

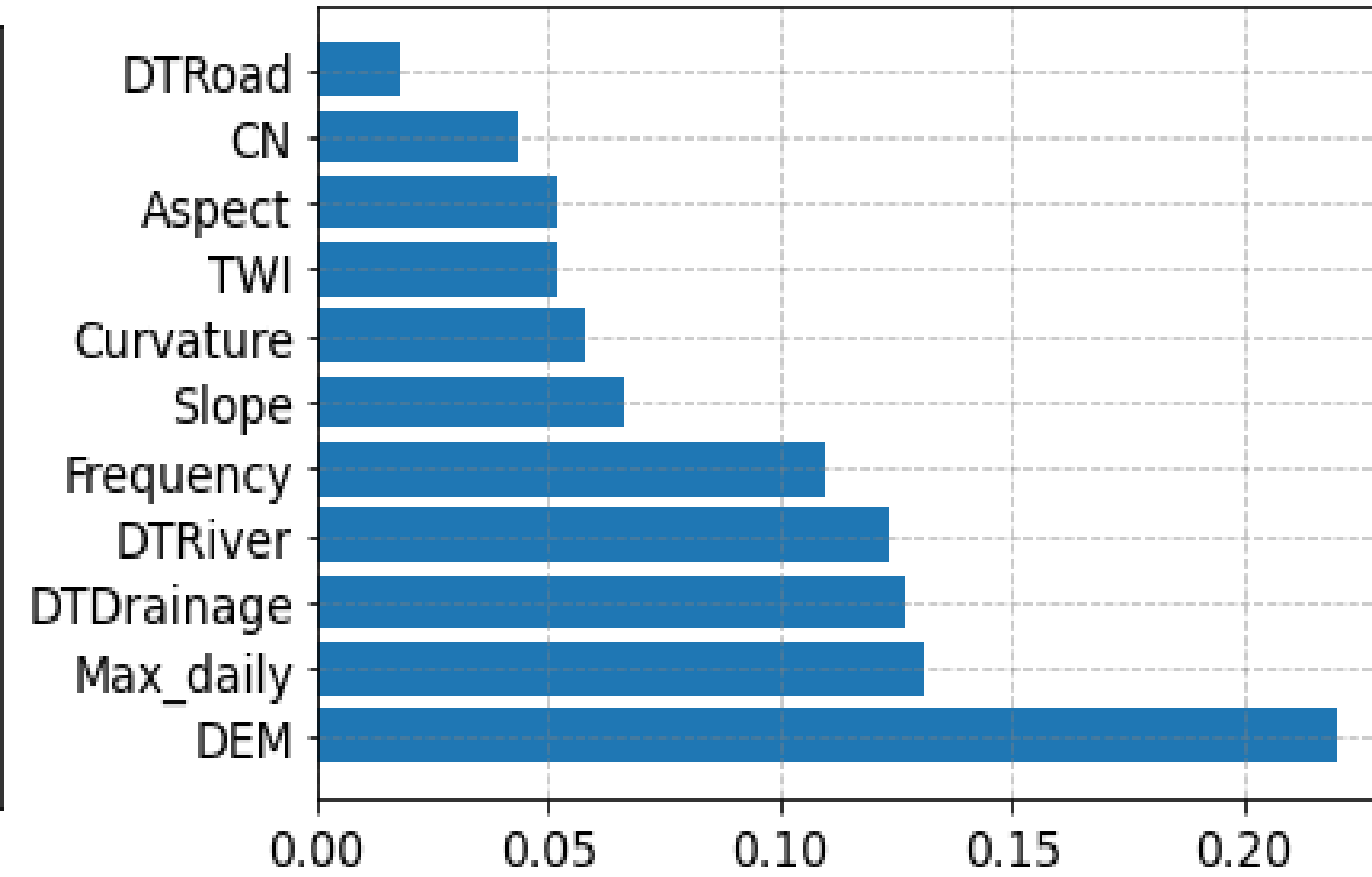
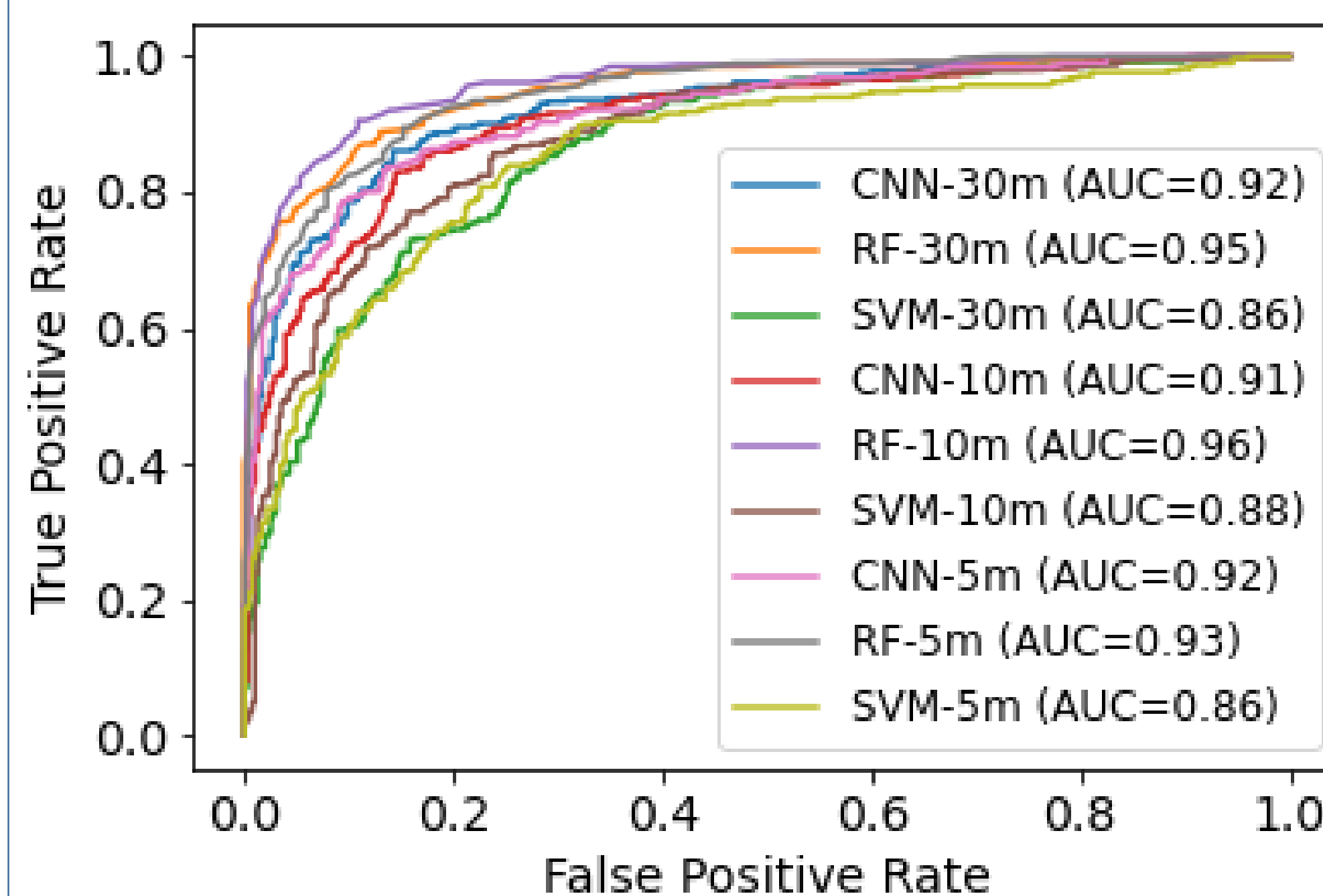
