Participant Information Sheet

PROJECT TITLE: Can You Spot a (Deep)fake?

Deepfakes are videos in which the face and/or voice of a person has been manipulated using artificial intelligence software in a way that makes the altered video look authentic. You are invited to take part in a research project investigating the public's ability to spot deepfakes.

The study is being conducted by Dr Dan Miller and Dr Klaire Somoray. If you agree to be involved in the study, you will be shown a series of 20 10-second videos (half of which are deepfakes) and asked to categorise each video as either fake or authentic. You will then be asked some questions about your experiences with the activity and a bit about yourself. Afterwards you will be given a score based on how many videos you correctly categorised. The study is conducted online and should take about 20 minutes to complete.

If you are participating as a JCU psychology student through the SONA system, you will receive course credit as remuneration for your participation (2 SONA credit points).

Please note that participation in this study **requires the ability to play media content.** So, please ensure that you can play audio and video and please put on headphones if needed. You also need to be 18 years old and above to complete the study (JCU students who are aged 17 and above are considered adults for the purposes of this study).

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. We do not foresee any direct risks/discomfort from your participation in this research. However, if you do feel any stress or discomfort during, or after, participating in this study, please feel free to visit the following for information and support: Beyond Blue (www.beyondblue.org.au/; 1300 22 4636) and Lifeline (www.lifeline.org.au/, 13 11 14).

If you know of others that might be interested in this study, can you please pass on this information sheet to them so they may contact us to volunteer for the study.

This study has been approved by the James Cook University Human Research Ethics Committee

(ID# H8747). Your participation in the study will be anonymous, no personally identifying information will be collected. The data from the study will be used in research publications and reports (journal articles, conference presentations, theses, etc.). You will not be identified in any way in these publications. The data may also be put on data repositories for other researchers to access and use and may be used as part of a future comparative study.

Given that participation in this study is anonymous, you will not be able to withdraw any unprocessed data.

If you have any questions about the study, please contact Dr Klaire Somoray or Dr Dan Miller.

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Co-Investigator: Dr Klaire Somoray
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If you have any concerns regarding the ethical conduct of the study, please contact:

Human Ethics, Research Office

James Cook University, Townsville, Qld, 4811

Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Informed Consent Form

PRINCIPAL INVESTIGATOR: Dr Dan Miller
PROJECT TITLE: Can You Spot a (Deep)fake?
COLLEGE: Healthcare Sciences

I understand the aim of this research study is to investigate the public's ability to detect deepfakes. I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written information sheet to keep (https://jcu.au1.qualtrics.com/WRQualtricsControlPanel/File.php?F=F_1UhJ38B9CXOi1Nk).

I understand that my participation will involve watching a series of videos and categorising each video as fake or authentic and answering questions on the topic of deepfakes and I agree that the researcher may use the results as described in the information sheet.

I acknowledge that:

- taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- that any information I give will be kept strictly anonymous and that no names will be used to identify me with this study without my approval;
- that my anonymous data may be shared with other researchers or used as part of a future comparative study.

I consent to participate in the described study and for the researchers to use my data as described in the information sheet.

○ **Yes**

○ **No**

Experiment Description

In this experiment, we will show you 20 videos of people talking about everyday topics. Half of the videos are real. The other half have been fabricated using deepfake technology. So, for each video there is a 50% chance that the video is a deepfake.

For each video, you will be asked to indicate whether it is a deepfake or is authentic. You will also be asked to indicate how confident you are in your decision. You can watch each video as many times as you would like.

After the activity you will get a score indicating how many videos you correctly categorised, so please try your hardest.

Attention Check 1

"Deepfake" generally refers to a video in which the face and/or voice of a person has been manipulated using artificial intelligence software in a way that makes the altered video look authentic.

Before proceeding to the task, we would like you to answer the following comprehension question. You have to answer this question correctly to be able to continue.

A deepfake is a video in which...

○ **...the face and/or voice of a person has been manipulated using artificial intelligence**

○ **...a person is talking about fakes**

○ **...a person is telling lies**

This is a validity check. Participants who select an incorrect response will be asked to try again and have to submit the correct response before they are able to proceed to the next page.

Attention Check 2

Please answer the following comprehension question. You have to answer this question before you are able to continue.

