



## Methods for investigating accommodation in the 3rd URPP Period

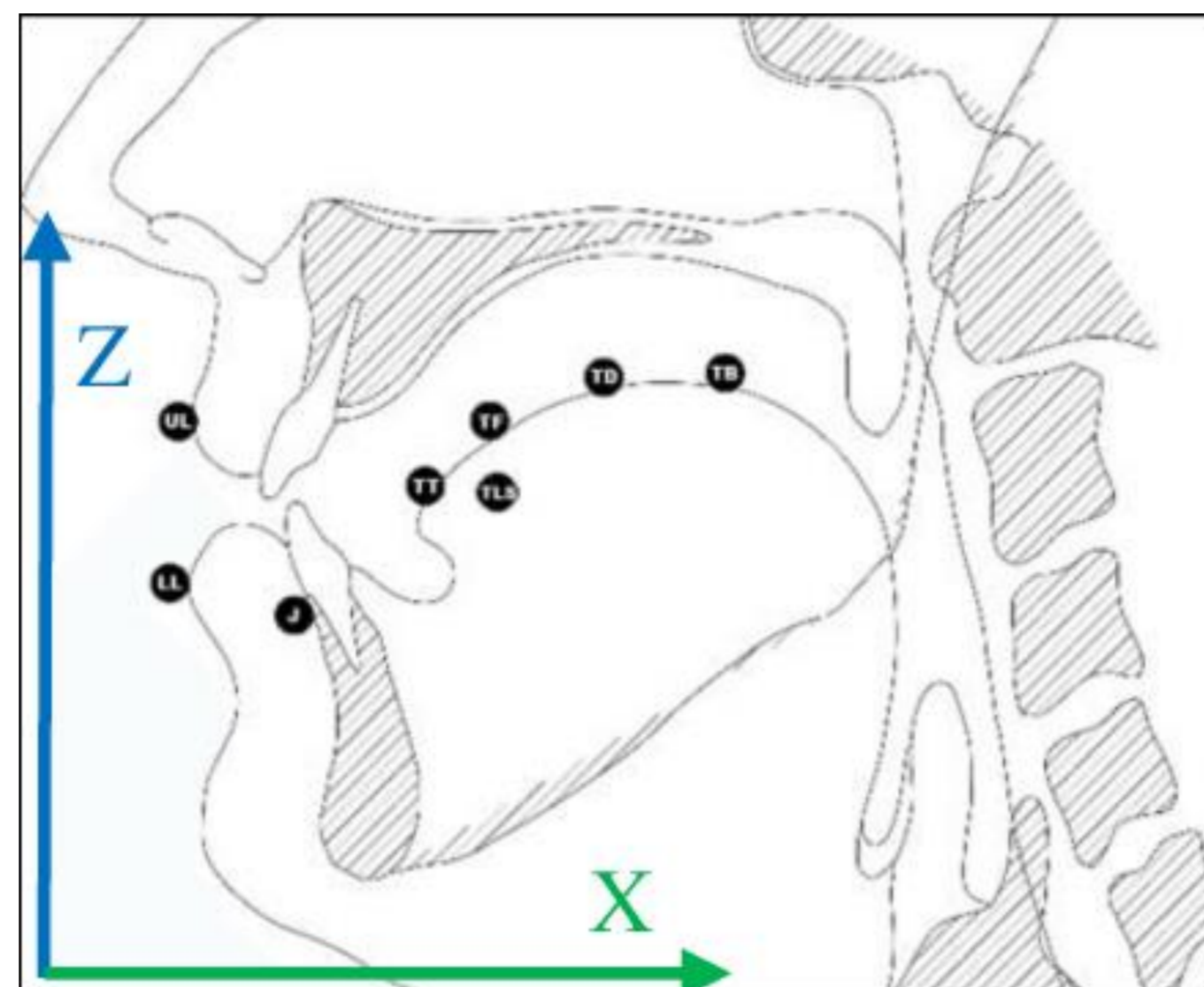
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URPP Language and Space

