

Binaural Floss – Exploring Media, Immersion, Technology

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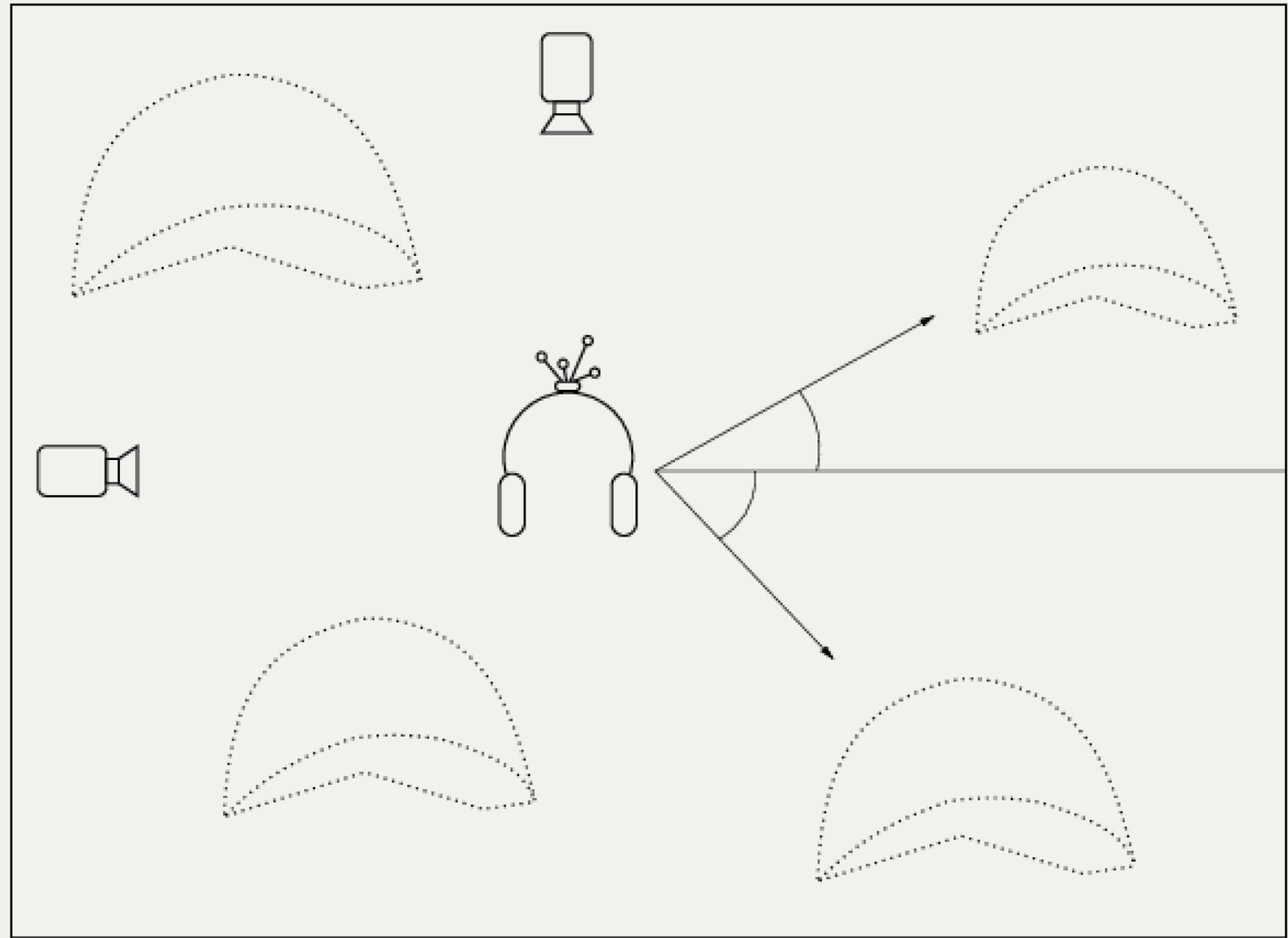
Linux Audio Conference, May 18, 2017