Which of the following statements is correct?

○ **All the videos are deepfakes**

○ **Each video has a 50% chance to be a deepfake**

○ **Each video has a 20% chance to be a deepfake**

This is a validity check. Participants who select an incorrect response will be asked to try again and have to submit the correct response before they are able to proceed to the next page.
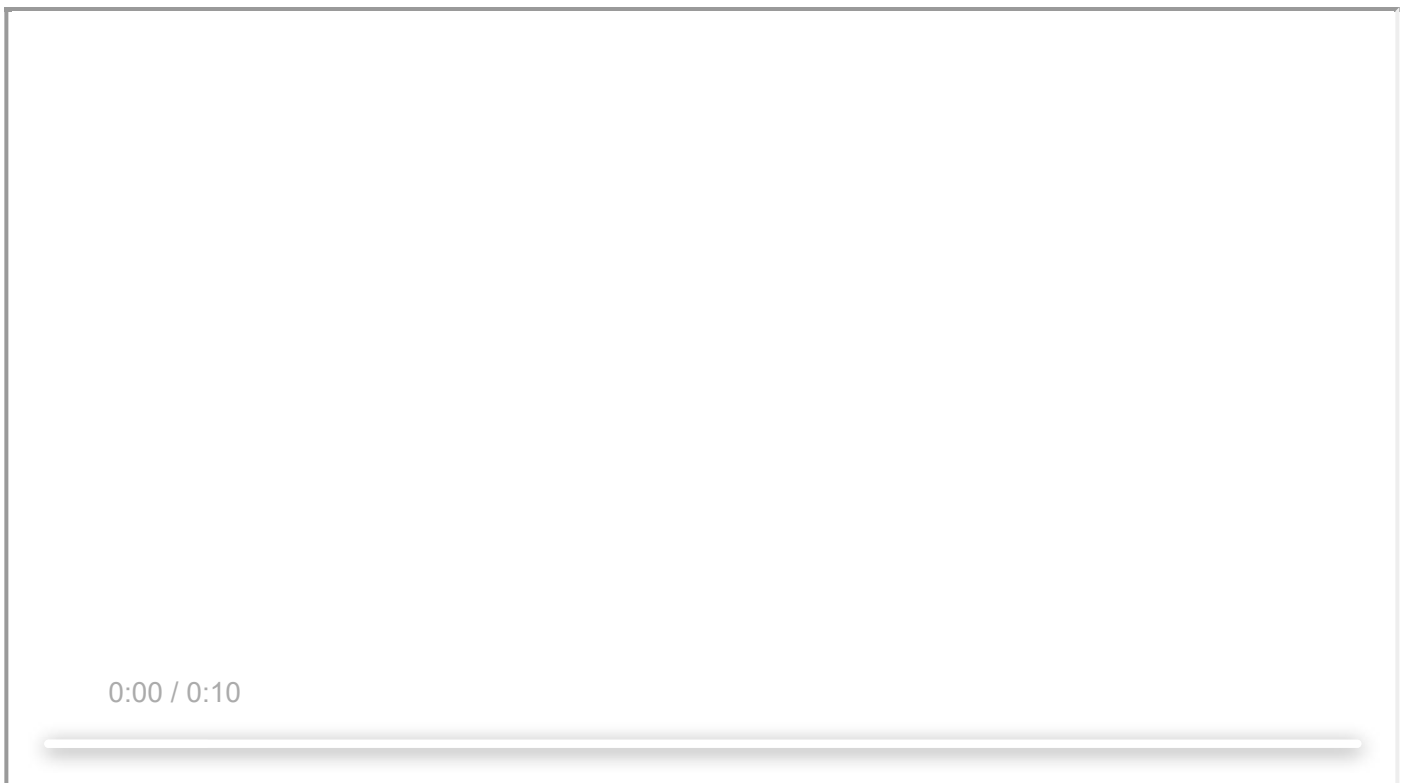
Intervention

Here are some strategies to help you spot the deepfakes:

1. Pay attention to the face. High-end Deepfake manipulations are almost always facial transformations.
2. Pay attention to the cheeks and forehead. Does the skin appear too smooth or too wrinkly? Is the agedness of the skin similar to the agedness of the hair and eyes? Deepfakes are often incongruent on some dimensions.