### Measuring articulatory accommodation

#### Electromagnetic Articulography (EMA)

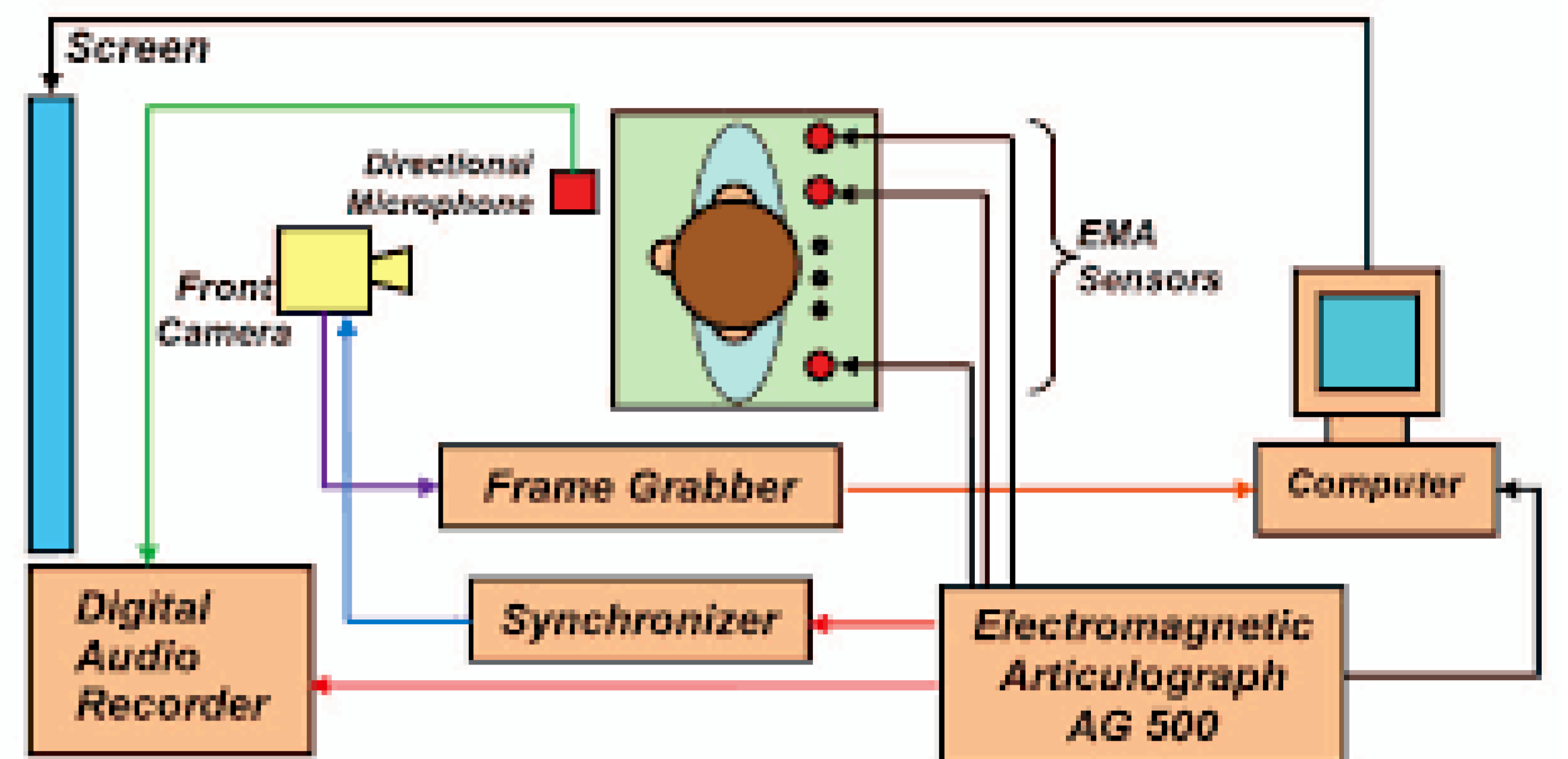


