

# Development of Deep Neural Network to Infer Missing Data for Fine Dust Analysis

**Do Hyun Kim<sup>1</sup>, Jiseok Kim<sup>1</sup>, and Han Rim Lee<sup>1</sup>**

<sup>1</sup>Neutron Utilization Research Division, Korea Atomic Energy Research Institute, Daejeon, Republic of Korea

\*E-mail: dohyunkim@kaeri.re.kr

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In these days, the fine dust is one of the important problems affecting human health. In order to find a method to predict or reduce the fine dust, the data related to the fine dust should be properly measured and analyzed as one of our mission. The deep neural network(DNN) was intended to be used to analyze the relationship between fine dust concentration, meteorologic data, and air pollution data. 16 data in 15 cities from 2008 to 2018 were obtained. However, 1,676 data sets in 3774 data sets have one or more missing data set. It can cause problems such as over fitting in machine learning, and reduces the reliability of analysis results. To treat the missing data, use interpolation or delete the data set. In our case, the interpolation method are not suitable because the values between data are often sharply changed. Also, deleting all missing data set will lose 45% of the total data. In this study, DNN model to infer the missing data was developed. In this presentation, the developed DNN model and results will be discussed.

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