Turning the Universe into Sound

This survey is part of a student project, which is part of the broader Audio Universe project ([www.audiouniverse.org](http://www.audiouniverse.org/)), exploring new ways to represent astronomy with sound. We hope to develop new methods to enhance scientific discovery and also make astronomy more accessible by using sound. By taking part in this survey, which aims to test how well our proposed method is working, you will be making a vital contribution in this development.

You do not need any previous knowledge of astronomy, data analysis - or any musical ability - to take part, but to help us interpret our results we ask you to rate your ability first.

There are three parts to the survey, with each part asking you to listen for different things in a set of audio clips which are embedded as youtube videos. Please note that the videos may be automatically muted, depending on your browser settings etc. After a small amount of training on each part, you will then be asked to listen to some sound clips and give them a score of 1-5 based on what you hear. It is recommended to wear headphones and/or be in a quiet room. We estimate this will take you 15-20 minutes to complete.

Depending on the outcome of the survey, we may publish these results but the survey is entirely anonymous. If you would like to find out more, or be informed of the results, please contact the project supervisor Chris Harrison at christopher.harrison@newcastle.ac.uk.

## Section 1

How experienced are you in data analysis?

Very experienced (e.g., professional)

Experienced

Some experience (e.g., hobby/enthusiast)

Little experience

No experience

How experienced are you in music?

Very experience (e.g., professional)

Experienced

Some experience (e.g., as a hobby/enthusiast)

Little experience

No experience

How old are you?

Under 21

21-30

31-40

41-50

51-60

Over 60

Rather Not Say

## Section 2: How Clear is the signal?

Your task is to describe how clear the sound signal is, above background noise, on a scale of 1-5. Where 1 means very noisy and 5 means very clear. The 'signal' sounds like a ringing bell. First, listen to the six examples, which provide three very clear examples and very noisy examples.

Very clear signal Example 1

Very clear signal Example 2

Very clear signal Example 3

Very noisy signal Example 1

Very noisy signal Example 2

Very noisy signal Example 3

Rate Sound 1 (play video below)

1 Very Noisy
2
3
4
5 Very Clear

**(a repeat of this questions was presented for all 10 sounds)**

Please comment on how often you referred to the example sounds when doing this task. Any other comments/thoughts you have can also be provided here.

## Section 3: Type A or Type B?

We have split these sounds into two types (based on the data they are created from): Type A and Type B. We want to know on are sliding scale if you are confident the sounds that you hear are confidently Type A (score 1), or confidently Type B (score 5). A score of 3 would mean that you are equally unconfident in which type the sound is. We have provided three examples of Type A and three examples of Type B for you to listen to first.

Type A Example 1

Type A Example 2

Type A Example 3

Type B Example 1

Type B Example 2

Type B Example 3

Rate Sound 1 (play video below)
1 Definitely Type A

2

3

4

5 Definitely Type B
**(a repeat of this questions was presented for all 10 sounds)**

Please comment on how often you referred to the example sounds when doing this task. Any other comments/thoughts you have can also be provided here.

## Section 4: Which pitch is more dominant?

Your task is to describe which pitch is more prominent in the sounds you here on a scale of 1-5.  Where 1 means that the lower pitch is dominant and 5 means that the higher pitch is dominant. First, listen to the three examples of low pitch and three examples of high pitch.

Lower Pitch Dominant - Example 1

Lower Pitch Dominant - Example 2

Lower Pitch Dominant - Example 3

Higher Pitch Dominant - Example 1

Higher Pitch Dominant - Example 2

Higher Pitch Dominant - Example 3

1. Rate Sound 1 (play video below)

1 Low Pitch Dominant

2

3

4

5 High Pitch Dominant

**(a repeat of this questions was presented for all 10 sounds)**

Please comment on how often you referred to the example sounds when doing this task. Any other comments/thoughts you have can also be provided here.

## Section 5

How tolerable were the sounds to listen to?

1 Very intolerable

2

3

4

5 Tolerable

Any final comments?