QUICKSCAN - CANVAS

Homomorphic encryption

NAME: Homomorphic encryption
DATE: May 2, 2025 1:59 AM

DESCRIPTION OF TECHNOLOGY
homomorphic encryption is a new technology which allows for computations on homomorphic encrypted data. this makes it easier to perform, for example, computations on highly confidential hospital or business data and allows for it to be outsourced. (because the one receiving the data doesnt know what it is and can only run computations on it without seeing the decrypted results)

HUMAN VALUES

The identity of the user is not much affected. the computations run by this tool and encryption are something we otherwise wouldn't be able to do.

TRANSPARENCY

it is not easy for users to understand how homomorphic encryption works. this would require an incept workshop on homomorphic encryption and how it functions

IMPACT ON SOCIETY

the problem is that it is momentarily unknown what the capabilities are of homomorphic encryption, we don't know what it can do, how it works, or if it's even efficient. for that reason I am performing research on this project

STAKEHOLDERS

- fontys lectoraat
- Casper
- Mark
- tom broumel

SUSTAINABILITY

improvements are possible to make the product run as efficient as possible. in theory you could create multiple pre-made script so a user would only have to do a few adjustments in the code and then run it. energy consumption wise it depends on how big and long the computation is. cutting up computations in multiple parts often results in more energy efficiency

HATEFUL AND CRIMINAL ACTORS

This tool could be used to avoid the consequences of breaking the law. One example is the privacy law. with the help of homomorphic encryption, a company could share privacy-sensitive data so computations can be performed on it. because the data remains encrypted at all times, the person running the computations on it doesn't know what it is. making it so it doesn't void the privacy law. (only the owner of the data can decrypt the results)

DATA

this technollogy shouldnt be affected too much by these pitalls, as all it does is run computations on said data, therefor, it doesnt care if the data is biased or not

FUTURE

i think the technology could be widely used by governments and hospitals to run computations on otherwise to confidential personal data. this will help medical instances to better understand their patients and illnesses

PRIVACY

it depends on how the technology is used. if you, for example, only use it for business sales computations, then no. if you use it so run computations on healthcare data of people, then yes

INCLUSIVITY

as far as i could find it does not have a built-bias. i assume it has a bias for encrypted data?

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QUICKSCAN - CANVAS - HELPSIDE

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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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