

미세먼지 측정 데이터 부족한 지하역사내 전이학습기반 PM_{2.5} 예측 모델 및 환기 제어 성능 평가

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The reliability of indoor air quality (IAQ) and ventilation systems represents a common problem in subway stations as it poses a potential health risk to passengers and subway workers. The performance of existing forecasting approaches relies on a considerable amount of historical sensor data, which is usually not available in practical situations. This study introduces a transfer learning (TL) framework to address insufficient data problem for sustainable IAQ levels and ventilation management. The TL-framework outperforms the recurrent neural networks with a determination coefficient (R^2) improvement of 42.84%. Moreover, the IAQ was maintained at healthy levels, and PM_{2.5} concentrations were reduced by 29.21% as compared to stand-alone network. **Acknowledgments;** This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2019S1A5A2A03049104) and by a grant from the Subway Fine Dust Reduction Technology Development Project of the Ministry of Land Infrastructure and Transport (20QPPW-B152306-02).