Analyzing Climate Misconceptions and Impact of Misinformation

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Agenda

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- Climate Fever Dataset

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Models and Methods:

- Analysis of Common Misconceptions
- Sentiment Analysis and Local Explanations
- Evaluation

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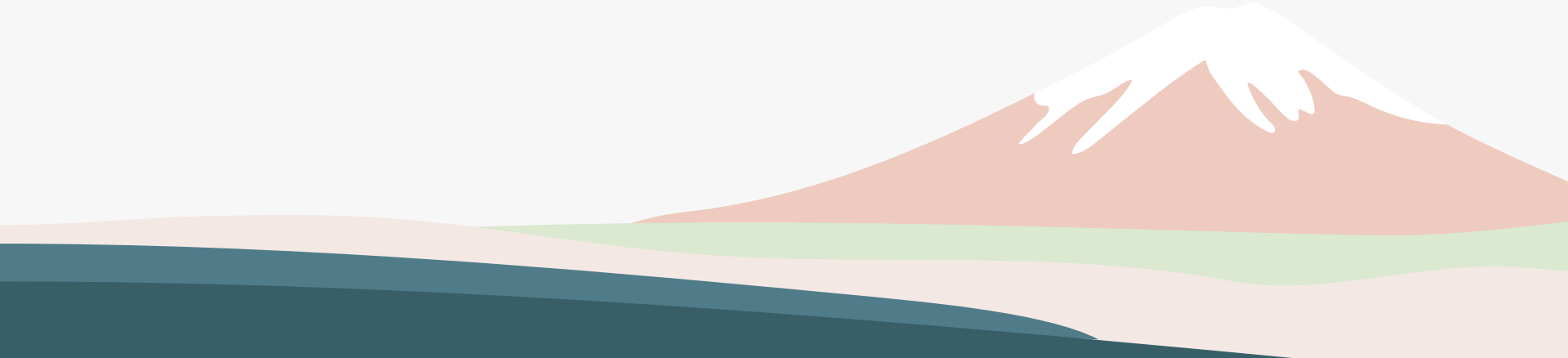
Contribution and Challenges

01

Motivation



Climate change: Controversial

- Daily experiences, but not straightforward consequences

Misinformation can hinder understanding and action

- How to address climate change effectively?

02

Dataset

Climate Fever Dataset

Contains challenging claims about climate change and their veracity.

1535 real-world claims regarding climate-change collected on the internet

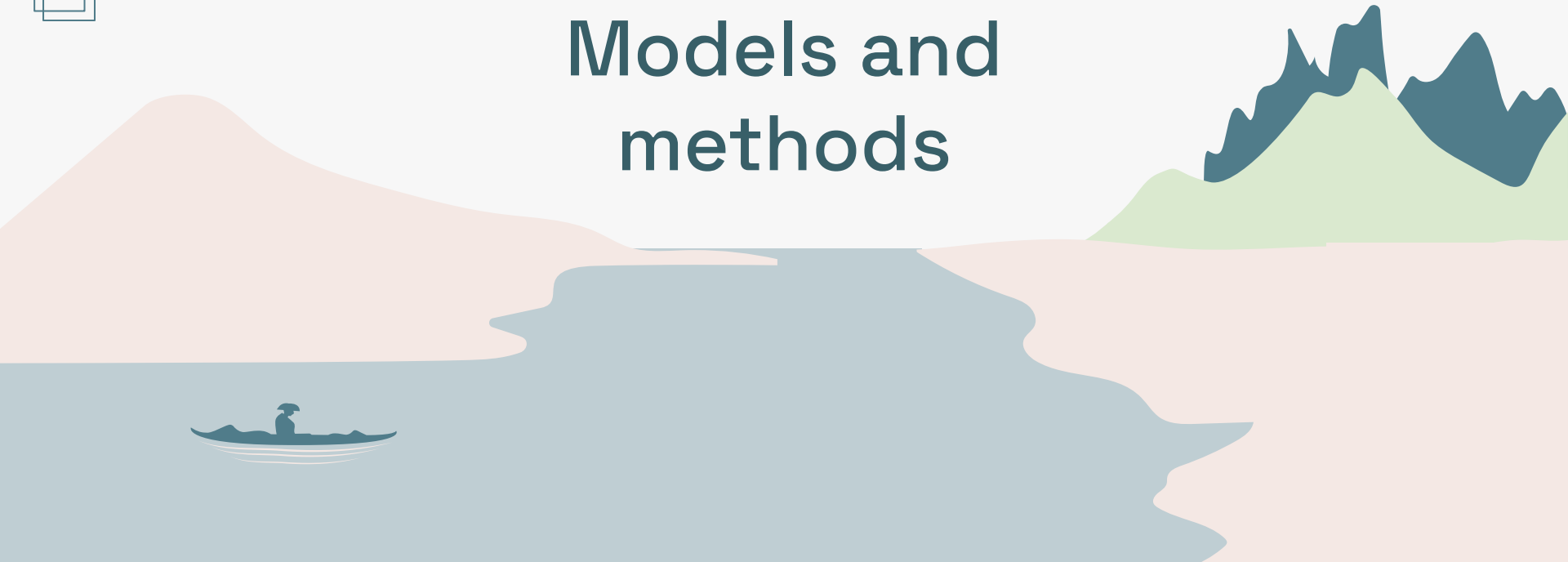
Each claim: 5 manually annotated evidence sentences (**label:** support, refute or not enough info)

claim_id unique claim id	claim claim text	claim_label overall label assigned to claim (based on majority vote on evidences)	evidences/0/evi... unique evidence id	evidences/0/evi... micro-verdict label
0 3134	1535 unique values	SUPPORTS 43% NOT_ENOUGH_IN... 31% Other (407) 27%	Carbon dioxide:192 1% Global warming:276 1% Other (1505) 98%	NOT_ENOUGH_IN... 64% SUPPORTS 27% Other (150) 10%
5	The sun has gone into 'lockdown' which could cause freezing weather, earthquakes and famine, say sci...	SUPPORTS	Famine:386	SUPPORTS

https://www.kaggle.com/datasets/bouweceunen/climate-fever-dataset

03

Models and methods



For Claim Classification:

