



## Block 1

Dear Participant,

First of all, thank you for agreeing to participate in this study.

The goal of this study is to gain insight into the level of trust of women in the Netherlands, in the decisions made by radiologists with the support of different applications of Artificial Intelligence (AI), in the Breast Cancer Screening Programme.

Gaining insight into your level of trust in the decisions made by radiologists and AI regarding whether you have breast cancer or not, is of high importance, as this will help to anticipate which steps can be taken by hospitals and software developers, in the near future.

- This survey consists of 10 introductory questions and 42 statements, and will take approximately 10 minutes to complete.
- No questions will be asked with regard to your personal data. Therefore, your responses cannot be linked back to you. Hereby, your privacy is guaranteed.
- If you would like to receive the final results of this study in June, please leave your e-mail address at the end of the survey. This e-mail address will not be linked to your responses to the questions.
- If you have any questions, remarks or complaints, please feel free to contact me via [m.dehaas@student.ru.nl](mailto:m.dehaas@student.ru.nl).

After reading the information above, I would like to ask you to participate in this study. This can be done by giving your consent to participate in this study by pressing the button 'Yes, I participate'.

Thank you in advance for taking the time.

With Love,

Map

## **Block 2**

After you respond to the following two questions, the survey will start.

What is your gender?

- ☐ Female
- ☐ Male
- ☐ Other

Are you a student or staff member at a Dutch University?

- ☐ Yes, I am a student at a Dutch University
- ☐ Yes, I am a staff member at a Dutch University
- ☐ No

## **Block 3**

Which Dutch University are you in?

- ☐ University of Amsterdam
- ☐ VU University Amsterdam
- ☐ University of Groningen
- ☐ Leiden University
- ☐ Maastricht University
- ☐ Radboud University Nijmegen
- ☐ Erasmus University Rotterdam
- ☐ Tilburg University
- ☐ Utrecht University
- ☐ Delft University of Technology
- ☐ Eindhoven University of Technology
- ☐ University of Twente
- ☐ Wageningen University
- ☐ Open University
- ☐ Other

Which faculty of Radboud University Nijmegen are you in?

I am currently studying for my...

Do you currently live in the Netherlands?

Yes  
☐

No  
☐

What is your highest level of education?

How old are you?

Where were you born?

What is your employment status?

What is your marital status?

Have you previously had any cancer diagnosis?

Yes, breast cancer    Yes, other cancer    Yes, breast cancer and other cancer    No

☐    ☐    ☒    ☐

Has anyone in your family been diagnosed with breast cancer?

Yes    No

☐    ☒

Has anyone you know outside your family been diagnosed with breast cancer?

Yes    No

☐    ☒

Have you ever had a mammography screening done?

Yes  
☐

No  
☒

The National Breast Cancer Screening Programme was established for the bi-annual mammography screening of women between 50 and 75. A mammogram is an X-ray picture of the breast, that is used for identifying abnormalities which should be investigated further.

Currently, the mammogram is examined by 2 radiologists. They both examine the mammogram independently, and afterwards agree on a diagnosis.

Please indicate to what extent you agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I usually trust doctors until they give me reason not to trust them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I generally give doctors the benefit of the doubt when I first meet them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My typical approach is to trust doctors until they prove that I should not trust them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, doctors really do care about the well-being of others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
In general, most doctors keep their promises.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most doctors are very knowledgeable in their chosen field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe a large majority of radiologists is competent in their area of expertise.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the typical radiologist is sincerely concerned about the problems of patients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe radiologists generally try to back their words with their actions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe most radiologists are honest in their dealings with patients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that most radiologists are very good at interpreting mammograms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe, most of the time, radiologists care enough to try to be helpful rather than just looking out for themselves.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I would be certain that my breasts are healthy after I receive a two radiologists result of no cancer cells on the mammogram.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The developments in the field of Artificial Intelligence (AI) led to the development of AI applications that can be used in the Breast Cancer Screening Programme. A possible future scenario would be one (instead of two) radiologist examining the mammogram, and comparing it with the AI application recommendation. In this situation, the radiologist still has the final say, but the AI software system analyzes the mammogram too, and also presents a diagnosis.

Please indicate to what extent you agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe that most technologies are effective at what they are designed to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A large majority of technologies are excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most technologies have the features needed for their domain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I usually trust a technology until it gives me reason not to trust it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I generally give a technology the benefit of the doubt when I first use it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My typical approach is to trust new technologies until they prove me that I should not trust them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am treated in a hospital, I am confident that they know what they are doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, I feel totally comfortable with the use of AI software.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am comfortable with the use of AI software in making a diagnostic decision, because the radiologist is doing his own diagnosis as well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Because software developers monitor the algorithms behind the AI system, I feel assured that the AI software operates properly when examining the mammogram.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because the AI software is inspected regularly for malfunctioning, I am sure the AI operates properly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because the radiologist still has the final say, I am comfortable with the use of AI software in making a diagnostic decision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be certain that my breasts are healthy after I receive a combined AI-radiologist result of no cancer cells on the mammogram.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Recently, research presented an AI system that outperforms human experts in the prediction of breast cancer. Therefore, it is expected that another possible future scenario could be that the AI application examines the mammogram by itself, and makes the final diagnostic decision. The radiologist will solely be in place to

explain what might have caused the abnormality and which steps should be taken.

The following statements concern the possible future state in which AI is making the diagnostic decision by itself. Imagine this is the case.

Please indicate to what extent you agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe the AI mammography screening software is a very reliable piece of software.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To me, the decision made solely by the AI mammography screening software is extremely dependable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that the AI software will not make mistakes in providing a diagnostic decision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the AI mammography screening software has the functionality it needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the AI software has the features for performing the mammogram examination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe the AI mammography screening software is competent in providing a diagnostic decision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I have questions regarding the diagnostic decision, I believe the AI software would be able to provide me with answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If needed, I believe the AI software provides sensible and effective advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the help function of the AI is good enough to explain to me the results of the examination by itself, without the help of a radiologist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I can rely on AI software alone, even when breast cancer is hard to detect.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am sure the AI software would detect the breast cancer, even though every breast cancer mammogram is unique.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
When breast cancer is still in an early stage, I am sure the AI software alone will detect it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be certain that my breasts are healthy after I receive an AI-only result of no cancer cells on the mammogram.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your opinion, which of the scenarios would you prefer?

- ☐ Two radiologists result of the mammogram
- ☐ Combined AI-Radiologist result of the mammogram
- ☐ AI-only result of the mammogram

Please explain why this scenario is your preferred choice:

In case the AI decision differs from the decision of the radiologist, which decision would you tend to believe?

- ☐ Radiologist
- ☐ AI

## Block 4

This is the end of the survey. Thank you for your participation.

**IMPORTANT: Please press the button on the right to submit the survey!**

If you like to receive the final results of this study in June, please leave your e-mail address below.

- ☐  Yes,
- ☐ No

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