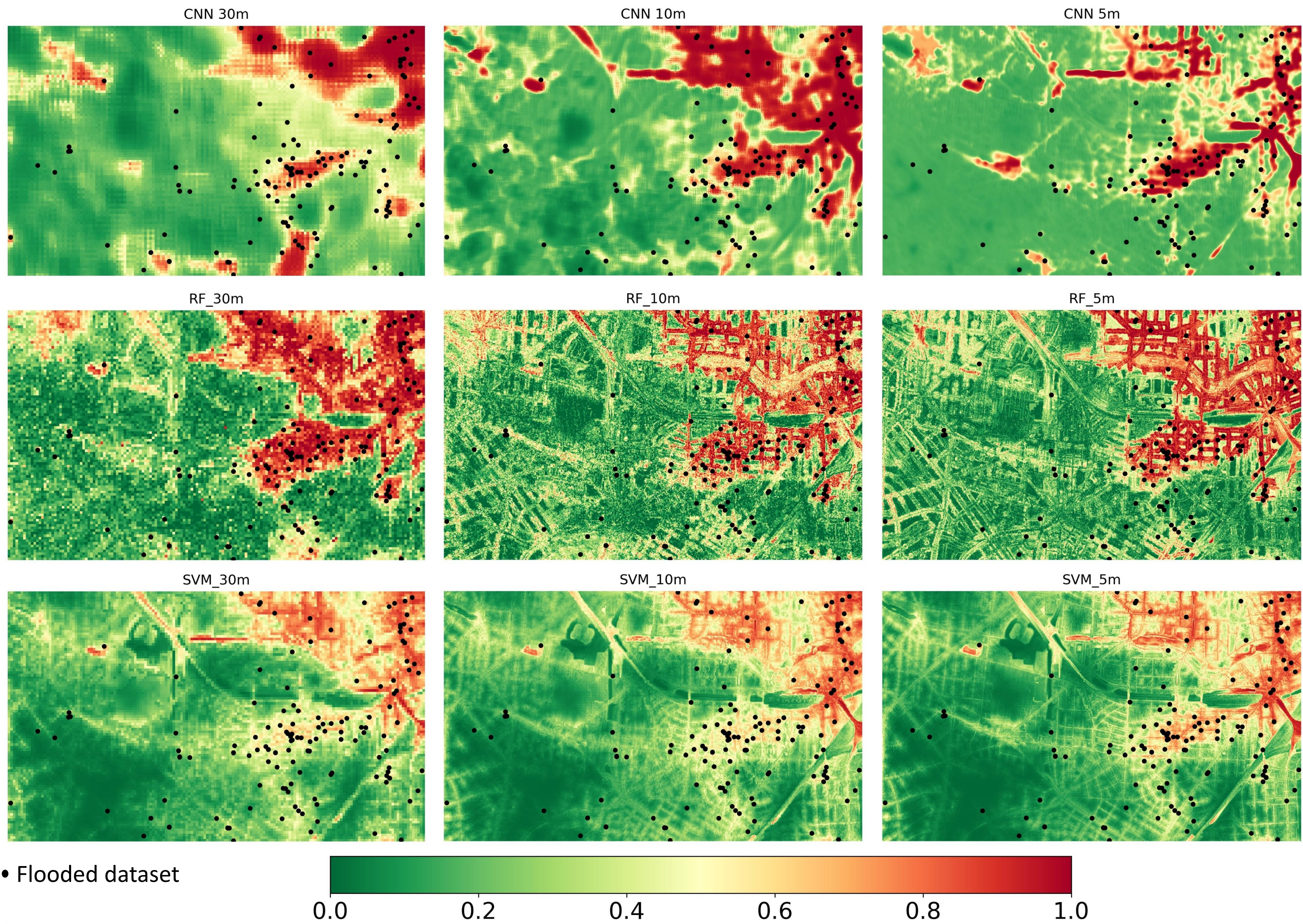
# A Convolutional neural network approach for urban pluvial flood susceptibility mapping: A case study in Berlin, Germany.