Jean Monnet University, Saint-Étienne, France

Binaural Floss: Overview

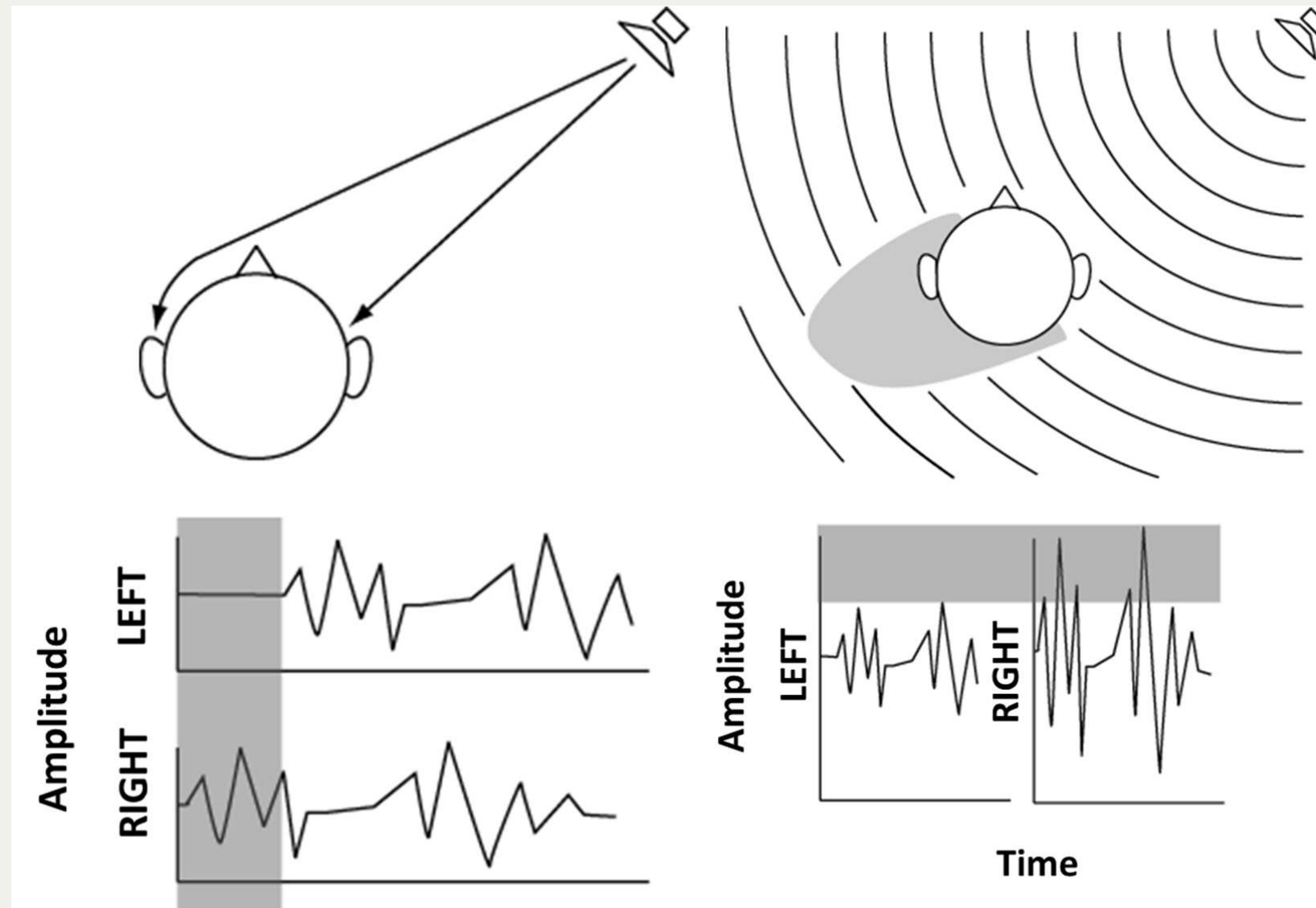
- *Parisflâneur* sound installation
- Spatial listening
- Binaural recording
- Binaural synthesis
- Tools
- Engineering, immersion, [virtual] reality

Parisflâneur sound installation



Spatial listening

- Monaural elevation cues
- Interaural time differences
- Interaural level differences



Zhong (2015)