#### EMA Sensory Placement

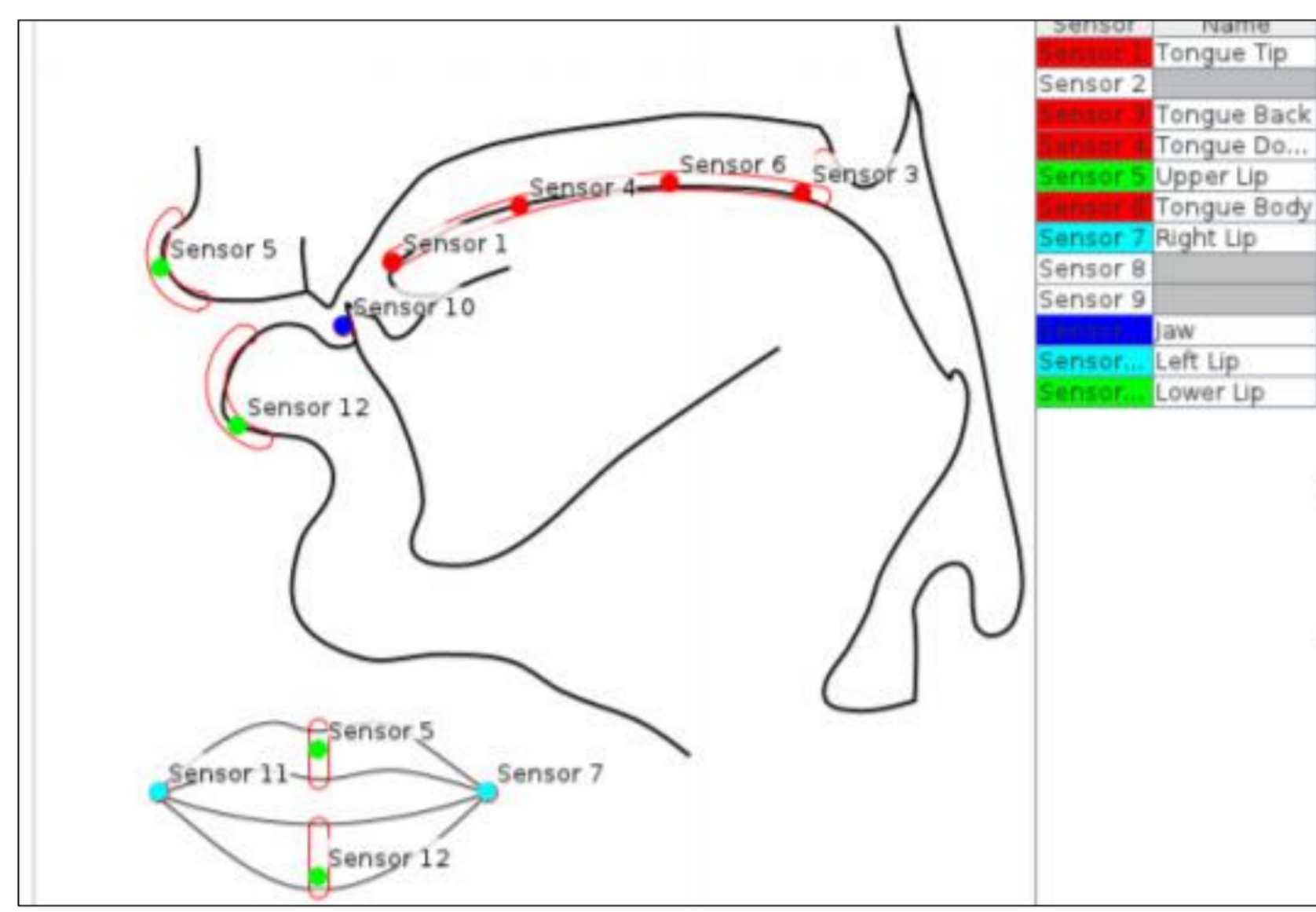


X direction: front-end, Z