

BBC R&D Archives Research

Affective Classification of Large Scale Broadcast Archives

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BBC R&D – Archives Research

- World's largest broadcaster
- Founded 1922
- Output;
 - UK;
 - 10 TV Channels
 - 10 more part owned
 - >16 Radio Channels
 - International
 - 9 TV Channels

BBC R&D – Archives Research

- BBC Archives
- Four million items
 - 600,000 hours of video
 - 350,000 hours of audio

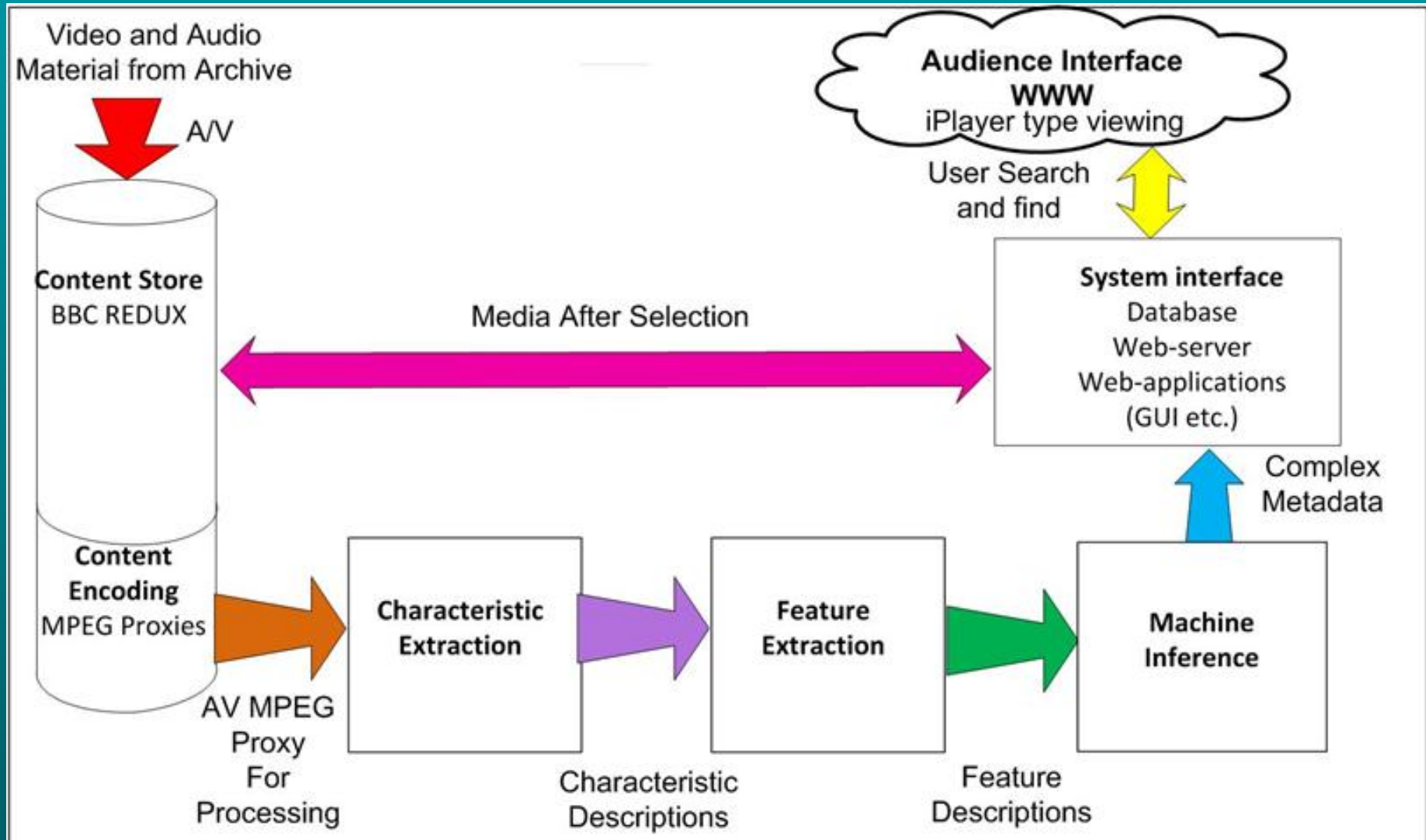
BBC R&D – Archives Research

- BBC Archives
- Four million items
 - 600,000 hours of video
 - 350,000 hours of audio
 - BBC Redux
 - 300,000 hours of audio and video
- BBC Information & Archives
 - InFax
 - “children play in snow (30.08-30.21). INTVS: philosopher Alain DE BOTTON (29.12-29.41,30.22-30.49); P.J. O'ROURKE, political satirist (30.58-31.30). David GROSSMAN rep to cam (28.36-29.02)”

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- BBC Multimedia Classification
 - Automatic generation of semantic metadata from archived content.
 - Assist with public navigation of digitised archives
 - Identifying which low level audio and video features map to higher level semantic concepts
 - E.g. gunshots, explosions, car chases, fast action ~ exciting?
 - Generation of metadata from audio, video.