Binaural recording

- Dummy head microphone



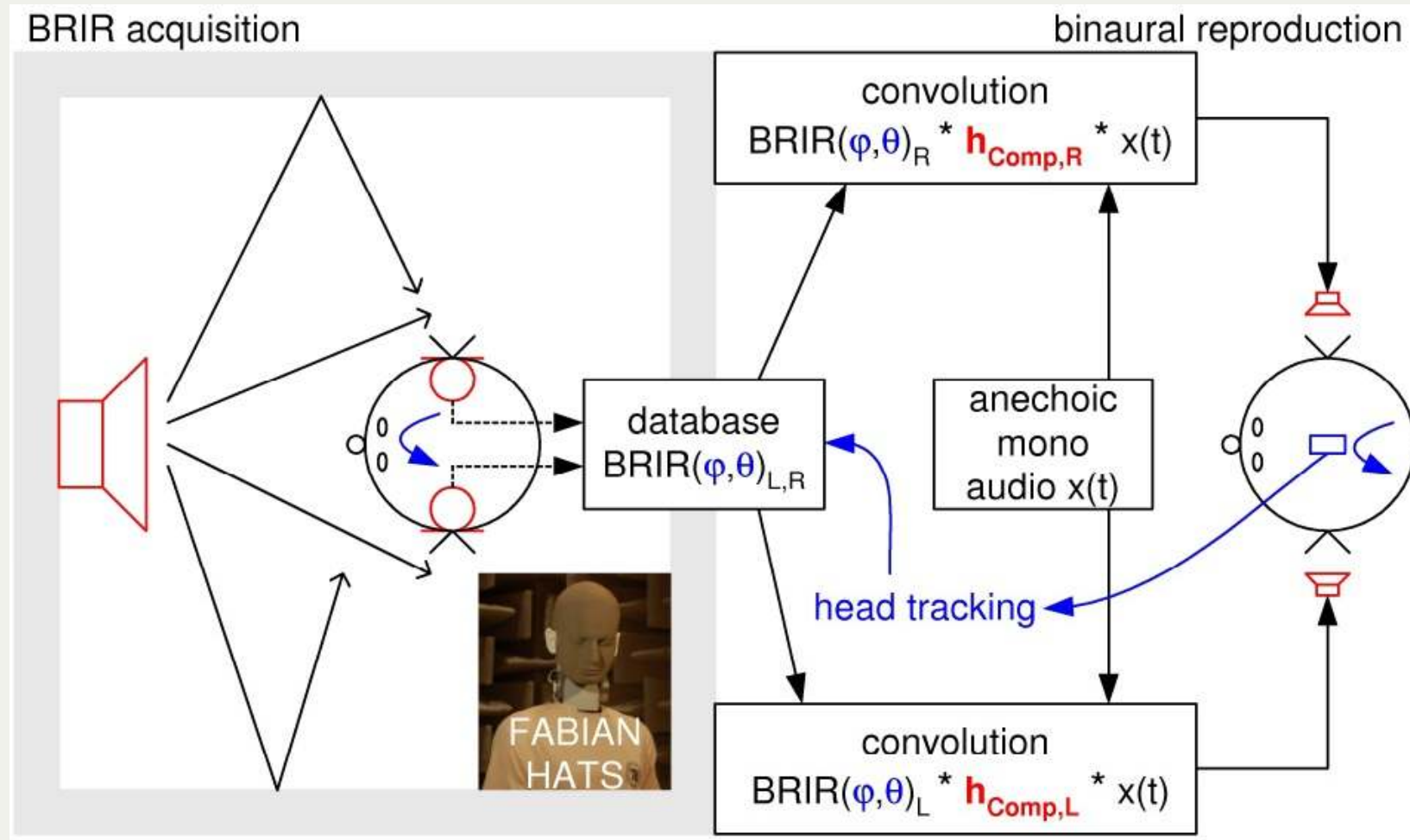
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Recordings in *Parisflâneur*

