QUICKSCAN - CANVAS for AI Model to Predict Probability of Cardiovascular Disease

NAME: AI Model to Predict Probability of Cardiovascular Disease
DATE: September 5, 2024 2:54 PM

DESCRIPTION OF TECHNOLOGY
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.

HUMAN VALUES

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.

TRANSPARENCY

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

IMPACT ON SOCIETY

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.

STAKEHOLDERS

- Kiril K.
- Stefan I.
- Nick W.
- Hans K.
- Jacco S.
- General practitioners (possibly)
- Patients (possibly)

SUSTAINABILITY

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

HATEFUL AND CRIMINAL ACTORS

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.

DATA

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.

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.

PRIVACY

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.

INCLUSIVITY

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.

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HUMAN VALUES

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

To help you answer this question think about sub questions like:

- If two friends use your product, how could it enhance or detract from their relationship?
- Does your product create new ways for people to interact?…

TRANSPARENCY

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

- Is it easy for users to find out how the technology works?
- Can a user understand or find out why your technology behaves in a certain way?
- Are the goals explained?
- Is the idea of the technology explained?
- Is the technology company transparent about the way their…

IMPACT ON SOCIETY

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

Can you exactly define what the challenge is? What problem (what 'pain') does this technology want to solve? Can you make a clear definition of the problem? What 'pain' does this technology want to ease? Whose pain? Is it really a problem? For who? Will solving the problem make the world better? Are you sure? The problem definition will help you to determine…

STAKEHOLDERS

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by…

When thinking about the stakeholders, the most obvious one are of course the intended users, so start there. Next, list the stakeholders that are directly affected. Listing the users and directly affected stakeholders also gives an impression of the intended context of the technology.
…

SUSTAINABILITY

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

One of the most prominent impacts on sustainability is energy efficiency. Consider what service you want this technology to provide and how this could be achieved with a minimal use of energy. Are improvements possible?

HATEFUL AND CRIMINAL ACTORS

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

Can you imagine ways that the technology can or will be used to break the law? Think about invading someone's privacy. Spying. Hurting people. Harassment. Steal things. Fraud/ identity theft and so on. Or will people use the technology to avoid facing the consequences of breaking the law (using trackers to evade speed radars or using bitcoins to launder…

DATA

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into…

There are fundamental issues with data. For example:

- Data is always subjective;
- Data collections are never complete;
- Correlation and causation are tricky concepts;
- Data collections are often biased;…

FUTURE

What could possibly happen with this technology in the future?

Discuss this quickly and note your first thoughts here. Think about what happens when 100 million people use your product. How could communities, habits and norms change?

PRIVACY

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

If this technology registers personal data you have to be aware of privacy legislation and the concept of privacy. Think hard about this question. Remember: personal data can be interpreted in a broad way. Maybe this technology does not collect personal data, but can be used to assemble personal data. If the technology collects special personal data (like…

INCLUSIVITY

Does this technology have a built-in bias?

Do a brainstorm. Can you find a built-in bias in this technology? Maybe because of the way the data was collected, either by personal bias, historical bias, political bias or a lack of diversity in the people responsible for the design of the technology? How do you know this is not the case? Be critical. Be aware of your own biases.…

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