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## 1. Aim

- What is the main driver for flood susceptibility mapping in urban area?
- Are image-based models more accurate than point-based models for urban flood susceptibility mapping?
- Is spatial resolution important for urban flood susceptibility mapping?

## 4. Results

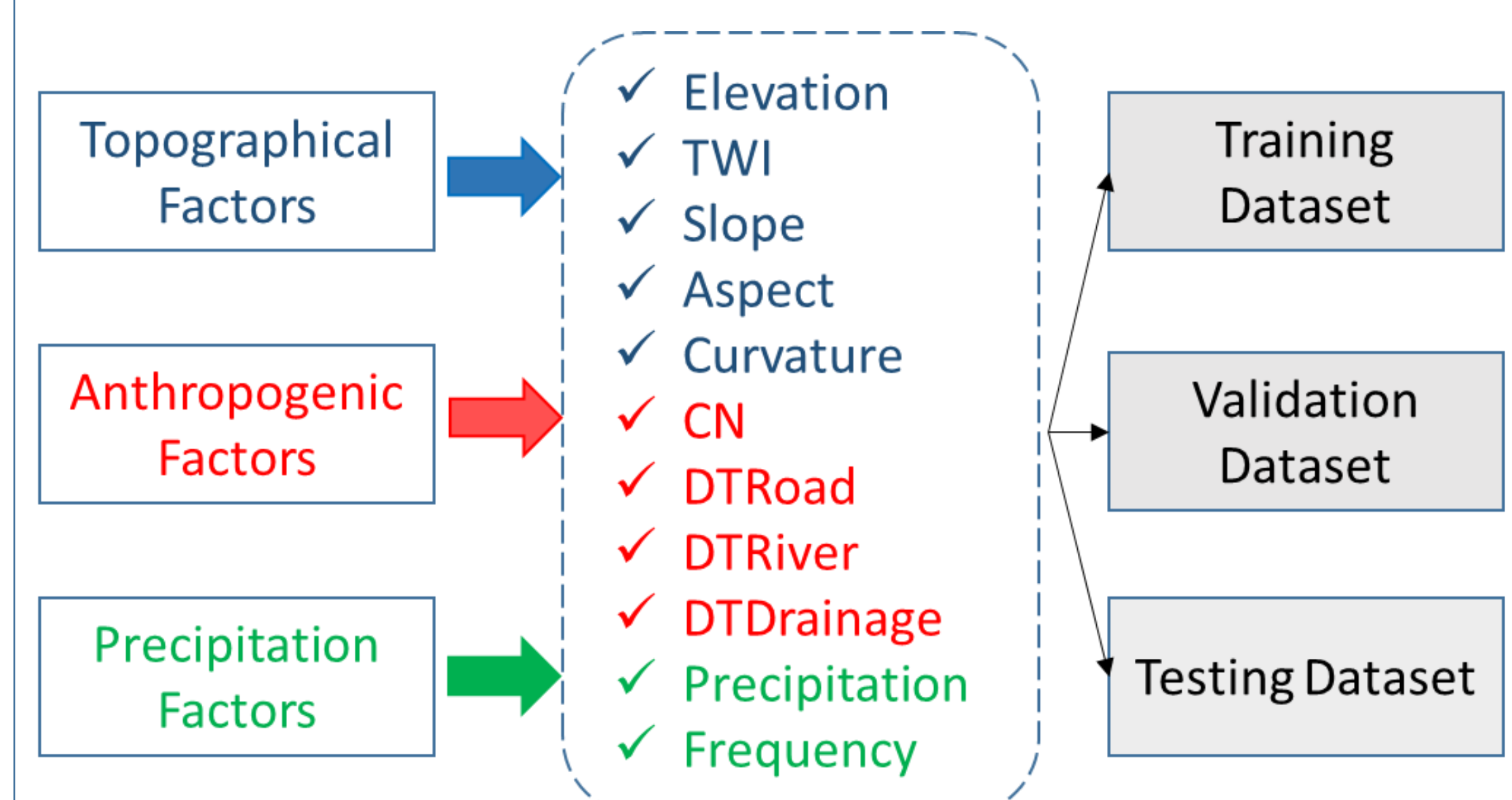
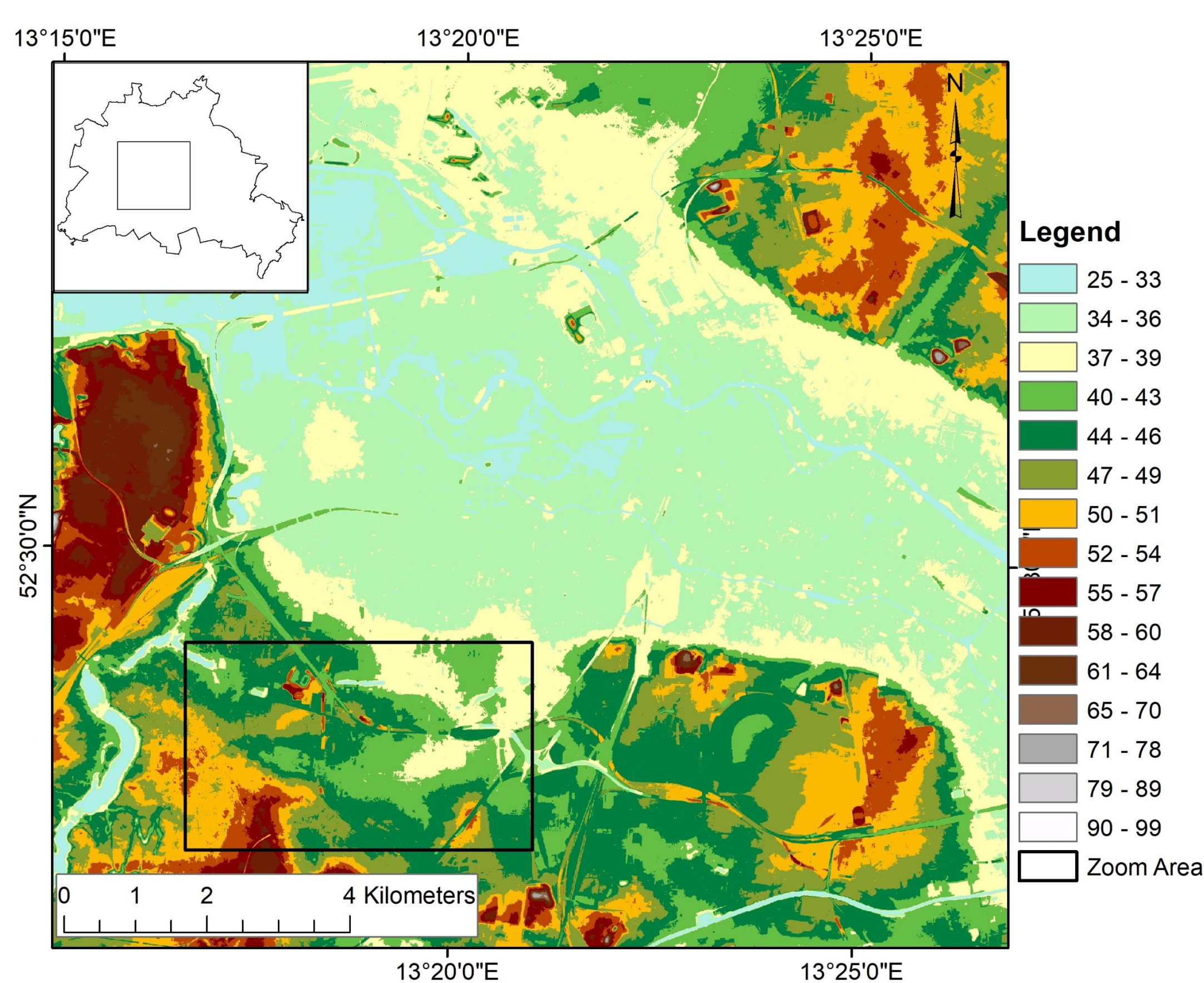


Models	Accuracy	Precision	Recall	F-Score
