

State-of-the-art machine learning for air quality parameters estimation

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Relative humidity (ϕ) is considered a major parameter during the designing of HVAC (Heating, ventilation, and air conditioning) systems. High skills are required to make rigorous and accurate reading from the psychrometric chart and the “human error” is an added factor that can lead to big disasters. Therefore, rigorous and user-friendly estimation of air quality parameters is still an ongoing issue. We are going to implement the state-of-the-art “Machine learning” technique to develop a simple, robust, and rigorous predictive tool for the estimation of relative humidity. A well-proven approach i.e., the random forest (RF) is employed to train the model for robust estimation. It was found that the mean absolute deviation was 54.3% lower than that of well-known ordinary least square (OLS) regression method. This research was supported by the Basic Science Research Program Foundation of Korea (NRF) funded by the Ministry of Education (2018R1A2B6001566) and the Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).