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Challenges and Opportunities in Single-Cell Multi-Sample Data

INVITED SPEAKER

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TIME

October 12, 2023 (Thu) · 2:30 pm - 3:30 pm

VENUE

SC L3 · Science Centre L3 · CUHK

ABSTRACT

In recent years, advances in large-scale single-cell profiling across multiple modalities have led to unprecedented insights into the identity and function of individual cells. Understanding the interplay between different types of cells and their immediate environment is critical for understanding the mechanisms of cells themselves and their function in the context of human diseases. As the number of single-cell, multi-sample, multi-conditional data sets is expected to rise in the coming years, in this talk, we will examine some of the computational challenges posed by the recently emerged single-cell data platforms. We will first look at atlas-scale algorithms that allow for the effective integration of multi-sample and multi-condition single-cell studies. Next, we will review a number of studies designed to perform comparisons between two or more groups/conditions of samples, such as diseased and healthy individuals, to understand cell-level responses to biological perturbations. We will discuss the various strategies and challenges in this new and rapidly evolving subfield of single-cell data.