

# **OPTIMIZATION SEMINAR SERIES**

**Dr. Peter Chen**  
**Memorial University of Newfoundland**

**Wednesday – December 9, 2015**

**12:30 to 1:30 pm**

**Video-conference in B716**

**Title:** Evolutionary Algorithmic Deployment of Radio Beacons for Indoor Positioning

In mobile computing, the location awareness of a mobile device or its user enables numerous personalized and social services such as recommendation of products and sharing current locations on social networks. Extending positioning services to indoor environments augments the value of the mobile communication market vastly. Due to serious signal attenuation, navigation satellite are incapable, and a common approach is to use or deploy small-scale radio frequency transmitters. When deploying these radio beacons, it is crucial to use a small number of them to provide high-quality positioning service. As this turns out a difficult optimization problem, the system administrators would benefit from have a spectrum of solutions with different tradeoffs between cost and quality. This talk provides an Evolutionary Algorithm (EA) framework to fulfill this need. Using a cost-quality adjustment parameter, the EA framework is able to provide a set of solution options to meet varying requirements balancing cost and quality. This property is resulted by the parallel population-based search of EAs, and can be very useful in real-world engineering applications.

**Bio:** Yuanzhu Chen is an Associate Professor and Deputy Head of Undergraduate Studies in the Department of Computer Science, Memorial University of Newfoundland, St. John's, Newfoundland. He received his Ph.D. from Simon Fraser University in 2004 and B.Sc. from Peking University in 1999, both in Computer Science. He was a Visiting Professor to Dartmouth College in 2011-2012. Between 2004 and 2005, he was a post-doctoral researcher at Simon Fraser University. His research interests include wireless networking, mobile computing, optimization of graph problems, and information retrieval.