CNN-30 m	0.85	0.85	0.85	0.85
CNN-10 m	0.83	0.9	0.84	0.87
CNN-5 m	0.84	0.84	0.79	0.82
RF-30 m	0.87	0.91	0.81	0.86
RF-10 m	0.87	0.91	0.81	0.86
RF-5 m	0.85	0.86	0.81	0.84
SVM-30 m	0.78	0.76	0.8	0.78
SVM-10 m	0.8	0.8	0.79	0.8
SVM-5 m	0.79	0.75	0.84	0.79

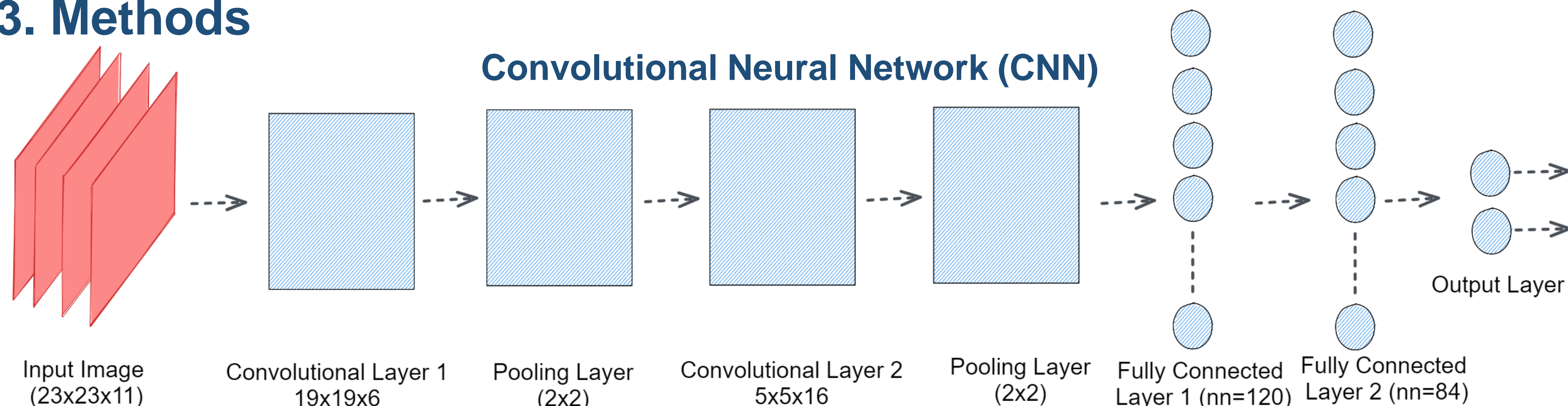
## 2. Study Area and Datasets

Flood inventory:

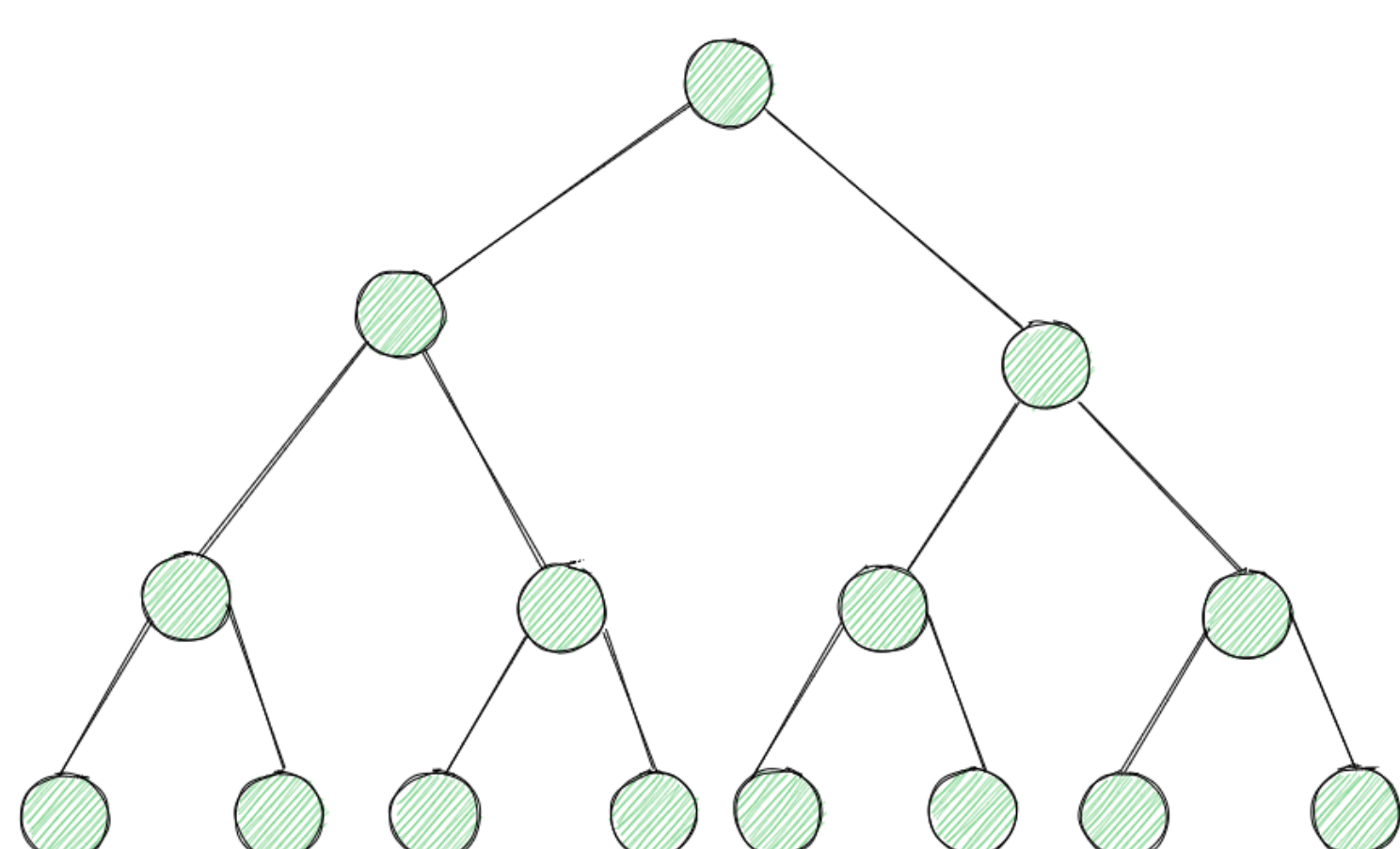
- 1900 flooded-sites.
- 1900 randomly selected non-flooded sites.