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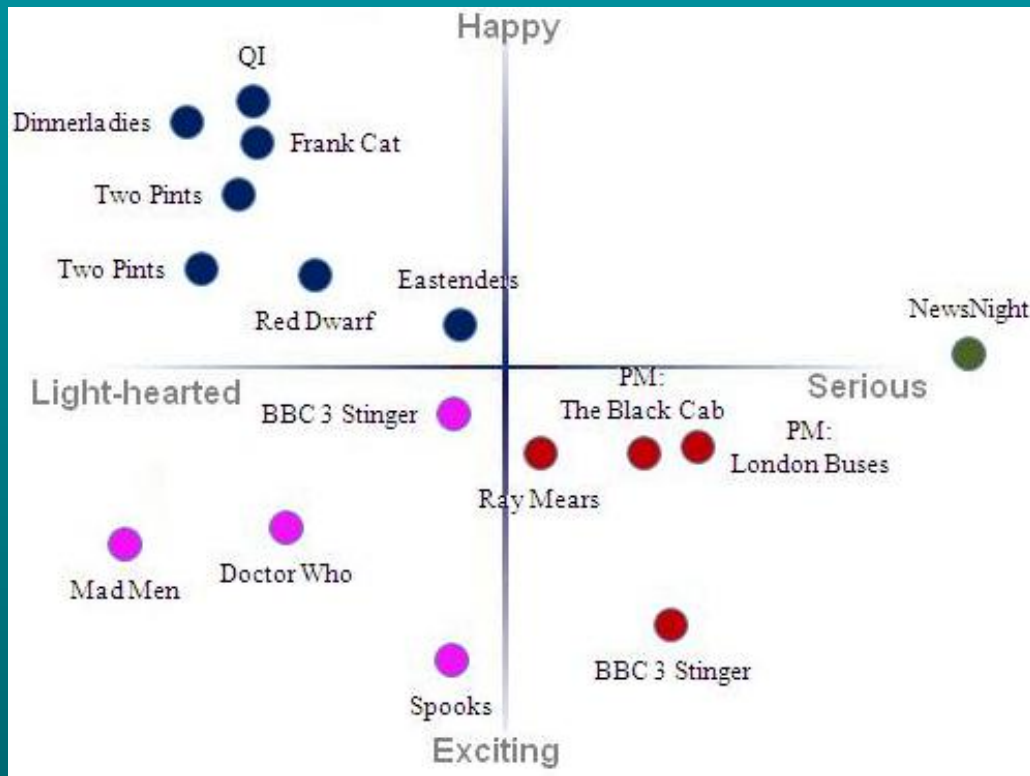
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- Characteristic Extraction
 - Audio;
 - Formant Frequencies
 - Power Spectra
 - Bark Filtered RMS Amplitudes
 - Spectral Centroid
 - Short Time Frequency Estimation
 - Video
 - Tiny Grey Scale Images
 - Luminance
- Feature Extraction
 - Audio;
 - Laughter
 - Crowd Events
 - Whistles
 - Video
 - Shot change
 - Amount of lighting
 - Changes in lighting

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- Machine Inference Using Audio and Video Features
 - Happy
 - Proportional to laughter
 - Exciting
 - Proportional to cuts and motion features
 - Serious
 - Proportional to the change in lighting
 - Light-hearted
 - Proportional to lots of lighting
- Why classify on these moods?

