

AI Model to Predict Probability of Cardiovascular Disease

The product's main goal is to provide a simple prediction whether or not somebody has heart disease, based on several factors, such as blood pressure, age, weight, alcohol consumption, etc. The prediction, based on training data, can be used preventively or as advice to patients.

Created by: kkatkat
Created on: March 6, 2023 10:30 AM
Changed on: March 6, 2023 11:40 AM

Context of use: Education
Level of education: Bachelor

Technology Impact Cycle Tool

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Impact on society

What impact is expected from your technology?

This category is only partial filled.

What is exactly the problem? Is it really a problem? Are you sure?

Diagnosing cardiovascular disease takes time and many medical tests/examinations should be done. By all means, this is how medicine works and it should remain that way, but many people tend to skip the doctor visit completely. In those cases, they need to be able to receive some sort of prediction about their cardiovascular health.

Are you sure that this technology is solving the RIGHT problem?

This question has not been answered yet.

How is this technology going to solve the problem?

This question has not been answered yet.

What negative effects do you expect from this technology?

This question has not been answered yet.

In what way is this technology contributing to a world you want to live in?

This question has not been answered yet.

Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

This question has not been answered yet.

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Hateful and criminal actors

What can bad actors do with your technology?

This category is only partial filled.

In which way can the technology be used to break the law or avoid the consequences of breaking the law?

The technology can be used wrongfully by corrupted doctors, who lead the patients to think that the prediction from the AI model is 100% true and should be treated. They can then prescribe medication based solely on the prediction. Of course, hopefully this is something that happens very rarely in the modern day, because doctors should have high ethical standards.

Can fakers, thieves or scammers abuse the technology?

This question has not been answered yet.

Can the technology be used against certain (ethnic) groups or (social) classes?

This question has not been answered yet.

In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.

This question has not been answered yet.

How could bad actors use this technology to subvert or attack the truth?

This question has not been answered yet.

Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.

This question has not been answered yet.

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Privacy

Are you considering the privacy & personal data of the users of your technology?

This category is only partial filled.

Does the technology register personal data? If yes, what personal data?

The AI model works with personal data, such as cholesterol readings, weight, age, sex, etc., but the data is not kept anywhere and it is also not linked with names of people. If a medical professional decides to keep such personal data for themselves, it is out of scope for this technology.

Do you think the technology invades the privacy of the stakeholders? If yes, in what way?

This question has not been answered yet.

Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?

This question has not been answered yet.

Does the technology mitigate privacy and data protection risks/ concerns (privacy by design)? Please indicate how.

This question has not been answered yet.

In which way can you imagine a future impact of the collection of personal data?

This question has not been answered yet.

Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.

This question has not been answered yet.

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Human values

How does the technology affect your human values?

This category is only partial filled.

How is the identity of the (intended) users affected by the technology?

The only way this technology can affect the users' identity is if it generates a false prediction. False predictions happen a lot with AI and they cannot be fully avoided. In such a case, telling a person they are sick while they are in fact not, might be frustrating and unpleasant. Then again, the predictions should not be considered of any medical value until proper examinations are performed.

How does the technology influence the users' autonomy?

This question has not been answered yet.

What is the effect of the technology on the health and/or well-being of users?

This question has not been answered yet.

Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.

This question has not been answered yet.

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Stakeholders

Have you considered all stakeholders?

This category is only partial filled.

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.

Name of the stakeholder

Kiril K.

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

Stefan I.

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

Nick W.

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

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Name of the stakeholder

Hans K.

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

Jacco S.

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

General practitioners (possibly)

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

Patients (possibly)

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

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Are you going to take this stakeholder into account?

Yes

Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?

-

Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.

This question has not been answered yet.

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Data

Is data in your technology properly used?

This category is only partial filled.

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?

The dataset used for training this AI model is not perfect. However, this is not an issue because there are tools which will be used to clean the data and prepare it so that it's appropriate for feeding into a machine learning algorithm.

How does the technology organize continuous improvement when it comes to the use of data?

This question has not been answered yet.

How will the technology keep the insights that it identifies with data sustainable over time?

This question has not been answered yet.

In what way do you consider the fact that data is collected from the users?

This question has not been answered yet.

Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.

This question has not been answered yet.

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Inclusivity

Is your technology fair for everyone?

This category is only partial filled.

Will everyone have access to the technology?

This question has not been answered yet.

Does this technology have a built-in bias?

If the data is clean, preprocessed properly and then fit to the model using the appropriate algorithms, bias should be eliminated. Other than that, the dataset used features some self-reported data, which is prone to leading to bias. Unfortunately there aren't any other appropriate datasets to be used instead of the current one, as it's the biggest and most detailed.

Does this technology make automatic decisions and how do you account for them?

This question has not been answered yet.

Is everyone benefitting from the technology or only a a small group?

Do you see this as a problem? Why/why not?

This question has not been answered yet.

Does the team that creates the technology represent the diversity of our society?

This question has not been answered yet.

Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.

This question has not been answered yet.

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Transparency

Are you transparent about how your technology works?

This category is only partial filled.

Is it explained to the users/stakeholders how the technology works and how the business model works?

Yes. Direct stakeholders have been presented a project proposal featuring all the specifics about the technology. Additionally, Stefan I., the interviewee, has been given extra clarification before and during the interview as he is not very well familiar with the concepts of artificial intelligence.

If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?

This question has not been answered yet.

Is it possible to file a complaint or ask questions/get answers about this technology?

This question has not been answered yet.

Is the technology (company) clear about possible negative consequences or shortcomings of the technology?

This question has not been answered yet.

Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.

This question has not been answered yet.

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Sustainability

Is your technology environmentally sustainable?

This category is only partial filled.

In what way is the direct and indirect energy use of this technology taken into account?

Energy use is not relevant in the current case. The technology in question required very little (negligible) amounts of energy to perform its tasks.

Do you think alternative materials could have been considered in the technology?

This question has not been answered yet.

Do you think the lifespan of the technology is realistic?

This question has not been answered yet.

What is the hidden impact of the technology in the whole chain?

This question has not been answered yet.

Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.

This question has not been answered yet.

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Future

Did you consider future impact?

This category is only partial filled.

What could possibly happen with this technology in the future?

If this technology grows to be used by many people, it will certainly be improved with better datasets and technologies. Therefore, it will be more accurate and will help people to monitor their cardiovascular health better. However, it is highly unlikely that it will grow in popularity.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.

This question has not been answered yet.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.

This question has not been answered yet.

Would you like to live in one of this scenario's? Why? Why not?

This question has not been answered yet.

What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?

This question has not been answered yet.

Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.

This question has not been answered yet.