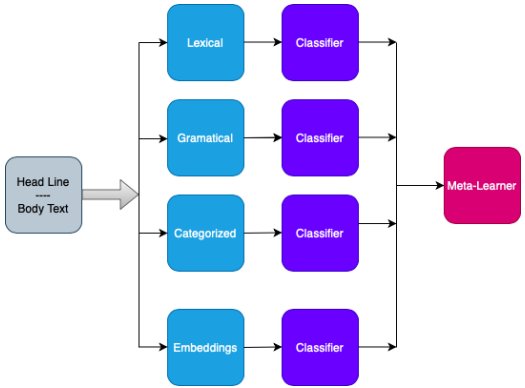
AI-BENCHMARKING

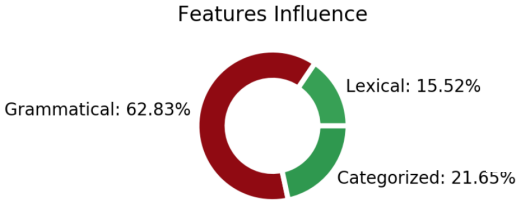
- First application : Speech to Text
- EBU Members and media organisations developed a tool for benchmarking STT engines :
  - VIAA, BBC, FTV, RAI, Swedish Radio, SRG …
- It is an **open source** project, to:
  - clearly define the metrics and the standardisation process of the transcript files
  - facilitate the comparisons of performances among users
- It is a command line tool well suited for production environments

HIGH-LEVEL CONTENT TAGGING

› We are developing algorithms to tag the written content based on linguistic properties.

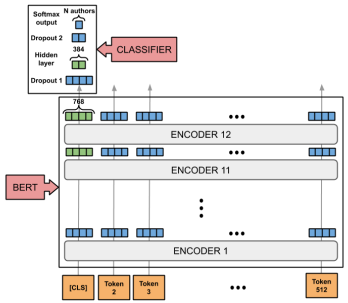
EXPLAINABLE FAKE NEWS DETECTOR

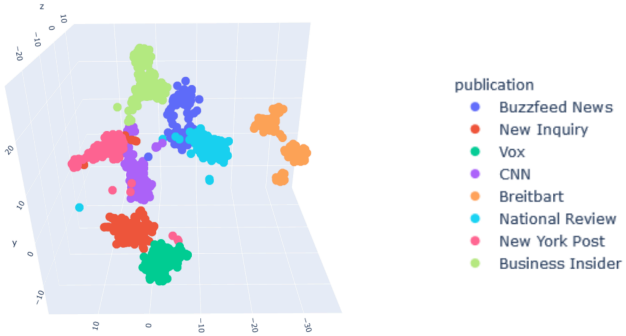




- A classifier generating the probability of being fake is applied for each category of features :
  - Lexical, Grammatical, Categorised and Embeddings.
- We then pass these probabilities to a **meta-learner** that takes the final decision.
- The **explainability** can have different **granularity**, it is a hierarchical structure.

AUTHORSHIP IDENTIFICATION





- We use linguistic properties to identify the authorship style
- We train our algorithm as an author classifier to generate embeddings and handle new authors with a zero shot learning approach
- We are now working on identifying the source of information and targeted audience
  - Publishers can be directly estimated with models trained on authors

APPLICATIONS

- Analyse sources of information
  - Dashboard to analyse huge volume of data
  - Analyse the linguistic properties of an article
- Asset the properties of self-generated content
- Feed recommender systems

FUTURE TRENDS

- Data
  - Acquire and build large data bases of relevant data and signals, for each application area
  - Heterogeneous data integration and querying requires the design of efficient and complex ontology-based access
- Accessibility
  - Streamline the circulation of audiovisual programs through machine translation
  - Develop AI tools for automatic translation to sign language, and from sign language to text
- Trustworthy and explainability
  - Voluntary labelling AI application matching ethical values
  - Explainability of AI systems

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