


NAME: Sea Slug Classification

DATE: July 13, 2025 6:42 AM


DESCRIPTION OF TECHNOLOGY
Detecting Sea Slugs using CNN models.



HUMAN VALUES

If this technology is accessible to the general public, the barrier of being an expert at identifying sea slugs becomes a lot lower.


This may indirectly harm marine biologists, who have spend a lot of time learning how to manually identify sea slugs based on their characteristics.



TRANSPARENCY


The technology will be explained on a basic level that is understandable to users without domain knowledge of artificial intelligence.

In addition, predictions can be clarified using heatmaps and or features which the model takes into consideration to make the system more transparent.




IMPACT ON SOCIETY

The main problem that the idea aims to address is the need for the divers at Blauwtipje to efficiently identify certain types of sea slugs. Although the divers have collected images of these sea slugs, the process of manual identification is time-consuming and can be error prone.



STAKEHOLDERS


- Blauwtipje Marine Biologists
- Blauwtipje.nl hobbyists



SUSTAINABILITY


The direct and indirect use of the technology consists of server power to build the models, update the models in the future, and host the model.

Building the models is a one time investment on our laptop, which use relatively little energy. Seeing as Blauwtipje already hosts their website, hosting the model should not cause a significant larger load.



HATEFUL AND CRIMINAL ACTORS


The technology can not directly be utilised to break the law. However, the detection of certain species in protected areas could encourage illegal fishing or diving.



DATA


Yes. The number of images per sea slug species is limited to 200 to 300. In addition, there are currently only sufficient images of 5 species of sea slugs, which is why we will limit the technology to these species.

It is also possible that other species of animals could be misclassified as certain sea slugs.




FUTURE

Wildlife habits could be disturbed, which could cause a reduction in the population. The environment could also be polluted, as divers may lose items in the water.




PRIVACY

If the technology is limited to marine biologist experts, the system has to store login details, but no additional personal data.



INCLUSIVITY

The collected images could contain a built in bias, based on how the images are taken, the (under water) conditions such lighting and water clarity, the amount of images per species and the number of species.



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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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