Passage des Abbesses sound example

Paris Métro sound example

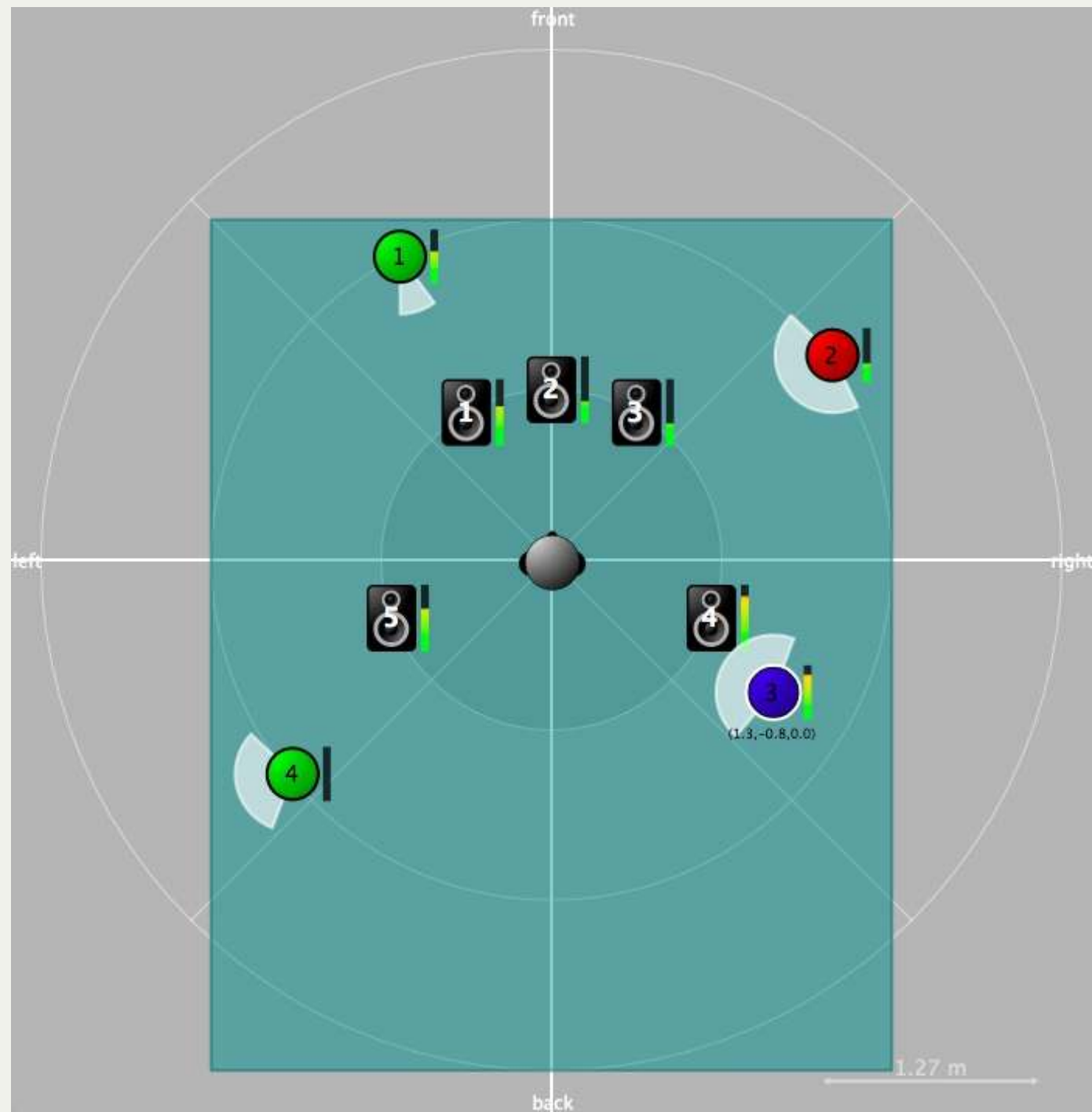
Binaural synthesis



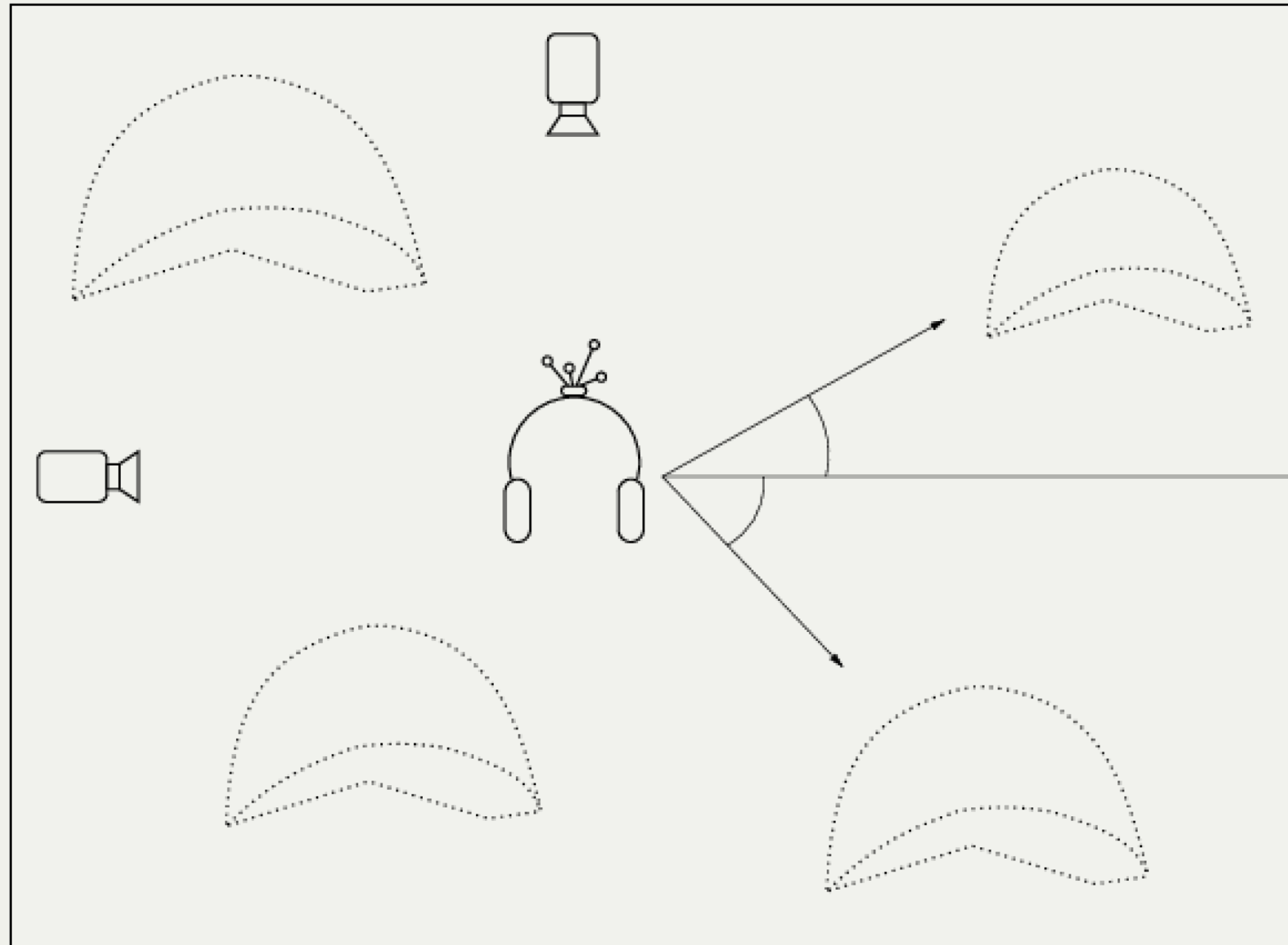
Schultz et al. (2010)

Tools for scene construction

- IRCAM *Spatialisateur* (example, non-free)



Parisflâneur



Paris Métro sound example

Realisation of *Parisflâneur*

- SuperCollider
 - 3-D Virtual Ambisonics (AmbIEM), 2-D circular panning
 - Distance model, near/far-field
 - Transition: approach, collapse to mono, cross-fade to binaural
 - Tracking input
- Realtime convolution: *jconvolver* (Fons Adriaensen)
 - 3-D Ambisonics: 24 pairs of 64k samples BRIR
 - 2-D: 12 pairs of 64k samples BRIR (far field) + 36 pairs of 256b HRIR (near field)
 - BRIR: measurements at IEM Graz, HRIR: taken from SoundScapeRenderer project
- Blumlein shuffler: *bls1* (Fons Adriaensen)
 - process binaural recordings for use as monaural sources in virtual scene
- Ardour

Perfect rendering?

