

# Alert and Rescue

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Domain:  
Machine Learning



# Problem Statement :

A Flood alert, resue organising and damage estimation system

- warn people of an impending flood
- find the probability of people stuck during floods
- Estimate of damage incurred in flood

# Every disaster has three phases





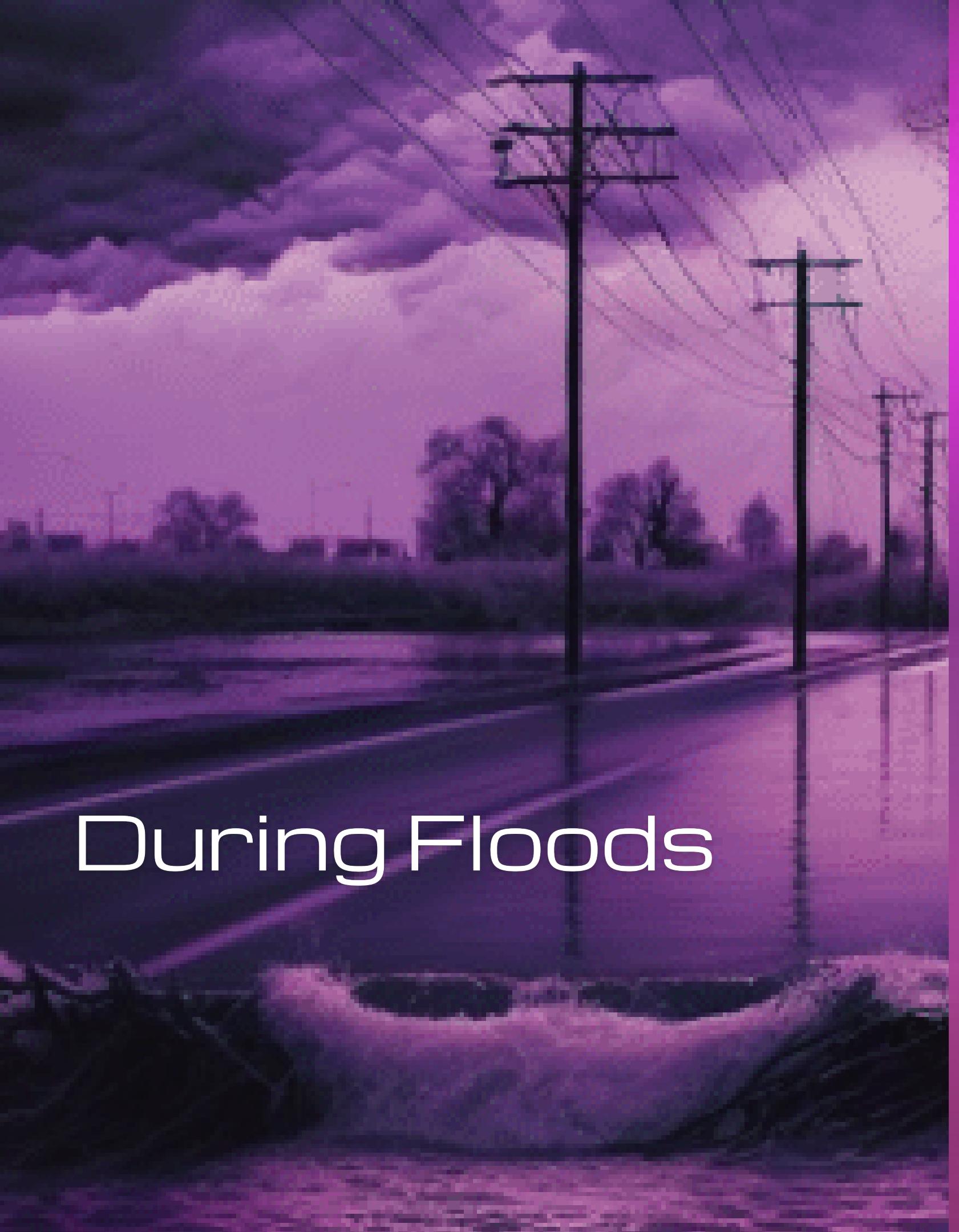
## Before Floods

- In an impending flood, people and animals must be transported safely to other places.
- Permanent structures like buildings, boundaries etc., can't be moved.
- By correctly predicting the flood severity value of each colony, we can ensure the safety of people well before the disaster occurs.

- Our model takes only seasonal data such as rainfall and temperature into consideration for predicting an impending flood.
- We used Neural Networks to predict the severity rating for each colony based on which the colony is alerted.
- The alerting can be done using Central alarming light at high altitudes or an air raid system in the colony.

