

Data Description for *Analysis_Data.xlsx*

The data shared in the *Analysis_Data.xlsx* file corresponds to the research presented in the journal article:

Title: *Perceived Intensity of Pneumatic Vibrotactile Stimuli: Effects of Pressure, Frequency, and Stiffness*

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1. Analysis - Effect of Pressure and Frequency

The data used in *Section 2.7.1 Effect of Pressure and Frequency* of the journal is contained in the following sheets:

- 'First Module-9 points-0.9mmPUC'
- 'First Module-9 points-1.2mmPUC'

Column Descriptions:

- *ID_name*: Identifier assigned to each participant
- *Pressure, Frequency, Design*: Input parameters at which perceived intensity is measured for the associated PUC actuator design
- *Posterior Mean (Perceived Intensity)*: Numeric magnitude representing the dependent variable—perceived vibrotactile intensity

2. Analysis - Interaction Between Pressure and Frequency

The data used in *Section 2.7.2 Interaction Between Pressure and Frequency* of the journal is found in the following sheets:

- 'First Module-JNDs-0.9-FS', 'First Module-JNDs-0.9-PS'
- 'First Module-JNDs-1.2-FS', 'First Module-JNDs-1.2-PS'

Sheet Naming Convention:

- *FS* (Frequency Slice) and *PS* (Pressure Slice) indicate the type of data slice
- *0.9* and *1.2* refer to the PUC actuator design dimensions (0.9 mm and 1.2 mm, respectively)

Frequency Slice Sheets:

- *ID*: Participant identifier
- *10 kPa, 18 kPa, 26 kPa*: Locations of slices with corresponding dependent variable (*Number of JNDs*)
- *Mean*: Average *Number of JNDs* across *10 kPa, 18 kPa, and 26 kPa* for a given participant

Pressure Slice Sheets:

- *ID*: Participant identifier
- *33 Hz, 63 Hz, 93 Hz*: Locations of slices with corresponding dependent variable (*Number of JNDs*)
- *Mean*: Average *Number of JNDs* across *33 Hz, 63 Hz, and 93 Hz* for a given participant

3. Analysis - Level Set Estimate

The data used in *Section 2.8 Analysis - Second Module: Level Set Estimate* of the journal is found in the '**Second Module**' sheet.

Column Descriptions:

- *ID*: Participant identifier
- *For_17kPa*: Dependent variable *Frequency_LSE* measured at 17 kPa pressure
- *For_60Hz*: Dependent variable *Pressure_LSE* measured at 60 Hz frequency