RealSpace3D
Audio

YOU'VE FOUND THE KEY TO VR IMMERSION.

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360° SOUND EXPERIENCE



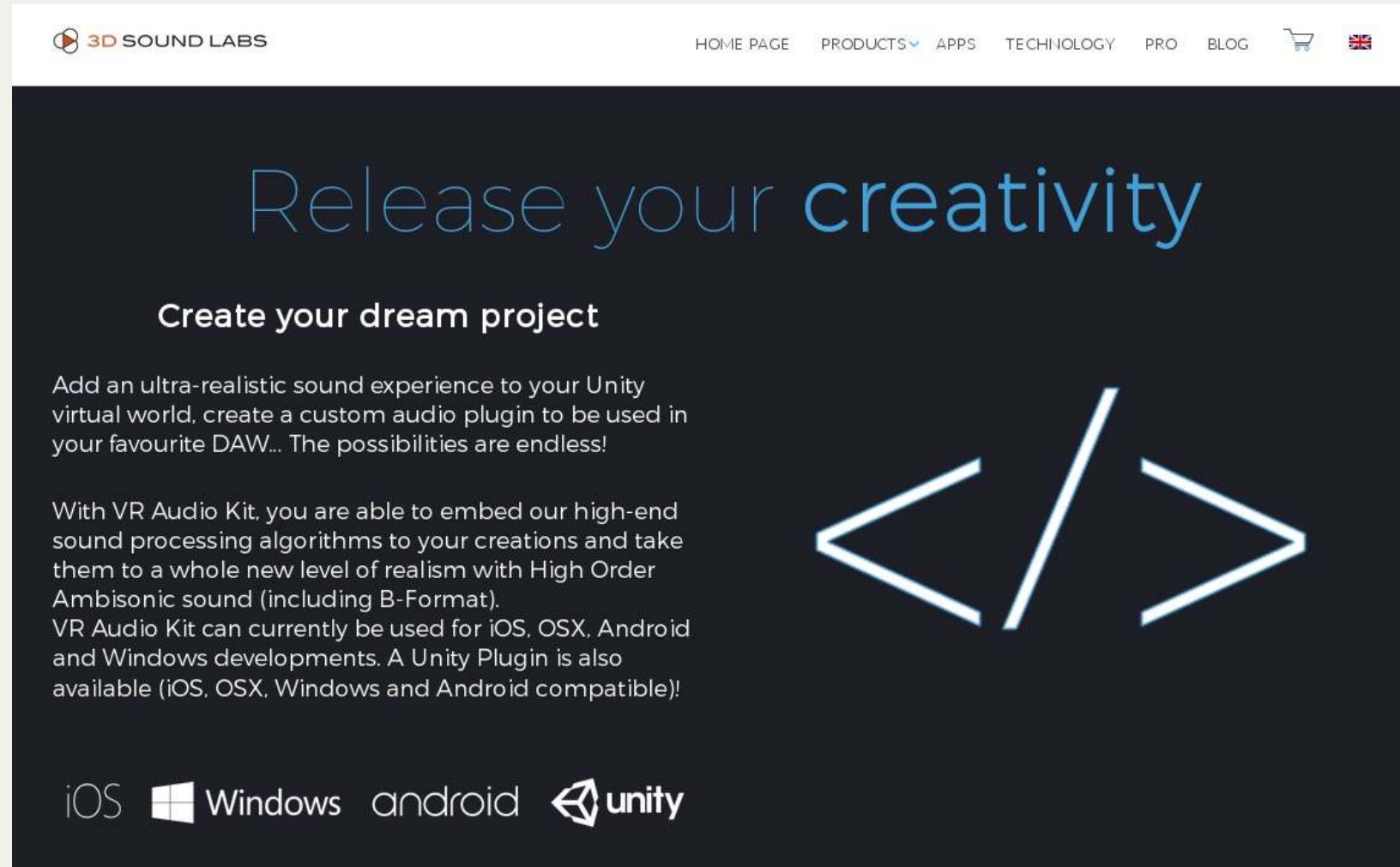
NATURAL SOUNDING



EASY & EFFICIENT

<http://dearvr.com/>

Immersion by reality?



