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The Psychoacoustics of Sound Recording

- Definition of the Field
- Why, How & Where?
- Future Challenges

Unis

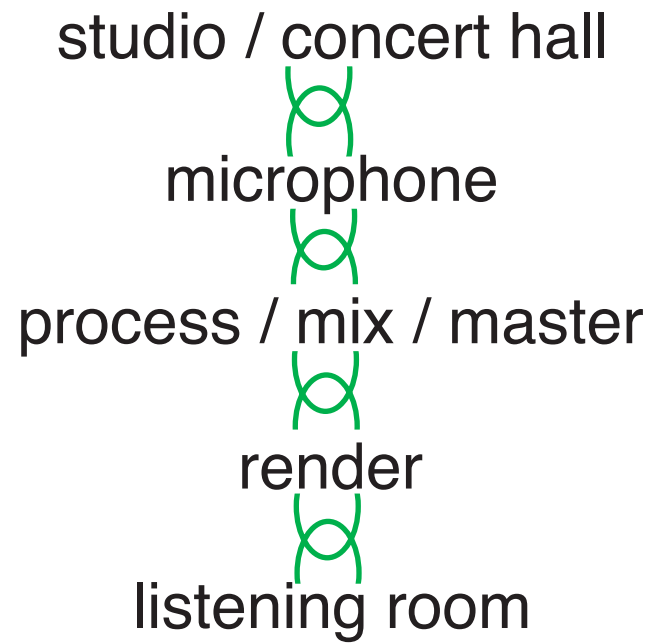
www.surrey.ac.uk/soundrec



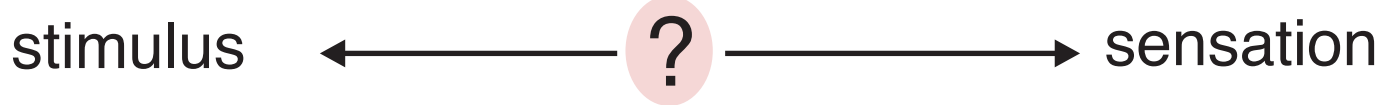
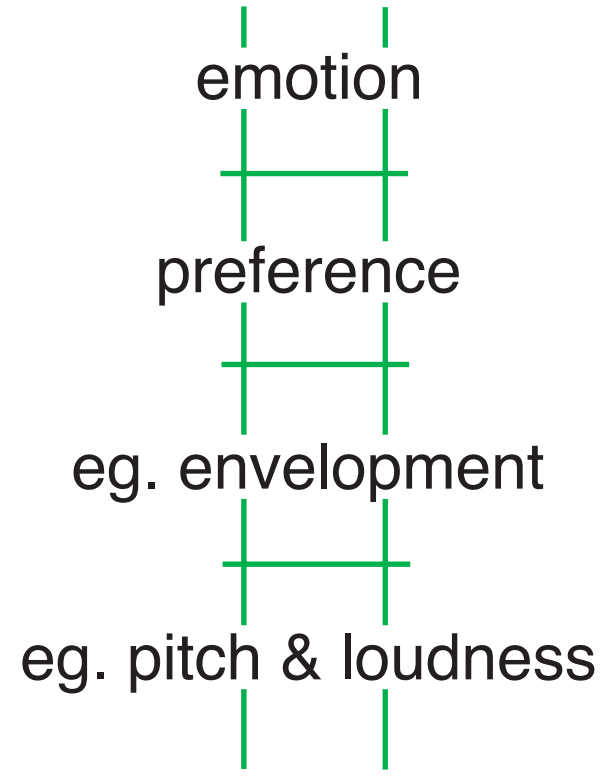
Definition of the Field

the sound rec/repro chain

the 'cognitive ladder'



mapping
modelling
exploitation



Why bother?

shift

- electrical characteristics
- physical parameters
- timbral & spatial perceptual attributes

outcomes

- mapping → recommendations
- modelling → measurements
- exploitation → processing algorithms

users

- recording/mix/mastering engineers
- room, equipment & software designers
- psycho/physio/neuro-logists

How do we do it?

listening test

- classical psychophysical techniques
- verbal/graphical elicitation of higher attributes

definitions

- reproduced sound vs concert hall acoustics
- spatial audio paradigm
- universal timbral descriptors

training

- expert vs naïve listeners
- spatial & timbral ear training

stimuli

- impulse vs signal / natural vs synthetic
- unequivocal unidimensional variation

Where are we at?

studio / concert hall

perceptually meaningful measurements

microphone

array techniques & spot mics

process / mix / master

spatial processors & displays

render

b/w requirements & up-mix algorithms

listening room

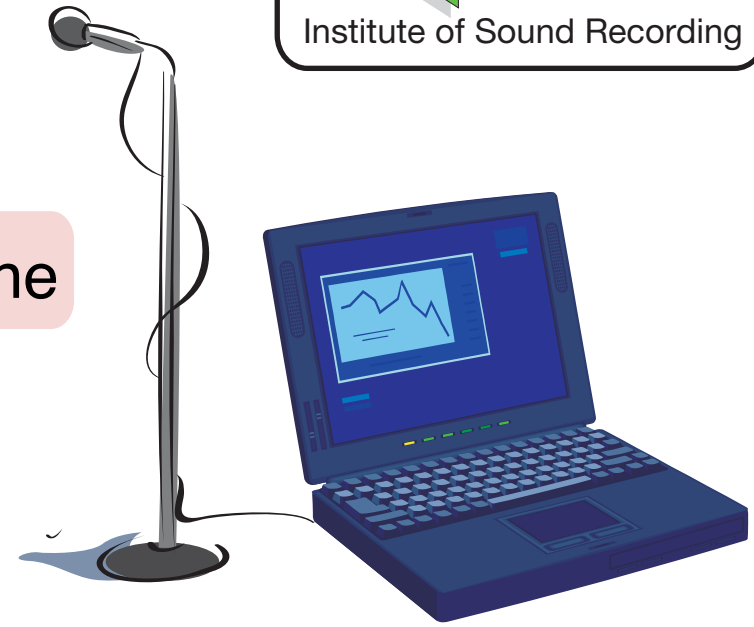
spatial properties & simulators

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Future Challenges



The Listening Machine



'Psychomorphic' Control Systems