QUICKSCAN - CANVAS

Interactive Teachable Machine Learning

NAME: Interactive Teachable Machine Learning
DATE: September 5, 2024 5:19 PM

DESCRIPTION OF TECHNOLOGY
Teaching the concepts of Machine Learning through an interactive (Reinforcement Learning) mini-game where students (primary/middle school) train their own models and compete against their peers in game.

HUMAN VALUES

This technology creates an interactive manner of learning basic concepts within Machine Learning. Creating a baseline of knowledge that hopefully inspires the young generation to explore this field further.

If two friends are competing with their models, one might be angry that he lost. But this should not prove any harm, but it should inspire to research why he lost!

TRANSPARENCY

This technology does not aim to create a business. Through interactive learning the environment should be self explanatory.

IMPACT ON SOCIETY

There is a lack of programming/technology subjects at primary & middle schools, resulting in late or no exploration within this field. As a society we would benefit greatly by teaching these concepts from a young age, engaging the youth to improve on existing technologies.

STAKEHOLDERS

- Primary- & Middle-School Students
- Primary - & Middle-School Tutors

SUSTAINABILITY

This product will be able to run on any modern day browser and device, creating and managing the models on cloud servers.

An important return of energy will be the knowledge of the generation. Overcoming possible 'waste' of electrical energy, by turning it into technological advancement.

HATEFUL AND CRIMINAL ACTORS

The target group of this product are young individuals. Therefore it is important to keep the environment regulated. Spreading mis-information, can have a big impact on the understanding of these technologies.

DATA

Data is not relevant for this project. As Reinforcement Learning models are trained based on observations and actions within the 'gaming' environment. So the environment is the data.

The biggest issue would be creating various gaming environments.

FUTURE

By enabling the young generation to come into contact with outstanding technology, and teaching them it is free to use by everybody might inspire them to take the first step. Starting their journey on improving their own knowledge, and sharing it with the rest of the world.

PRIVACY

The technology does not register personal data. It is a 'gaming' environment where hyperparameters of the model are tuned. And the game is played by the trained model(s).

INCLUSIVITY

The main bias of this application is the knowledge base of the developer. Various aspects of Machine Learning are taught through a manner in which I learned personally.

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QUICKSCAN - CANVAS - HELPSIDE Interactive Teachable Machine Learning

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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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