

**Poznańskie Centrum Superkomputerowo-Sieciowe** Poznan Supercomputing and Networking Center

### Enlightening the Submarine Cable: Unlocking Ocean Insights with SUBMERSE

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## **Table of contents**

**01 Data** Why? What? How? **02 Enlightening the cable** Harnessing the power of AI

03 Unlocking the insights

Experts, experts, experts

**04 What's next?** Future ideas for expansion





## Data













































# Enlightning the cable



















#### **Artificial Intelligence**





#### Automated Machine Learning - apriori





#### Automated Machine Learning - apriori 📜





#### Automated Machine Learning - apriori



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#### Automated Machine Learning - apriori



















Automated Machine Learning		Real-time predictions	
Pros	Cons	Pros	Cons
• no-cost use in production	<ul> <li>high training cost</li> <li>limited by the scope of pipeline</li> </ul>	• bigger possibilities	<ul> <li>expensive to run in production</li> <li>high training cost</li> </ul>

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#### **Results validation**







Domain specific

Each domain and each cable's operator has different ways of validating results Interpretation

How distant earthquakes affect a cable? Or ambiguity of ships' interpretation Time consuming

Evaluation often boils down to manual file browsing





# Unlocking the insights



#### The need for experts

Why do we need them?





#### The need for experts

Why do we need them?









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#### What do we offer?







## What's next?



#### **Conclusions & future work**

- research is required on usability of algorithms developed for one cable/location on different cables/locations,
- inclusion of depth of the cable,
- further studies can be conducted on improvement of machine learning solutions,
- better standardization of DAS files could be implemented.



## Thank you for your attention!

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