



SCHOOL OF INFORMATICS, COMPUTING, AND ENGINEERING

CENTER FOR BIOINFORMATICS RESEARCH TALK



Aly Khan

Toyota Technological Institute

Thursday, January 17, 2019

3:00 pm

Luddy 3006

New computational approaches to understand immune function

Abstract: Advances in computer science and the explosion of large scale, quantitative experiments have created a data-driven revolution in immunology. I will present a few short vignettes on harnessing computation to decode the genetic and molecular mechanisms underlying immune function. First, I will introduce a new algorithm to assemble B-cell receptor (BCR) sequences from single cell RNA-seq data. I will also present the role of this algorithm in a recently published study to better understand vaccine response in humans. Second, I will introduce a new multi-modal method for characterizing the tumor-immune microenvironment in cancer patients. The talk will include the necessary background needed for understanding the immunology topics presented. I will conclude my talk by introducing a few open problems in computational immunology and their implications towards improving human health.

Biography: Aly Khan is a Research Assistant Professor at the Toyota Technological Institute at Chicago, an academic computer science institute located on the campus of the University of Chicago. His research focuses on developing novel computational methods to study the molecular and cellular systems that control immune function. He obtained his PhD in Computational Biology jointly from Cornell University and Memorial Sloan Kettering Cancer Center, and received his MS in Computational Biology from Carnegie Mellon University. In addition to his academic research, he has worked on applied math and computational biology research at Merck, Genentech, and Tempus Labs.



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