

Use Machine Learning to Classify Weather Opinions from WhatsApp Group:

[A Model Design and Evaluation for Raining Event Prediction](#)

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One day, my boss asked me if I can do weather forecasting for our clients

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First thinking coming to my mind: I have no idea about what you are talking...



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Problem

Lack of information about the weather

Have

- Groups of people are doing forecasting
- They use eyes to watch the sky for weather prediction

Don't have

- Not familiar with the place
- Not knowing analysis methods in people's mind
- No historical observation and research

Problem

Weather Opinions: People reporting the weather on social media

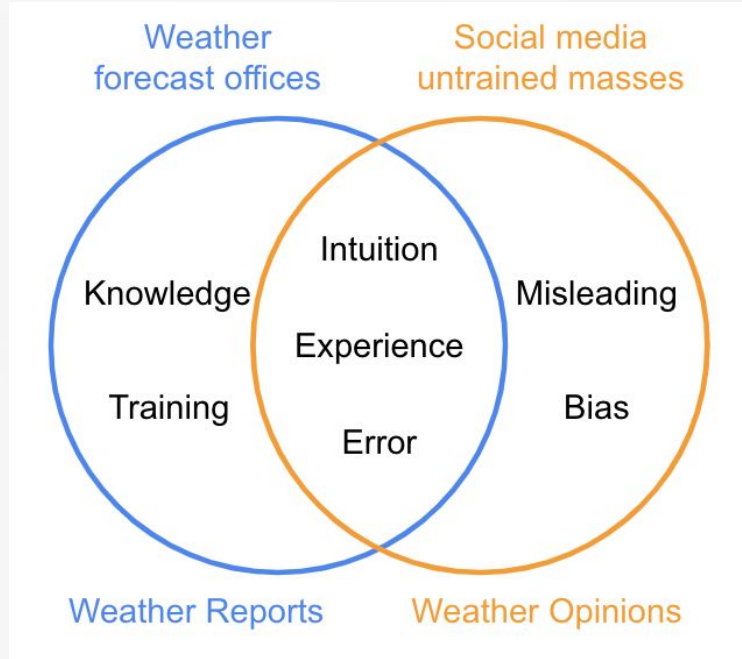


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Problem

How to predict the weather opinions from **untrained masses** on social media?



Solution

Use machine learning to digitize forecasting without model tuning and system analysis

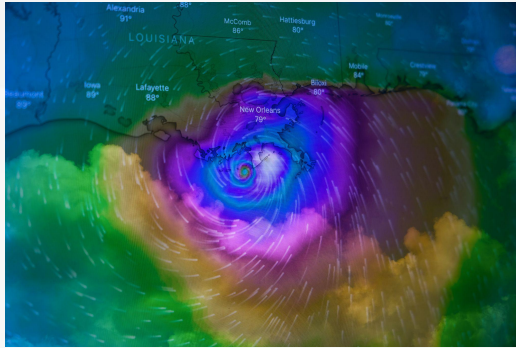
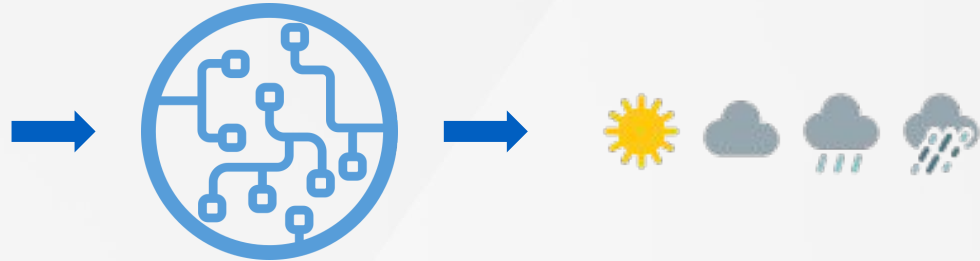


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This research used a supervised learning model for the weather classification.

Methodology

Model labels have no pattern for traditional quantitative estimation



No Rain: No “Rain” announcement



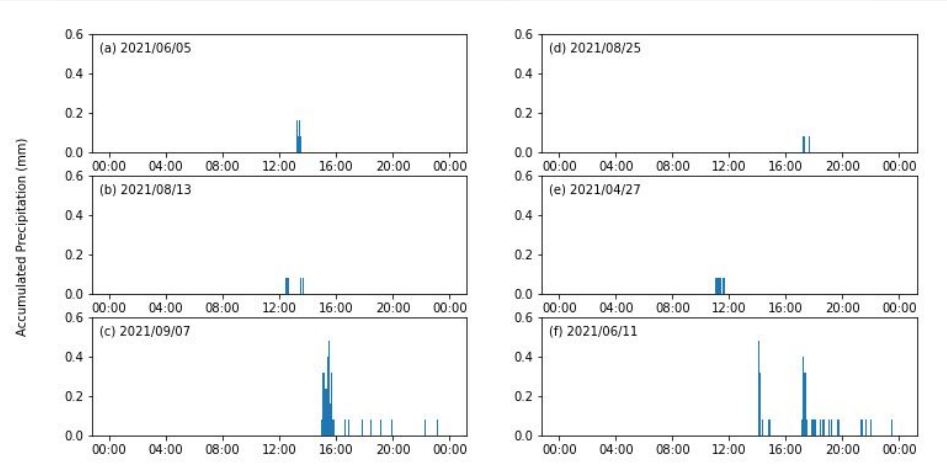
Little Rain: one “Rain” announcement



Medium Rain: more than one “Rain” announcements



Heavy Rain: “Super Rain” announcement in the session. When the “Super Rain” appeared, there would be no more announcement in the session.