3. Pay attention to the eyes and eyebrows. Do shadows appear in places that you would expect? Deepfakes often fail to fully represent the natural physics of a scene.
4. Pay attention to the glasses. Is there any glare? Is there too much glare? Does the angle of the glare change when the person moves? Once again, Deepfakes often fail to fully represent the natural physics of lighting.
5. Pay attention to the facial hair or lack thereof. Does this facial hair look real? Deepfakes might add or remove a moustache, sideburns, or beard. But, deepfakes often fail to make facial hair transformations fully natural.
6. Pay attention to facial moles. Does the mole look real?
7. Pay attention to blinking. Does the person blink enough or too much?
8. Pay attention to the size and color of the lips. Does the size and color match the rest of the person's face?

Set1_Video 01 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:00 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

[   ]

Set1_Video 02 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

◯ **This video is a deepfake**

◯ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 03 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| | 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 04 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 05 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"
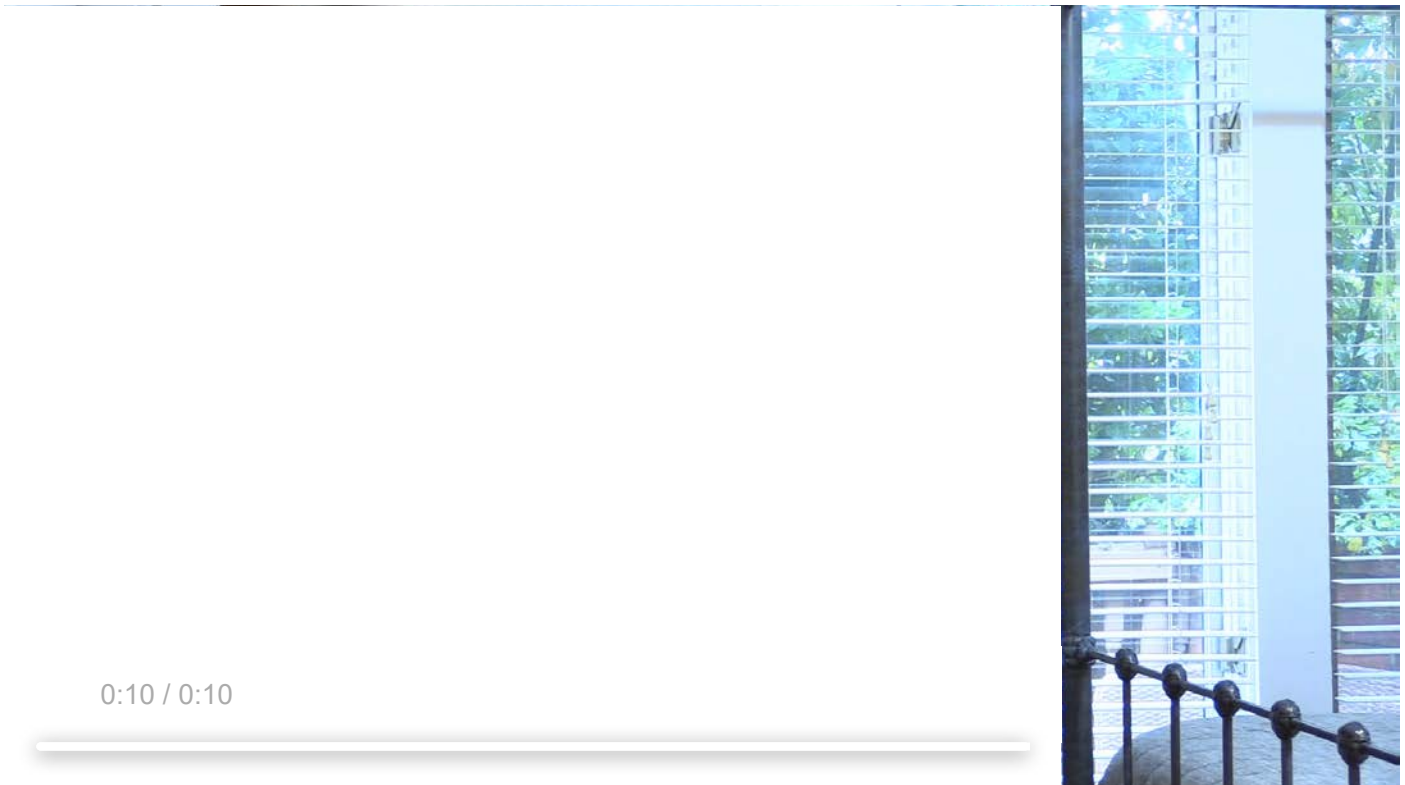
| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 06 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 07 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 08 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"
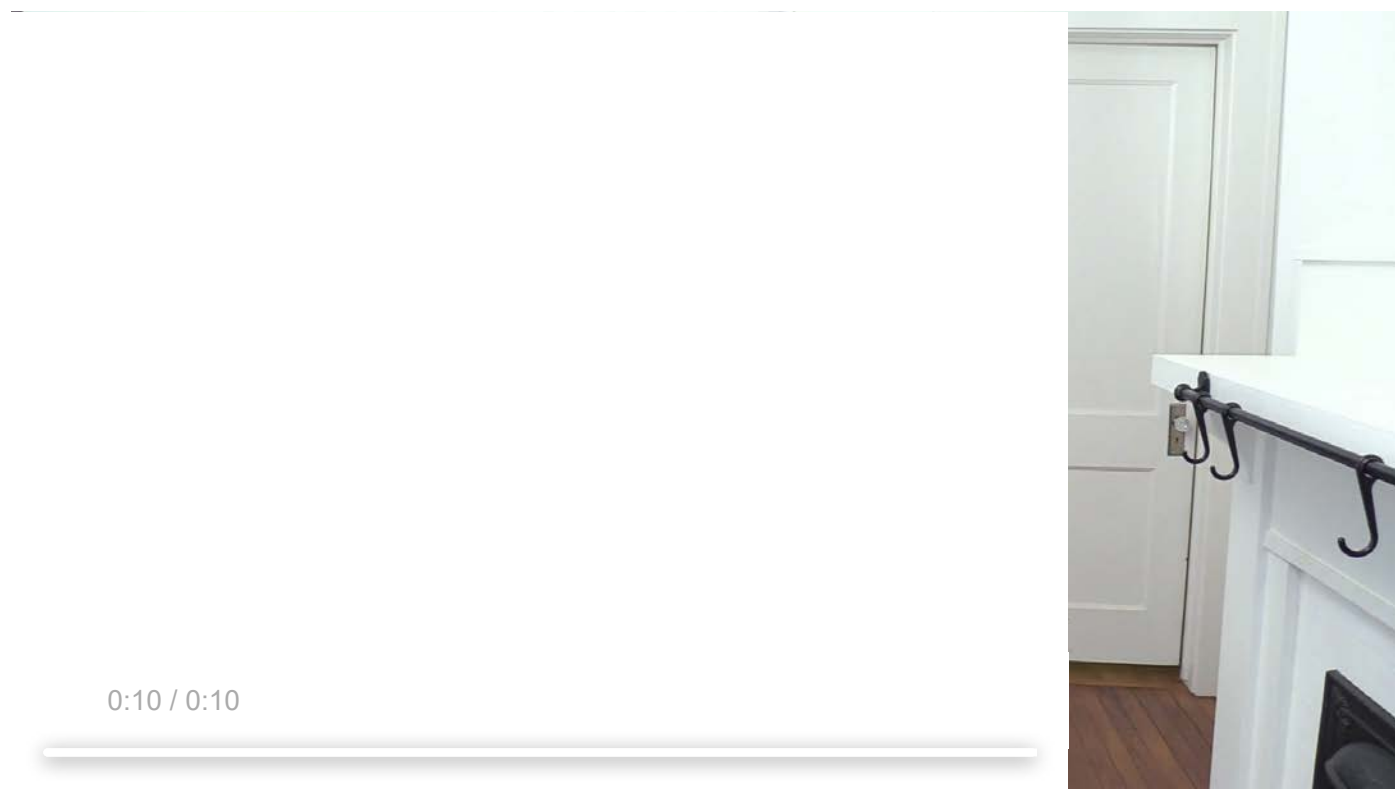
50	60	70	80	90	100

Set1_Video 09 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 10 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 11 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 12 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 13 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 14 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set1_Video 15 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 16 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 17 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 18 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 19 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set1_Video 20 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50   60   70   80   90   100

Overall_Self_Rating

Out of the 20 videos, how many videos do you think you guessed correctly?