direction: up-down

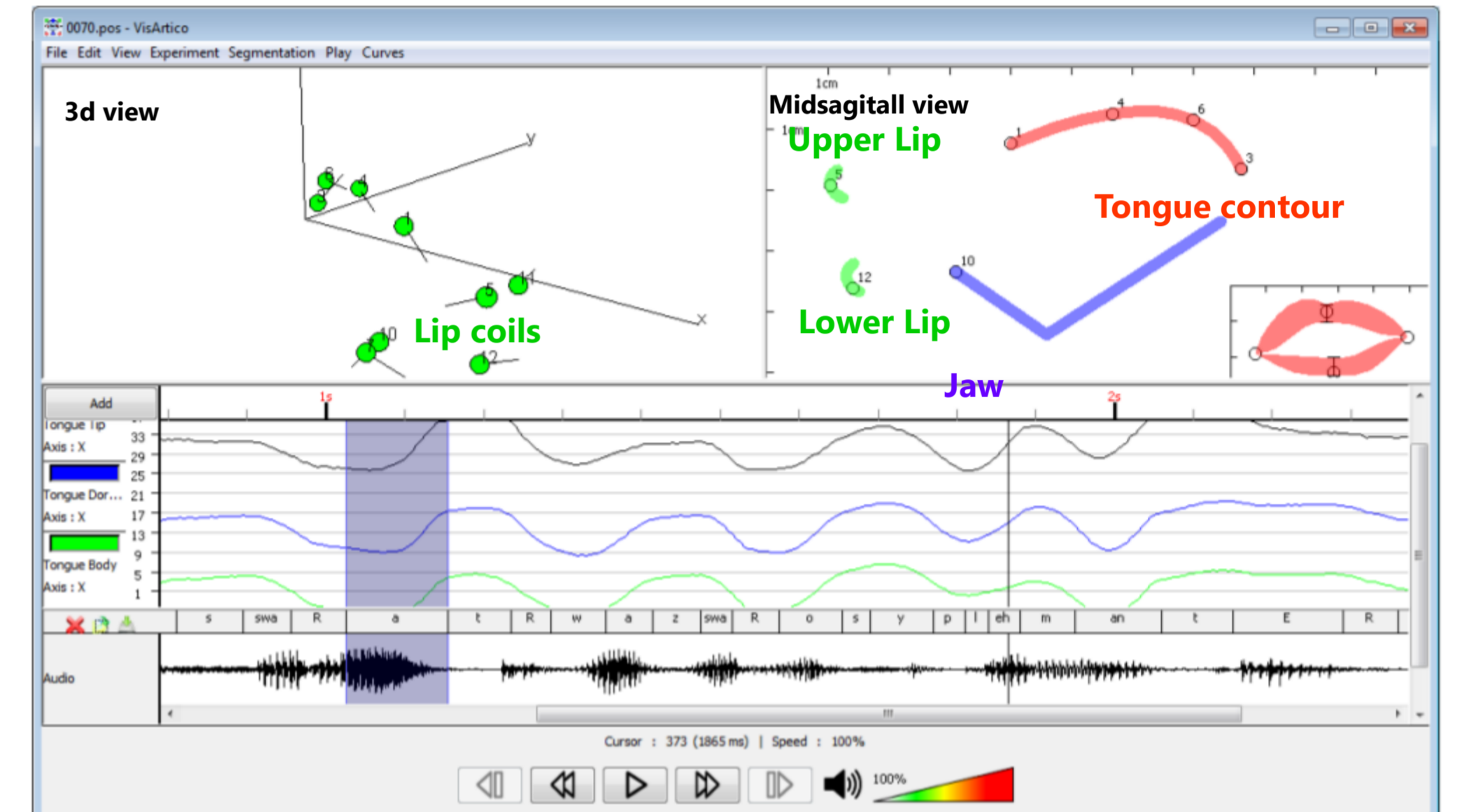
#### Block diagram of EMA Acquisition System



