Translation of the recruitment email template send to the German Association of Dermatologists

"Dear Sir or Madam,

As part of our efforts to advance the development of AI-based decision support systems in the medical field, we would like to invite you to participate in an online study.

The aim of this study is to explore trust in AI-based decision support systems and to gain insights for the development of new systems. As an experienced doctor, you play an important role in better understanding the requirements from the perspective of healthcare professionals and improving future systems so that they provide you with the best possible support in your day-to-day work. In the study, you will be presented with 24 images of melanocytic lesions, for which you will be asked to make an assessment on your own and with the help of AI support. You will then be asked a number of questions about your personality and your use of technology.

The study is being carried out as part of the [anonymized for review]. The estimated time for answering the questions is about 10 to 15 minutes.

If you are interested in taking part in this study, please follow the attached link. If you have any further questions or comments, please do not hesitate to contact me.

Link: Link to online study

We realise that your time is valuable and thank you in advance for your support in this research.

Yours sincerely [...]"

German version below | | Deutsche Sprachfassung untenstehend

Hello and welcome!

We thank you for your interest and willingness to participate in this online study. This research is executed at the chair of **Social Psychology: Media and Communication** and is part of the DFG-funded Research Training Group **WisPerMed**, a cooperation of the University of Duisburg-Essen, University of Applied Sciences and Arts Dortmund and University Hospital Essen.

In this study we want to investigate **the influence of different human factors on the reception of advice given by artificial intelligence (AI)**. First you will be asked to run through 24 binary classification tasks of lesion images in which you will be aided by an AI. Afterwards you have to complete different questionnaires concerning various personality factors.

The survey will approximately take **12 minutes**.

Participation in the study is **voluntary**. You can terminate the study at any time and without giving reasons. There are no negative consequences for you if you discontinue participation in the study.
In the case of studies, the legal basis for the processing of personal data concerning you is your voluntary consent in accordance with the DS-GVO (Art. 6 Abs. 1 Buchst. a). The data will be used in anonymised form and exclusively for scientific purposes. The data can be made available to other scientists in anonymised form. The data will be kept for at least 10 years after the data analysis or at least 10 years after the publication of a study.
The data will be stored anonymously so that no conclusions can be drawn about your person.

By clicking the "**Next**" button you agree that any data collected can be used in anonymized form for scientific purposes and publication by the chair of Social Psychology: Media and Communication of the University of Duisburg-Essen, and that you are 18 years or older.

Hallo und herzlich willkommen!

Wir danken Ihnen für Ihr Interesse und Ihre Bereitschaft, an dieser Online-Studie teilzunehmen. Die Studie wird am Lehrstuhl für **Sozialpsychologie: Medien und Kommunikation** durchgeführt und ist Teil des DFG-geförderten Graduiertenkollegs **WisPerMed**, einer Kooperation der Universität Duisburg-Essen, der Fachhochschule Dortmund und des Universitätsklinikums Essen.

In dieser Studie wollen wir untersuchen, **welchen Einfluss unterschiedliche menschliche Faktoren darauf haben, wie Vorschläge, die von einer künstlichen Intelligenz (KI) gegeben werden, aufgenommen und angenommen werden**. Zunächst werden Sie gebeten, sich 24 Fotografien von pigmentierten Hautveränderungen anzuschauen und sie in bösartig bzw. gutartig zu klassifizieren. Dabei werden Sie von einer KI unterstützt. Anschließend bitten wir Sie verschiedene Fragebögen zu verschiedenen Persönlichkeitsfaktoren auszufüllen.

Die Befragung wird etwa **12 Minuten** dauern.

Die Teilnahme an der Studie ist **freiwillig**. Sie können die Studie jederzeit und ohne Angabe von Gründen abbrechen. Es hat keine negativen Folgen für Sie, wenn Sie die Teilnahme an der Studie abbrechen.

Rechtsgrundlage für die Verarbeitung der Sie betreffenden personenbezogenen Daten ist im Falle von Studien Ihre freiwillige Einwilligung gemäß DS-GVO (Art. 6 Abs. 1 Buchst. a). Die Daten werden in anonymisierter Form und ausschließlich zu wissenschaftlichen Zwecken verwendet. Die Daten können anderen Wissenschaftlern in anonymisierter Form zur Verfügung gestellt werden. Die Daten werden für mindestens 10 Jahre nach der Datenanalyse oder mindestens 10 Jahre nach der Veröffentlichung einer Studie aufbewahrt.

Die Daten werden anonymisiert gespeichert, so dass keine Rückschlüsse auf die Einzelperson möglich sind.

Mit dem Klick auf den **"Next"**-Button erklären Sie sich damit einverstanden, dass die erhobenen Daten in anonymisierter Form zu wissenschaftlichen Zwecken und zur Veröffentlichung durch den Lehrstuhl für Sozialpsychologie: Medien und Kommunikation der Universität Duisburg-Essen verwendet werden dürfen und dass Sie mindestens 18 Jahre alt sind.

German version below | | Deutsche Sprachfassung untenstehend

In the following you will be presented with **24 classification tasks of lesion images**. You will see a clinical photography of a skin lesion and will be asked to decide whether you would **classify the lesion as benign or malign** on a scale from 0% (definitely benign) to 100% (definitely malign).

After indicating your estimation and pressing the "Next" button you will be presented with the same image. However, now you will be shown the **advice of an AI system** on the slider indicating the AI-classification of the lesion to provide a **second opinion** and help you assess your first estimation. The AI was previously trained on a dataset provided by the International Skin Imaging Collaboration and has an **accuracy of about 80%**. The AI is not perfectly accurate and **can make mistakes** in this classification. We are aiming for a high total accuracy through the **collaboration of human and AI**.