0   2   4   6   8   10   12   14   16   18   20

Demographics

What is your age?

What is your gender?

In what country do you currently reside?

What is your highest level of formal education?

- ○ **Primary school**
- ○ **High school graduate**
- ○ **TAFE/Other Vocational Studies**
- ○ **Undergraduate degree**
- ○ **Some postgraduate study or a postgraduate degree**

This is a serious academic study and the results will contribute to the understanding of deepfake detection. To maintain the integrity of the study's data, please indicate if you have done this study previously, so we can exclude your data.

○ **This is the first time I have done this study.**

○ **This is NOT the first time I have done this study.**

○ **I am unsure.**

Feedback_Set1

You correctly detected **${gr://SC_0wbs18fgETV1bq6/Score}** out of 20 videos, meaning you have a detection score of **0**. A detection score of .50 would be the equivalent of chance guessing. If you did poorly, don't worry. This is a difficult task! A similar study (Kobis and colleagues, 2021) found the average detection score among participants to be .56 (very close to chance).

Debrief

Thank you for your participation in this study – you have contributed to understanding the psychology of misinformation!

With this experiment, we sought to investigate the public's ability to detect deepfakes and whether providing "detection strategies" increases detection accuracy. Half of the participants were provided with strategies for detecting deepfakes, while the other half were not.
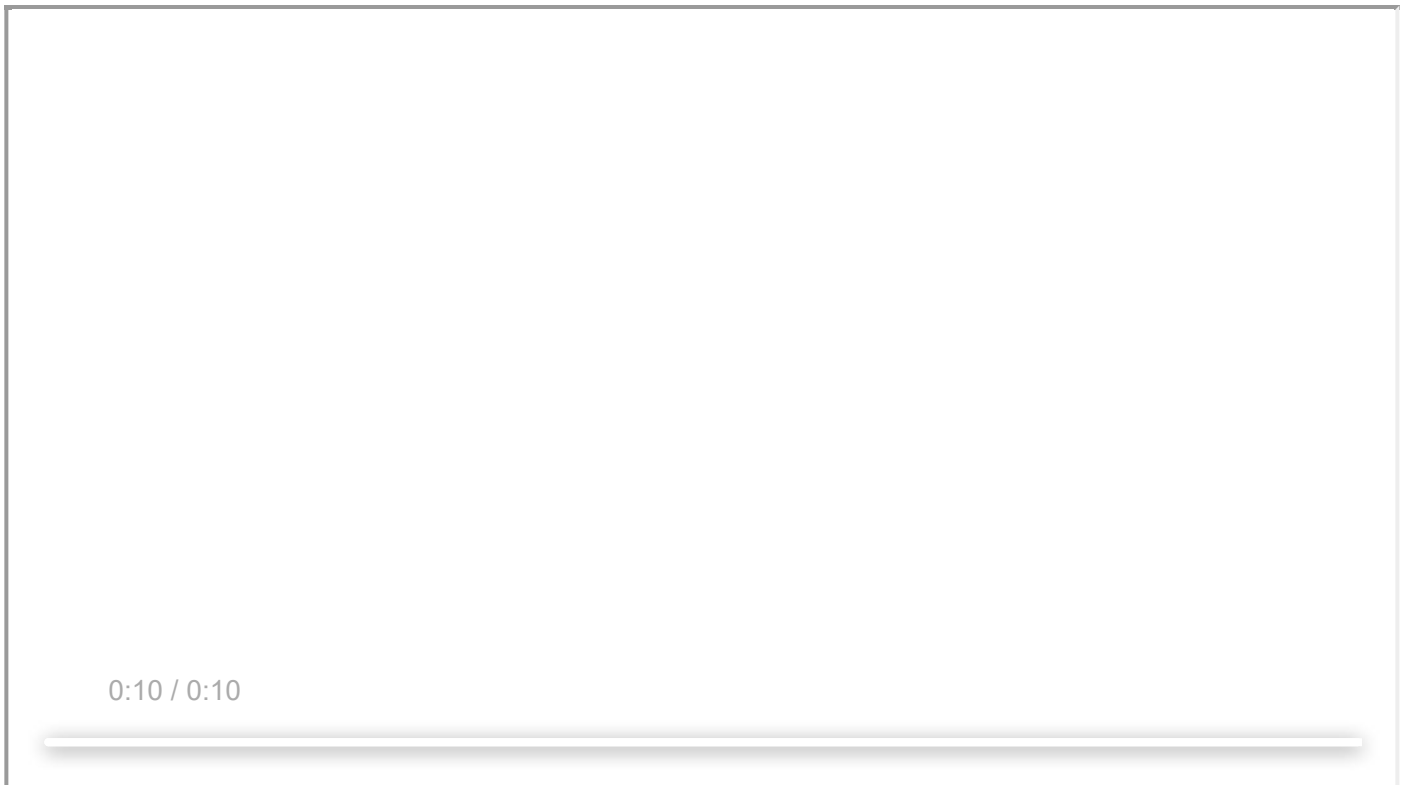
If you are interested, these strategies can be downloaded as a pdf from the following link (https://tinyurl.com/deepfakedetectionstrategies (http://tinyurl.com/deepfakedetectionstrategies)). If you are curious and would like a written summary of the results of the study (once data collection has been completed) please email Dr Dan Miller (daniel.miller1@jcu.edu.au) and/or Dr Klaire Somoray (klaire.somoray@jcu.edu.au) who would be more than happy to provide this.