#### Mapping the coils to the articulators



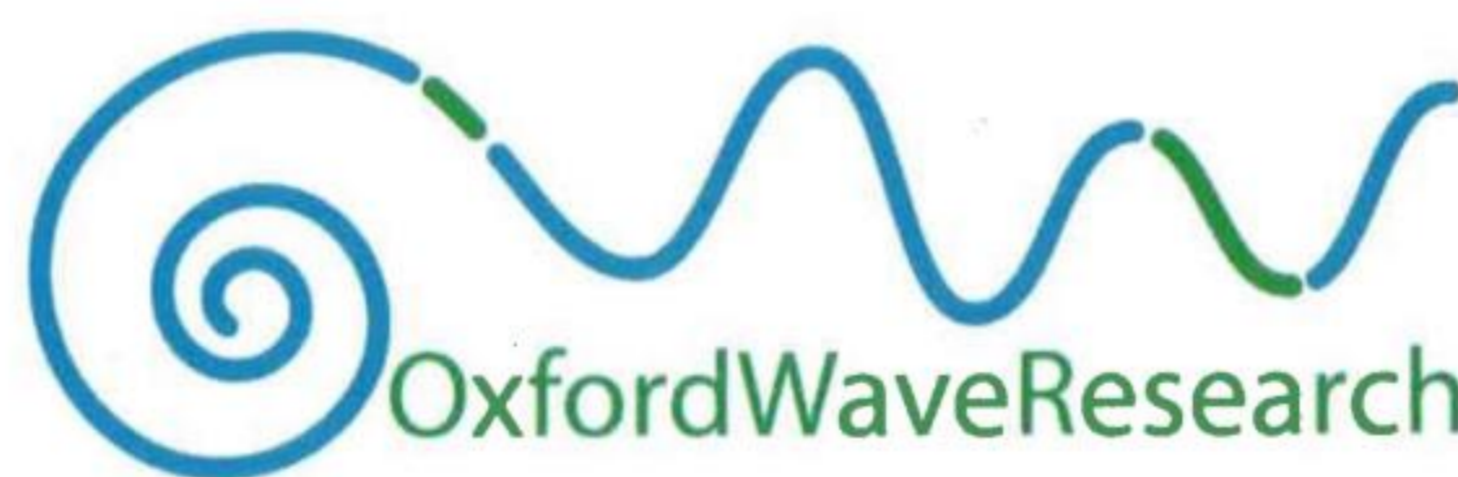
#### Channel trajectories, phonetic segmentation



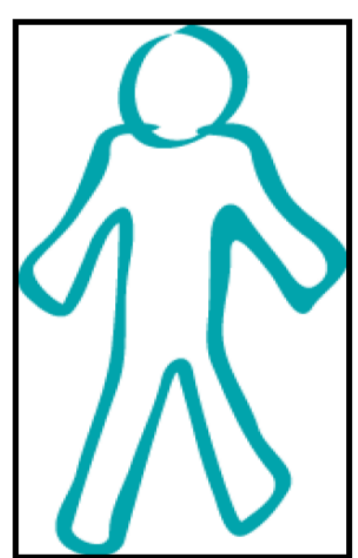
#### References

Slim Ouni, Loïc Mangeonjean, Ingmar Steiner (2012) VisArtico: a visualization tool for articulatory data, Thirteenth Annual Conference of the International Speech Communication Association.  
Slim Ouni (2013). Visualizing articulatory data with VisArtico. INTERSPEECH 2013: Show & Tell Contribution  
Robert Wielgat, Anita Loren Acoustic to Articulatory Speech Inversion by Dynamic Time Warping, <https://slideplayer.com/slide/12797169/>

