

CENTRE FOR SYSTEMS INFORMATICS ENGINEERING POSTDOC ASSOCIATES AND STUDENTS SEMINAR (CSIE PASS)

A Contrastive Pretrain Model with Prompt Tuning for Multi-center Medication Recommendation

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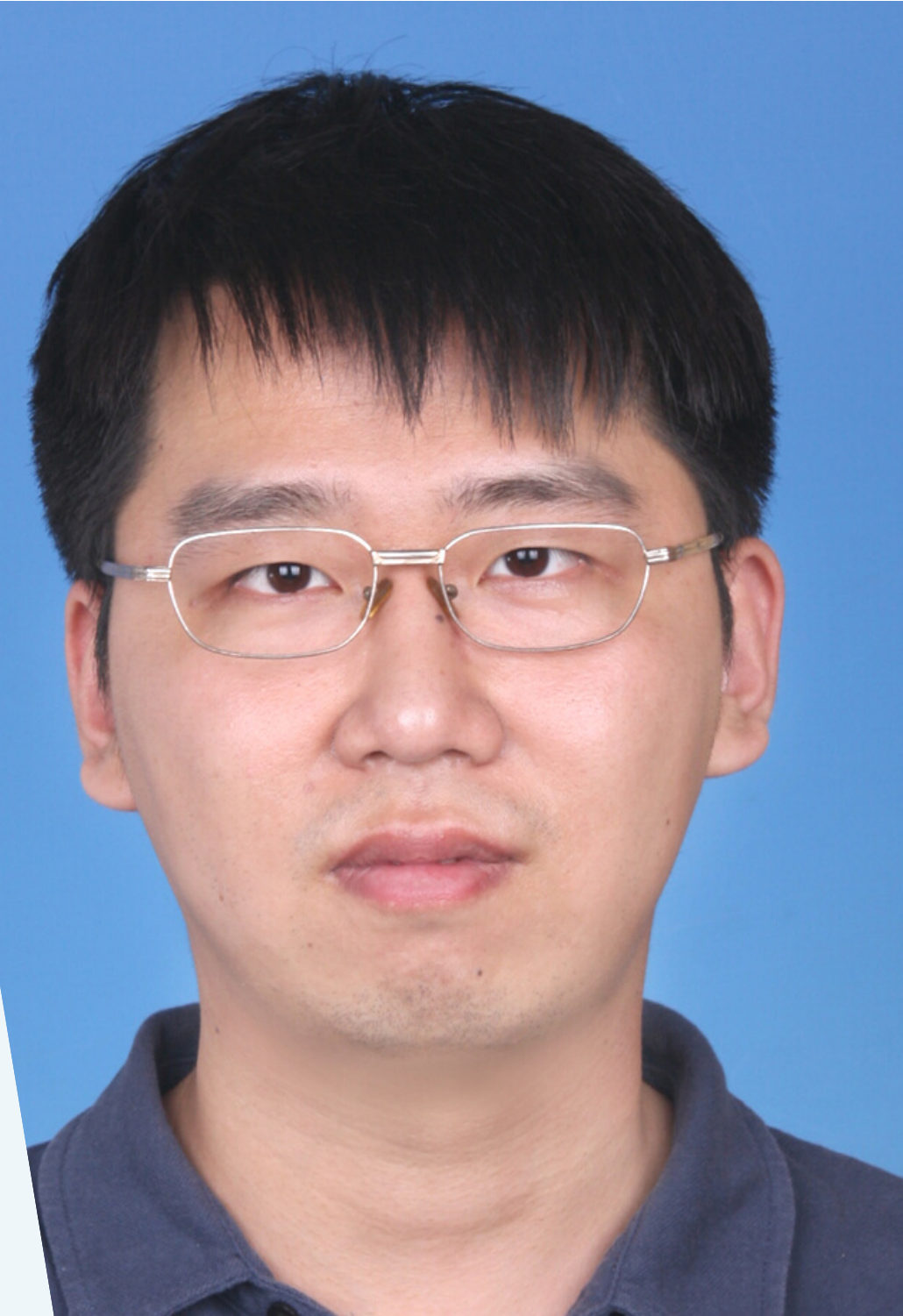


Date: 27 March 2023

Time: 3:00pm - 3:45pm

Zoom meeting ID: 928 2554 7817

Seminar link: <https://cityu.zoom.us/j/92825547817>



Abstract

Medication recommendation is one of the most critical health-related applications, which has attracted extensive research interest recently. Most existing works focus on a single hospital with abundant medical data. However, many small hospitals only have a few records, which hinders applying existing medication recommendation works to the real world. Thus, we seek to explore a more practical setting, i.e., multi-center medication recommendation. Under this setting, most hospitals are with few records, but the total number of the records is large. Though small hospitals may benefit from total affluent records, it is also faced with the challenge that the data distributions between various hospitals are much different. In this work, we introduce a novel contrastive pretrain model with prompt tuning (TEMPT) for multi-center medication recommendation, which includes two stages of pretraining and finetuning. We first design two self-supervised tasks for the pretraining stage to learn general medical knowledge. They are mask prediction and contrastive tasks, which extract the intra- and inter-relationships of input diagnosis and procedures. Furthermore, we devise a novel prompt tuning method to capture the specific information of each hospital rather than adopting the common finetuning. On the one hand, the proposed prompt tuning can better learn the heterogeneity of each hospital to fit various distributions. On the other hand, it can also relieve the catastrophic forgetting problem of finetuning. To validate the proposed model, we conduct extensive experiments on the public eICU, a multi-center medical dataset. The experimental results illustrate the effectiveness of our model.

Biography

Qidong Liu is currently a 'XJTU-CityU' joint Ph.D. student. Before that, he has received the bachelor degree from Xi'an Jiaotong University in 2019. His research interests include recommender systems, causal inference and intelligent healthcare.