Data Glove ABI / ASL Prediction

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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?
ABI survivors lose quite a lot of movement in their upper extremities, and most of them never fully recover. Fine motor skills impact our lives quite a lot, and if you cannot play a game anymore because you cannot move the controller or cannot type anymore because moving your fingers so minimally is too difficult, can distance you from your environment, you become dependent on them or lose access to them.

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.

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?
It can't. It predicts using a dataglove what sign you are making with your hand. It will be used as an alternative control metric. It doesn't give you access to anything it shouldn't or anything like that. It is about the same as switching a mouse for a joystick.

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.

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?

Right now the technology doesn't register personal data. If from research it turns out that users need an individual calibration the only thing needed is a userID to connect the user to the calibration.

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.

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 technology might help people be more self-sustaining, by allowing them to use an alternative method for fine motor control that they have lost after their ABI. The project might fill the role of a person if someone else was previously doing these actions for them, however it will never completely remove that person as there would still be actions that the technology cannot do. It might improve the dignity of the users as they feel less dependent on others.

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.

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
The main users are those with ABI who can still move their fingers but cannot easily do fine motor skill such as typing or moving a videogame controller. It can also be used by other people who want to use alternative control methods for whatever reason, maybe because they have carpal tunnel and can't do some movements anymore or people who want to practice their ASL fingerspelling for some quick communication. But the main target group is ABI survivors.

How is this stakeholder affected?
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Did you consult the stakeholder?
Yes

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?
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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.

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?
This technology does have the shortcoming that the data input is subjective, the position of your hand can be slightly tilted. but it should still recognize it as the sign. ABI survivors also might have a tremor which would distort the data, especially in the case of dynamic signs.

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.

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?
This technology has no obvious bias, except for the fact that it currently requires 5 fingers, as the thing we are predicting, ASL finger spelling, requires 5 fingers.

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?
It is not currently, however the final product should contain this or at least link to somewhere external where it is described.

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.

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?

Currently, energy use is not taken into consideration. Once it becomes more clear exactly which resources are needed, it can be considered in the decision-making.

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?
The technology could be expanded with more movements, because more people means more access to data, and more room for training. It could also mean getting the resources to develop a cheaper, more accessible glove so even more people have access to the technology who need it. The technology could also be used for physical therapy exercises, having people train certain hand positions or movements.

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.