

# **Prediction of COVID-19 dynamics in South Korea using Spatio-Temporal deep learning model**

Minji Lee<sup>1</sup>, Heejin Choi<sup>1</sup>, Rak-Kyeong Seong<sup>1</sup> and Chang Hyeong Lee<sup>1</sup>

1) *Department of Mathematical Sciences, Ulsan National Institute of Science and Technology (UNIST), Ulsan 44919, KOREA*

## **ABSTRACT**

Under the COVID-19 pandemic, several countries around the world, including Spain, Germany, and China, implemented lockdown policies to prevent the spread of COVID-19. However, South Korea did not restrict the passage of people, then COVID-19 spread nationwide through population movement between provinces. Therefore, in order to predict the number of COVID-19 confirmed cases, we need the model that considers both the characteristics of temporal data as well as the characteristics of geographical data. We used Spatio-Temporal Graph Convolution Networks(STGCN) model that added the convolution layer used in Convolutional Neural Networks(CNN) to the Spatio-Temporal Graph Neural Networks(STGNN) [1, 2].

## **REFERENCES**

1. Kapoor, Amol, et al. "Examining covid-19 forecasting using spatio-temporal graph neural networks." arXiv preprint arXiv:2007.03113 (2020).
2. Li, Yanbing, Wei Zhao, and Huilong Fan. "A Spatio-Temporal Graph Neural Network Approach for Traffic Flow Prediction." *Mathematics* 10.10 (2022): 1754.