

Use Machine Learning to Classify Weather Opinions from Social Media: An Experiment of Proposed Model Architecture and a Discussion of Application Framework

Pou-Chang Chen¹

(1)Nogle Studio, Nogle Taiwan Limited

Social media have become one of reliable channels for people to receive weather information. The opinions from social media are not all from meteorological professional forecasters but from weather enthusiasts. Since the weather opinions from the weather enthusiasts can be different from classical quantitative precipitation estimation, a different method should be proposed to find the weather pattern of the opinions. This research used a machine learning approach to predict the weather opinions from social media. By using a convolutional neural network (CNN) model with WRF model outputs as features, this research created a weather classifier to predict the weather opinions from social media. According to the accuracy analysis, this research found the cloud features were not as important as unprofessionals thought for the rainfall prediction. Furthermore, a scaled out machine learning application framework between weather data and social media was discussed, and the improvements of the application were proposed.

Keywords: machine learning, social media, weather communication, multi-class classification, opinion mining