Methodology

Model features include WRFOUT and POP (probability of precipitation)

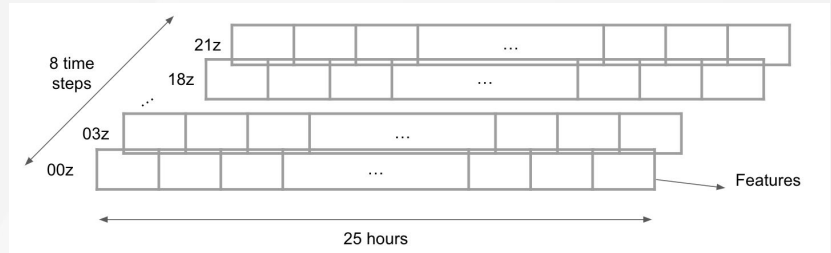
Feature Group	Variable
Basic	tk, ua, va, rh, pw, slp
Cloud	ctt, low_cloudfrac, mid_cloudfrac, high_cloudfrac
Probability of Precipitation (POP)	pop

Space:

- the grid at the city of messaging group

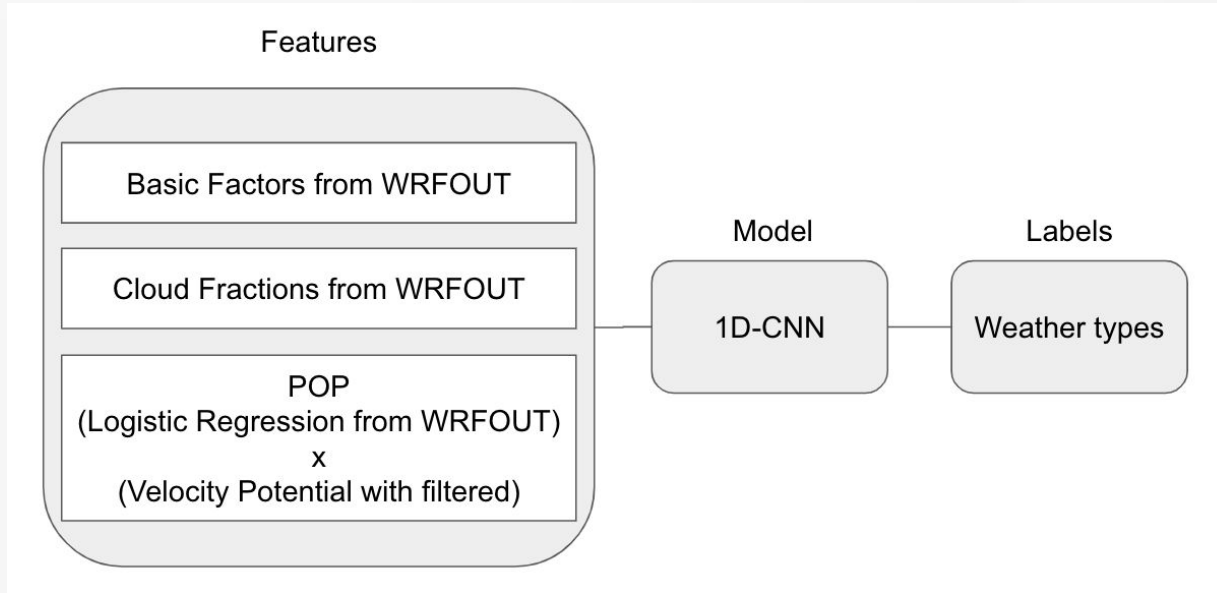
Time:

- hourly forecasting data for next 24 hours in every 3 hours



Methodology

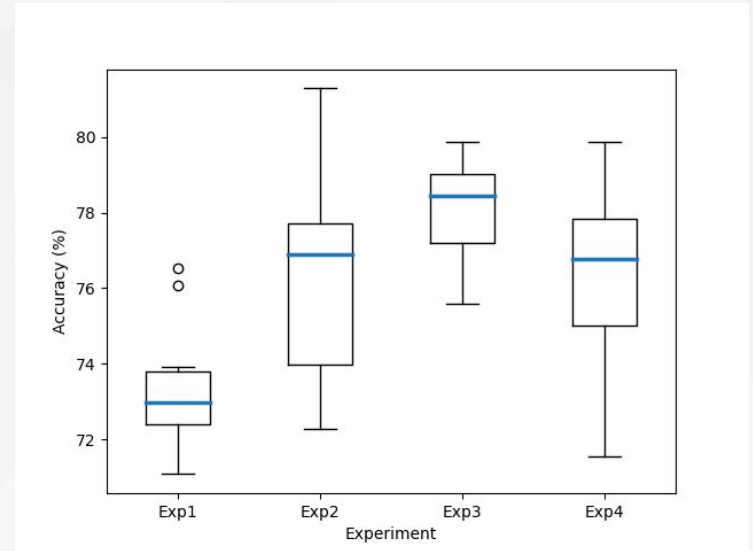
Supervised learning model with featurizing and labeling



Evaluation

The experiments were from different feature combinations

Experiment Index	Feature Combination
Exp1	Basic
Exp2	Basic + Cloud
Exp3	Basic + Cloud + POP
Exp4	Basic + POP



Summary

This research proposed a machine learning model design of weather opinion classification for unknown weather situations.

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NEEDS.

Thank You for the Listening
and welcome to review the
writing paper

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