## Implications of accommodation for speaker recognition with forensic applications

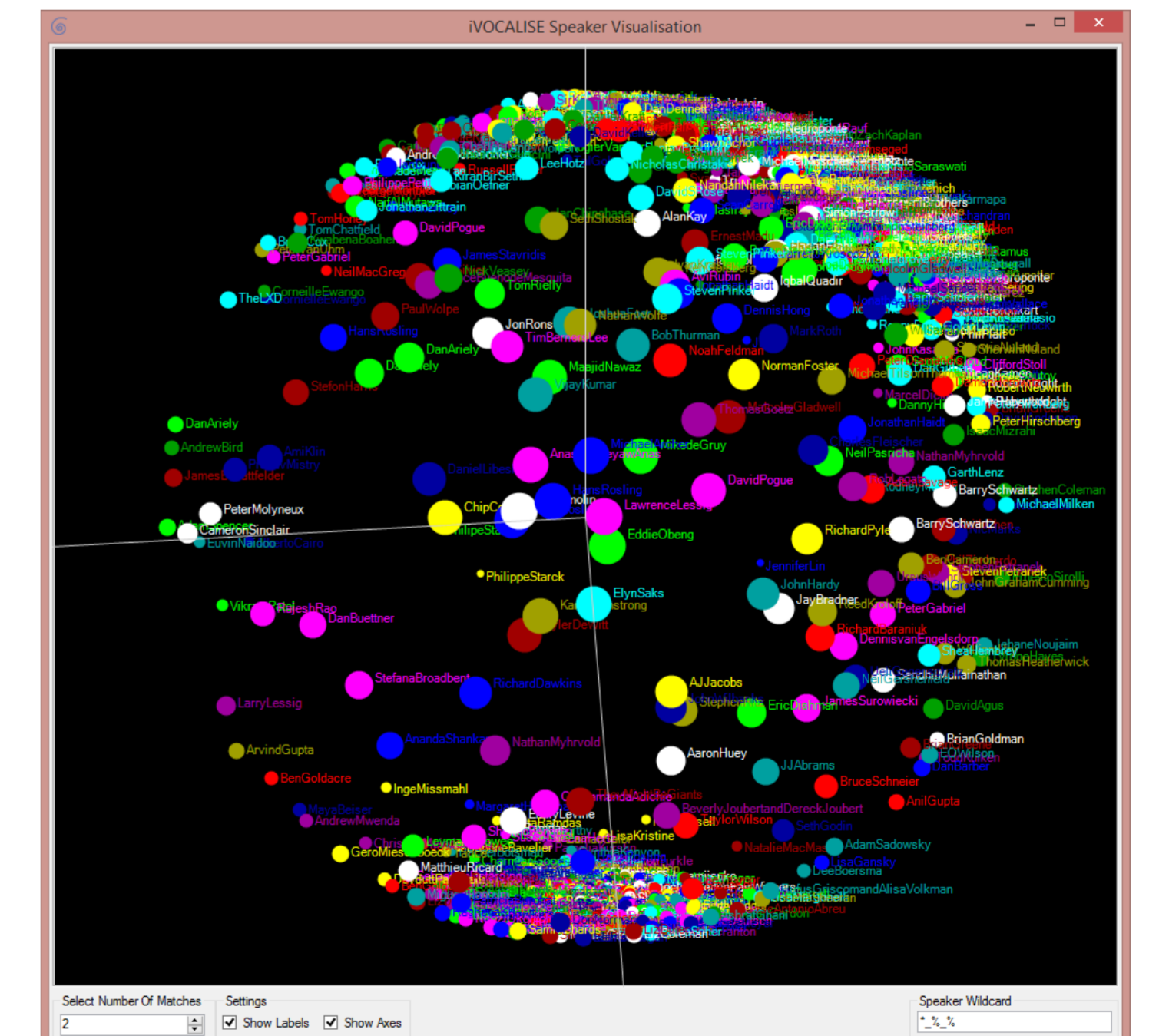
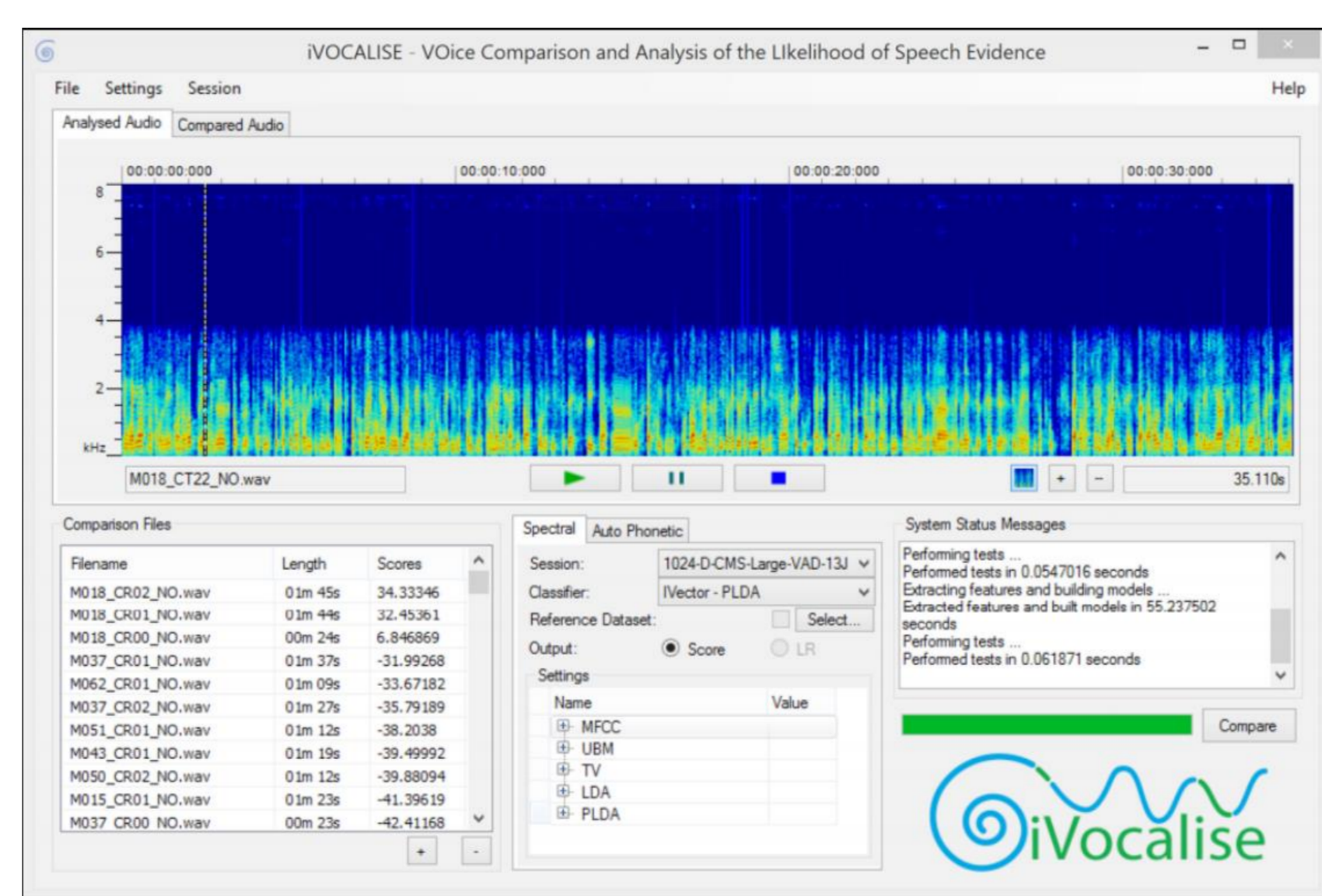


### Same or different speakers?



Suspect 1

Suspect 2



#### iVocalise can compare:

- an audio file of a target speaker against an audio file of a suspected speaker and produce a similarity score quantifying the closeness of the speakers' voices.
- an audiofile of a target speaker against an entire list of suspected speakers, producing a sorted list of files closest to the target speaker's voice, as well as a list of similarity scores.

Speakers visualized using a 3D visualization tool in VOCALISE in the i-vector space (low-dimensional representation of the frequency characteristics of the speaker's voice)

#### References

Anil Alexander, Oscar Forth, Alankar Aryal Atreya, Finnian Kelly (2016) VOCALISE A forensic automatic speaker recognition system supporting spectral, phonetic, and user-provided features, Speaker Odyssey 2016, Bilbao Spain.  
'Michael Jessen, Anil Alexander, and Oscar Forth (2014) Forensic Voice Comparisons in German with Phonetic and Automatic Features using VOCALISE software, Audio Engineering Society (AES) Forensics Conference, 2014, London, UK.