

Audio-tactile interactions in perceived roughness

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Context:

Auditory roughness is a sound characteristic at the root of perceptual phenomena such as dissonance in music. Its perception has often been studied by considering stimuli composed of two monochromatic signals spaced in frequency, leading to fast temporal fluctuations. Previous work has demonstrated that the sensation of roughness is not limited to the auditory domain and can also be perceived through touch (See: Bernard et al. Tactile perception of auditory roughness. 2022).

Internship subject:

The first objective of this internship is to better understand the similarities and differences between roughness perception in audition and touch. The second objective is to evaluate audio-tactile interactions to explore how one modality can influence the perceived roughness in the other modality. The student will have to design and conduct two psychophysical experiments with human subjects to investigate their perception.

Work to be done:

- Bibliography
- Design of the experimental protocols
- Implementation of test interfaces
- Conducting the experiments
- Analysis of results
- Writing a report, possibility to write a scientific paper

Required skills:

- Audio processing and data analysis (Matlab or Python and Max/MSP)
- Motivation for research work
- Autonomy

Compensation: around 600€ / month

Internship period: from February to August 2023