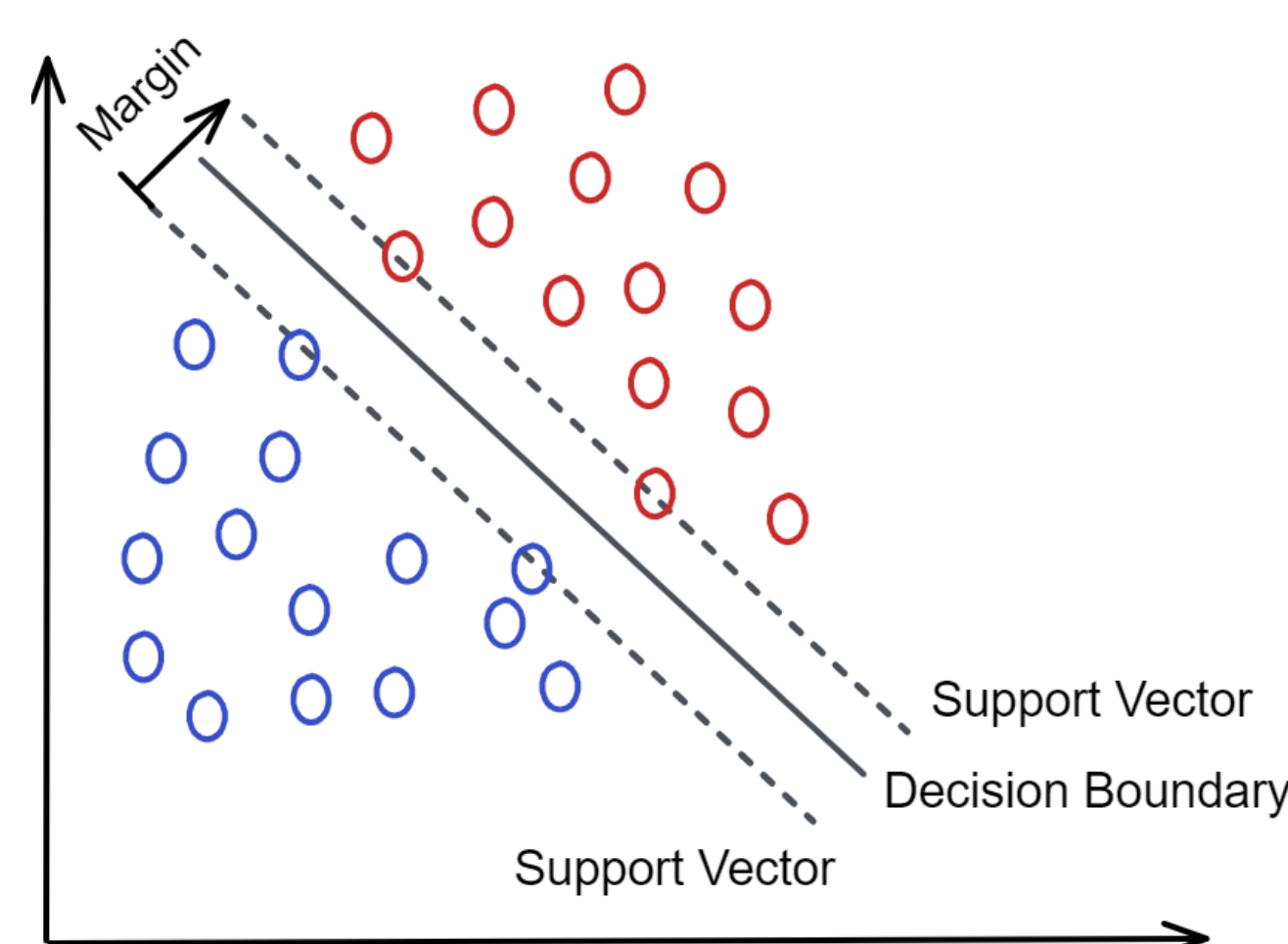
## 3. Methods



### Random Forest (RF)



### Support Vector Machine (SVM)



## 5. Conclusion

- Digital Elevation Model (DEM) is the main driver for flood susceptibility mapping.
- CNN and RF models outperformed SVM models.
- Finer spatial resolution showed more accuracy for flood susceptibility mapping.