3D SOUND LABS

HOME PAGE PRODUCTS APPS TECHNOLOGY PRO BLOG

Release your creativity

Create your dream project

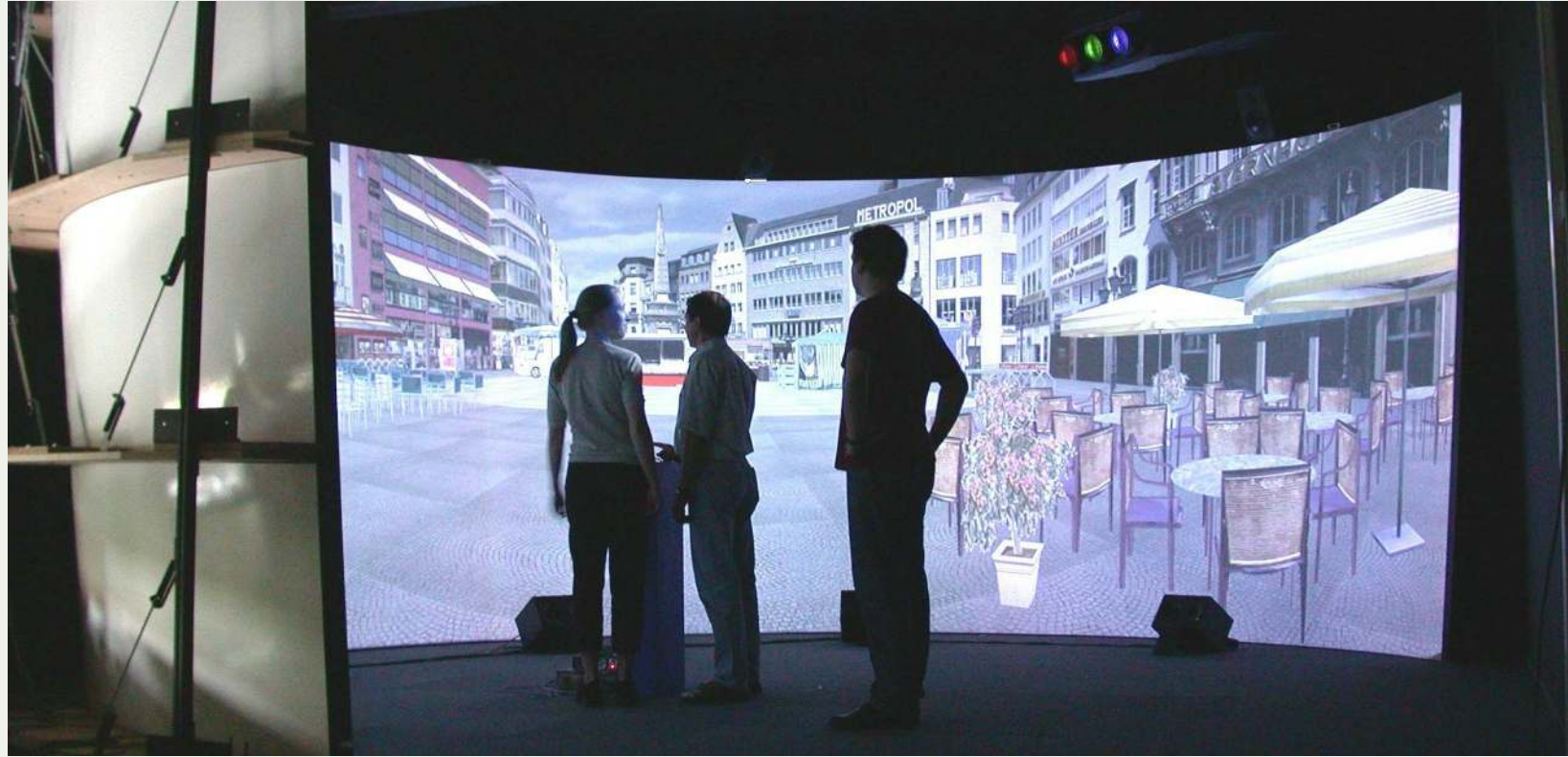
Add an ultra-realistic sound experience to your Unity virtual world, create a custom audio plugin to be used in your favourite DAW... The possibilities are endless!

