



## “Inkjet-based system for single cell isolation and genomic analysis”

**Date & Time:** Wednesday, August 31 | 1:00PM - 2:00PM PT

**Hybrid:** Life Sciences Centre Room 1003 (LSC3) & Zoom

**From the lab of:** Dr. Karen Cheung, *Professor*

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**Presented by:** Eric Cheng

Single cell genomic analysis enables profiling of tissue composition, identification of rare cell subsets, characterization of differentiation trajectories, and measurement of inter-cellular heterogeneity; potentially transforming our understanding of cancer genomics, developmental biology, immunology. However, existing single cell sample preparation platforms vary in single cell isolation confidence, throughput, and customizability. The project is an inkjet-based platform that integrates high-resolution imaging and neural network-based object recognition to enable high-capture, high-throughput single cell dispensing. The machine learning-assisted verification gives high confidence that genuine single cells are isolated, and rapid deposition into an open nanowell array, enabling customizable workflows. This talk with focus on the design and benchmark of the current implementation of the instrument. Along with methods of overcome challenges in training a neural network with a naturally skewed class distribution. Our work leads toward deployment in full scale single cell genomic analysis using the Direct Library Preparation method developed at the BC Cancer Agency/Genome Sciences Centre.