# Link to before disaster files (Alerting)

| <https://github.com/yadhu-b-kurup/ISERDM-23-Hackathon/tree/main/Alerting>



## During Floods

- During floods , there are high chances of people getting stuck in their houses or some other places.
- Rescue operations for these areas mainly rely on the responses given by people through a call or some other way.
- But due to power cuts and damage to network towers people might not be able to contact the outside world via phone or other devices.

- Our model takes in the severity rating from the previous model for each colony. For each colonies , it will be able to find the probability of people stuck in flood using various parameters like population, facility rating, distance from water bodies, altitude etc.
- Using this probability, we can relocate the rescue groups to ensure maximum success in rescue operations.
- We used a Support Vector Regression for a small dataset, giving much-needed accurate results.

# Link to during disaster files (Rescue Organising)

| <https://github.com/yadhu-b-kurup/ISERDM-23-Hackathon/tree/main/Rescue%20Organising>



## Post Floods

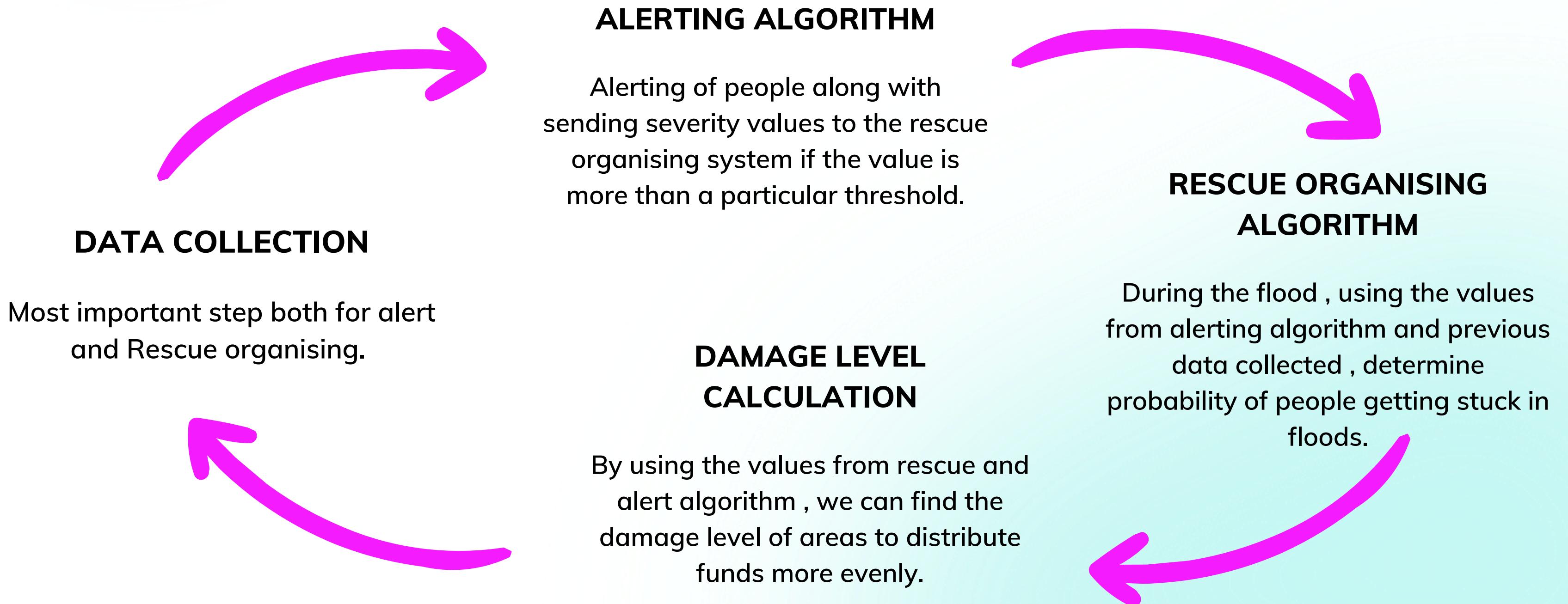
- After floods , the major issue faced is the distribution of fund to repair all the occurred damages.
- The government gives away funds and other needed help to flood victims, but the financial aids aren't able to reach the needy.
- The government provides an estimated value of money to every flood victims, due to this some might get less than required and some more.

- Our model calculates an estimated cost of damage for each colony using the severity rating and probability of being stuck in flood.
- In this model, we have used multivariable linear regression in predicting the estimated cost.
- Rather than just giving everyone a fixed amount, this will also help the government distribute money based on the estimated damages dealt by floods.
- Through this government saves money, and the required money is provided to the victims.

# Links for after disaster (Damage Estimation)

| <https://github.com/yadhu-b-kurup/ISERDM-23-Hackathon/tree/main/Damage%20Estimation>

# Workflow of this system





# Thank You

Let's Join hands to get this world  
From Rubble to Renewal