With VR Audio Kit, you are able to embed our high-end sound processing algorithms to your creations and take them to a whole new level of realism with High Order Ambisonic sound (including B-Format). VR Audio Kit can currently be used for iOS, OSX, Android and Windows developments. A Unity Plugin is also available (iOS, OSX, Windows and Android compatible)!

iOS Windows android unity

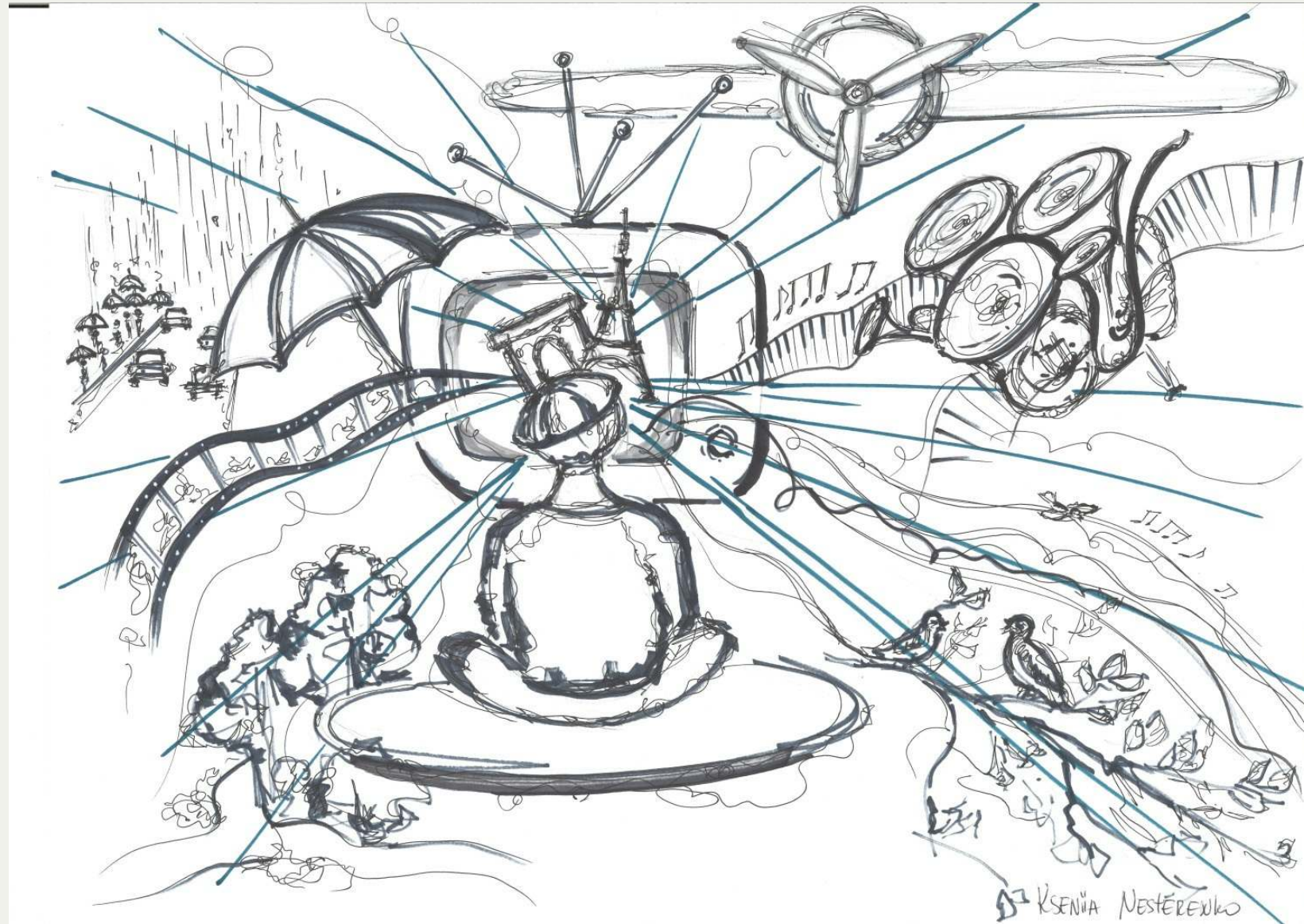
<http://www.3dsoundlabs.com/category/developers/>

Immersion and technology



Simon et al. (2004)

Parisflâneur



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References

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