

**CENTRE FOR SYSTEMS INFORMATICS ENGINEERING  
POSTDOC ASSOCIATES AND STUDENTS SEMINAR (CSIE PASS)****AutoSTL: Automated Spatio-  
Temporal Multi-Task Learning****Mr Zijian ZHANG**Ph.D. Student, School of Data Science  
City University of Hong Kong

Date: 20 February 2023

Time: 3:00pm - 3:45pm

Zoom meeting ID: 997 5713 9108

Seminar link: <https://cityu.zoom.us/j/99757139108>**Abstract**

Spatio-temporal prediction plays a critical role in smart city construction. Jointly modeling multiple spatio-temporal tasks can further promote an intelligent city life by integrating their inseparable relationship. However, existing studies fail to address this joint learning problem well, which generally solve tasks individually or a fixed task combination. The challenges lie in the tangled relation between different properties, the demand for supporting flexible combinations of tasks and the complex spatio-temporal dependency. To cope with the problems above, we propose an Automated Spatio-Temporal multi-task Learning (AutoSTL) method to handle multiple spatio-temporal tasks jointly. Firstly, we propose a scalable architecture consisting of advanced spatio-temporal operations to exploit the complicated dependency. Shared modules and feature fusion mechanism are incorporated to further capture the intrinsic relationship between tasks. Furthermore, our model automatically allocates the operations and fusion weight. Extensive experiments on benchmark datasets verified that our model achieves state-of-the-art performance. As we can know, AutoSTL is the first automated spatio-temporal multi-task learning method.

**Biography**

Zijian Zhang is a 'JLU-CityU' joint Ph.D. student. Before that, he received the Master's and Bachelor's degree from Jilin University in 2021 and 2018, respectively. His research interests include spatio-temporal data mining, urban computing, and recommender systems.