



**THE CHINESE UNIVERSITY OF HONG KONG
FACULTY OF MEDICINE
SCHOOL OF BIOMEDICAL SCIENCES**

SBS PI Seminar Series 2022-2023

Prof. CAO Qin Cara

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The Chinese University of Hong Kong

will present a seminar entitled

***“Bridging Graph Embedding and Biological Networks
in the Study of Gene Regulation”***

Graph embedding methods have been applied widely in modeling complex networks in recent years. Given a network and an induced similarity function between its nodes, the goal is to find a low dimensional representation of the network nodes so that the given similarity is preserved as much as possible. Previous studies attempting to model the quantitative relationships between gene expression levels and regulatory mechanisms have considered only one or a few mechanisms at a time, which cannot provide a full picture of the complex interactions among different mechanisms. In this talk, I will introduce our recently published work on a flexible graph embedding framework that can integrate very different types of data for studying their joint effects on gene expression. We demonstrate the use of our framework in integrating several diverse types of data that are related to gene expression in different ways, including DNA contacts in three-dimensional genome architecture, protein-protein interactions, genomic neighborhoods and broad chromatin accessibility domains. The modeling results reveal that these several types of data are able to model gene expression fairly well individually, but even better when integrated. I will also introduce our substantial extension of this model and other ongoing projects.

19 January 2023, Thursday, 4:00 – 5:00 pm

Registration link : <https://webapp.sbs.cuhk.edu.hk/eform/view.php?id=96413>

Deadline: 12:00 noon, 18 January 2023 (Wed)

Please register with your CUHK email address.