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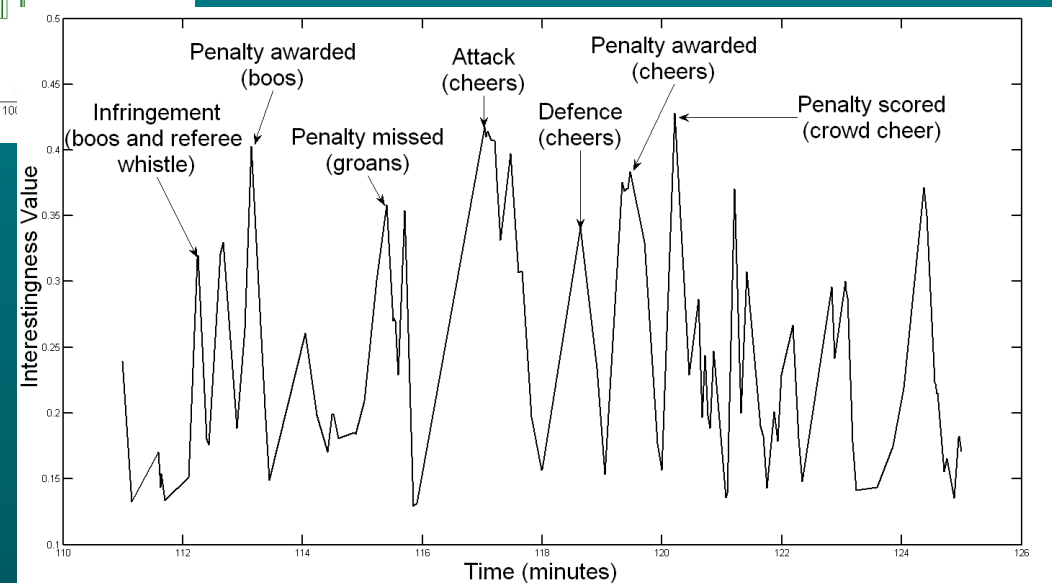
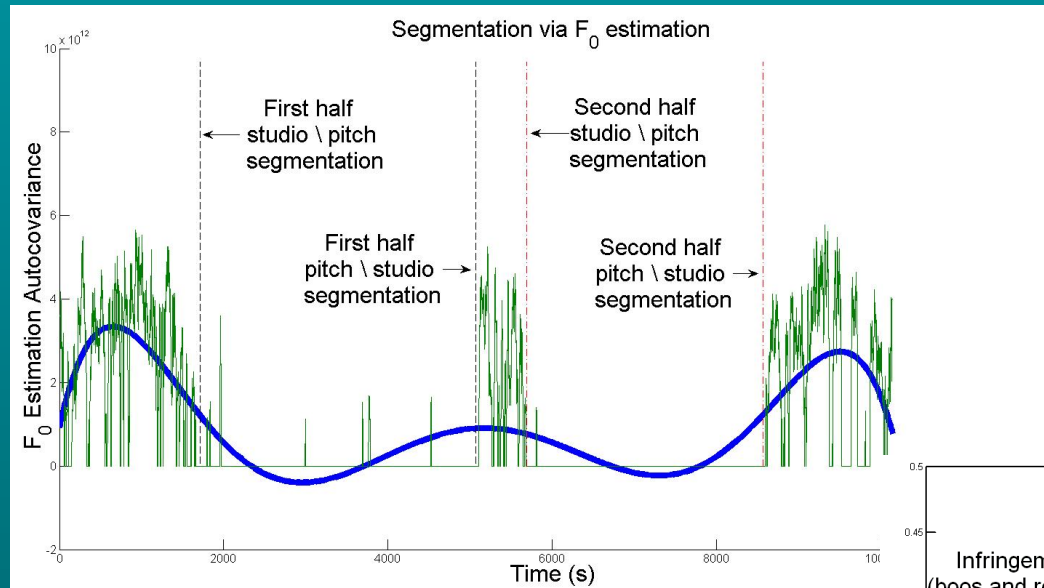
Programme Title	Genre
Dinnerladies	Comedy
QI	Comedy
Frankenstein's Cat	Children's Comedy
Two Pints of Lager	Comedy
Red Dwarf	Comedy
Eastenders	Soap Opera
BBC 3 Stinger	Channel Identifier
Doctor Who	Light drama
Madmen	Light drama
Spooks	Drama
PM The Black Cab	Documentary
Ray Mears	Documentary
PM London Buses	Documentary
Country Tracks	Documentary
NewsNight	News & Current Affairs

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- Event Timelines
- Case Study;
 - BBC Sport
 - Create timelines of interesting events based on audio track alone
 - Separate studio based analysis from pitch side commentary
 - Identify interesting events from this
 - Overview of work presented at ICMLA 2010

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- Segmentation\Event detection



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- Conclusions
 - Presented BBC R&D's initial framework for semantically classifying content from the BBC's archive using audio and video features
 - This is an initial system
 - Not the final method for semantic classification
- Future Work
 - Create multi-modal system
 - Improve characteristic extraction, feature selection, machine inference.
 - Add text (subtitles/ASR/programme listings)
 - Revisit choice of moods and features

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Thank you for listening
Questions?

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