If you want to you can adjust your prior estimate. After pressing "Next" again you will be presented with the next lesion image.

Im Folgenden werden Sie gebeten, sich **24 Fotografien von pigmentierten Hautveränderungen anzuschauen und sie in bösartig bzw. gutartig zu klassifizieren**. Ihre Entscheidung tragen Sie auf einer Skala von 0% (auf jeden Fall benign/nicht maligne) bis 100 % (auf jeden Fall maligne) ein.

Nachdem Sie Ihre Einschätzung angegeben und auf die Schaltfläche "Next" geklickt haben, wird Ihnen das gleiche Bild angezeigt. Jetzt wird Ihnen jedoch auf dem Schieberegler der **Rat eines KI-Systems** angezeigt, welcher die KI-Klassifizierung der Läsion angibt, um Ihnen eine zweite Meinung zu geben und Sie bei der Bewertung Ihrer ersten Einschätzung zu unterstützen. Die KI wurde zuvor auf einem von der International Skin Imaging Collaboration bereitgestellten Datensatz trainiert und hat eine **Genauigkeit von etwa 80%**. Die KI ist nicht vollkommen genau und kann bei dieser Klassifizierung Fehler machen. Wir hoffen, dass durch die **Kombination aus menschlicher und künstlicher Intelligenz** die höchste Treffsicherheit erreicht wird.

Wenn Sie möchten, können Sie Ihre vorherige Schätzung anpassen. Nachdem Sie erneut auf "Weiter" gedrückt haben, wird Ihnen das nächste Läsionsbild angezeigt.

question('WK06')

Thank you for finishing the experimental part of this survey. Now you will be asked to answer a few short questionnaires about your experience with technology and personality.

1. How old are you?

I am [   ] years old.

2. What gender do you identify as?

○ Male

○ Female

○ Other: [_____]

3. Are you a student or physician?

○ Student

○ Physician

4. How many years of experience do you have in the area of dermatology?

[_____] years

5. In case you are a student (otherwise leave empty): In what year of study are you currently?

year [_____]

6. After interacting with the AI system presenting its classification in the previous tasks, please read the following sentences carefully and indicate how you would rate the AI system.

Please indicate the degree to which you agree/disagree with the following statements.

	strongly disagree				strongly agree
The system is designed to be trustworthy.	○	○	○	○	○
I distrust the system.	○	○	○	○	○
I trust the system.	○	○	○	○	○
I lack faith in the system.	○	○	○	○	○
I believe in the system.	○	○	○	○	○

7. In the following questionnaire, we will ask you about your interaction with technical systems. The term 'technical systems' refers to apps and other software applications, as well as entire digital devices (e.g. mobile phone, computer, TV, car navigation).

Please indicate the degree to which you agree/disagree with the following statements.

	completely disagree					completely agree
It is enough for me to know the basic functions of a technical system.	○	○	○	○	○	○
I predominantly deal with technical systems because I have to.	○	○	○	○	○	○
I enjoy spending time becoming acquainted with a new technical system.	○	○	○	○	○	○
I try to make full use of the capabilities of a technical system.	○	○	○	○	○	○
It is enough for me that a technical system works; I don't care how or why.	○	○	○	○	○	○
I like testing the functions of new technical systems.	○	○	○	○	○	○
I try to understand how a technical system exactly works.	○	○	○	○	○	○
I like to occupy myself in greater detail with technical systems.	○	○	○	○	○	○
When I have a new technical system in front of me, I try it out intensively.	○	○	○	○	○	○

Please indicate on this 5-point scale from "strongly disagree" to "strongly agree" how you handle technical problems.

	strongly disagree				strongly agree
I feel helpless when interacting with technical devices, so I rather keep my hands off them.	○	○	○	○	○
When I solve a technical problem, it is usually by luck.	○	○	○	○	○
Most technical problems are so complicated, it makes no sense to deal with them.	○	○	○	○	○
Because I have coped well with previous technical problems, I am optimistic about future ones.	○	○	○	○	○
Technical devices are often inscrutable and difficult to control.	○	○	○	○	○
Even if I encounter resistance, I continue to work on technical problems.	○	○	○	○	○
Please select 'strongly agree' to show that you are paying attention to this question.	○	○	○	○	○
I have fun solving a technical problem.	○	○	○	○	○
I can solve many technical problems that I face on my own.	○	○	○	○	○

For the below listed items, please read each statement carefully. Using the 5-point scale ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me), select the answer that most accurately describes your feelings.

	extremely uncharacteristic of me				extremely characteristic of me
I would prefer complex to simple problems.	○	○	○	○	○
I really enjoy a task that involves coming up with new solutions to problems.	○	○	○	○	○
I like to have the responsibility of handling a situation that requires a lot of thinking.	○	○	○	○	○
I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	○	○	○	○	○
Please select 'extremely uncharacteristic of me' to show that you are paying attention to this question.	○	○	○	○	○
Thinking is not my idea of fun.	○	○	○	○	○
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.	○	○	○	○	○

For the below listed items, please read each statement carefully. Using the 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), select the answer that most accurately describes your feelings.

	strongly disagree				strongly agree
Technology helps me solve many problems.	○	○	○	○	○
I think it's a good idea to rely on technology for help.	○	○	○	○	○
I rely on technology.	○	○	○	○	○
Technology is reliable.	○	○	○	○	○
Generally, I trust technology.	○	○	○	○	○
I don't trust the information I get from technology.	○	○	○	○	○

8. After interacting with the AI system in the previous classification tasks, please answer the following question in regards to this AI:

	strongly disagree				strongly agree
The information given by the AI is true.	○	○	○	○	○
The information given by the AI would be verifiable if examined.	○	○	○	○	○