BERT

For Sentiment Analysis:

*Fine-tuned BERT model for sentiment analysis.
*Explanation Method: LIME for generating local explanations.

Evaluation

Measure the accuracy of misconception identification:

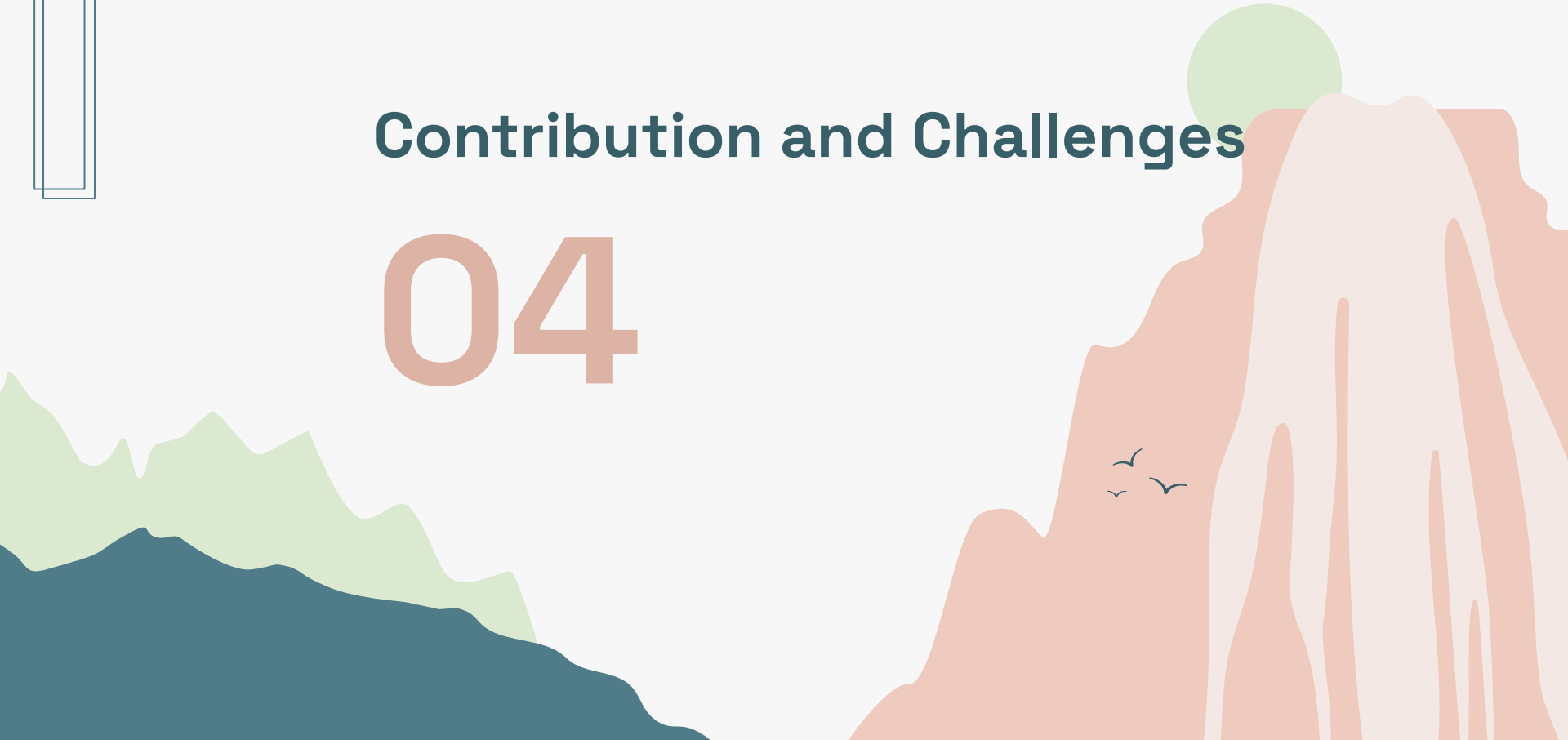
- Accuracy, Precision, Recall, F1-score

Model performance measure:

- K-Fold Cross-Validation

Contribution and Challenges

04



Challenges:

Complexity of Misinformation:

Some false claims may be subtle or context-dependent.

Interpretability vs. Performance: :

Balancing model performance with the need for interpretable results using LIME can be challenging.

Public Opinion Data:

Open source data and surveys may not represent the entire population and could be skewed towards certain demographics or opinions.

Contribution:

Insight into Misconceptions:

Identify common false claims about climate change.

Potential for Awareness and Education: :

Provide insights for better climate communication strategies.

Understanding Public Opinion Shifts:

Determine how misinformation affects public perception.

Thank you for your attention! :)

References

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