If you feel any stress or discomfort during, or after, participating in this study, please feel free to visit the following for information and support: Beyond Blue (www.beyondblue.org.au/; 1300 22 4636) and Lifeline (www.lifeline.org.au/, 13 11 14).

Once again, thanks for your time and involvement with this study.

Set2_Video 01 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set2_Video 02 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

◯ **This video is a deepfake**

◯ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 03 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 04 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 05 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set2_Video 06 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

[ ]

Set2_Video 07 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**
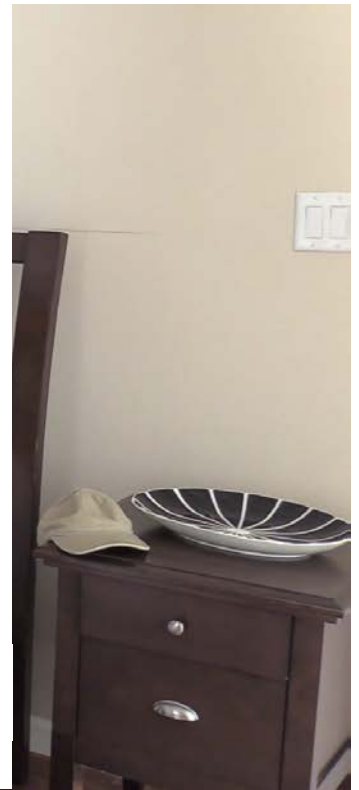
How confident are you that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set2_Video 08 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 09 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50   60   70   80   90   100

Set2_Video 10 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

[   ]

Set2_Video 11 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Set2_Video 12 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 13 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 14 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

	50	60	70	80	90	100

Set2_Video 15 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

[   ]

Set2_Video 16 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 17 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

0:10 / 0:10

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 18 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50   60   70   80   90   100

Set2_Video 19 detection_real

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

| 50 | 60 | 70 | 80 | 90 | 100 |

Set2_Video 20 detection_fake

Please watch the video below. Remember half the media snippets we show are real and half are fabricated.

Is this video a deepfake or real?

○ **This video is a deepfake**

○ **This video is real**

What is your confidence that you guessed correctly?

50% = "I am as confident as correctly guessing a coin flip" to 100% = "I am 100% sure"

50	60	70	80	90	100

Feedback_Set2

You correctly detected **${gr://SC_daR0eehNHBkXGXI/Score}** **out of 20 videos**, meaning you have a detection score of **0**. A detection score of .50 would be the equivalent of chance guessing. If you did poorly, don't worry. This is a difficult task! A similar study (Kobis and colleagues, 2021) found the average detection score among participants to be .56 (very close to chance).