Algorithms for Scheduling and Large Data Analysis

In this talk, we will be concerned with designing algorithms for schedulers and MapReduce. The first part of the talk will be on scheduling algorithms. We will discuss recent developments on scheduling models and performance metrics. Our focus will be on the recent direction of scheduling research and how it compares to past work. The second portion of the talk will focus on designing algorithms for large data analysis using MapReduce. Recently, the MapReduce parallel computing framework has become the de facto standard for processing large data. In this talk, we discuss the theoretical model of the MapReduce framework. The constraints of the MapReduce model pose several algorithmic challenges. We will introduce recent developments and key research questions related to the theoretical foundations of MapReduce. We will then introduce some algorithmic ideas that can be used to design algorithms for MapReduce.

Benjamin Moseley is a Research Assistant Professor at the Toyota Technological Institute at Chicago and has been there since 2012. He received his Ph.D. in computer science from the University of Illinois at Urbana-Champaign (UIUC) in 2012. He also obtained his M.S. (2008) and B.S. (2006) in computer science at UIUC. He was a visiting professor at Sandia National Laboratories in the summer of 2013 and an intern at Yahoo! Research during the summers of 2010 and 2011. He received the Best Paper Award at SPAA 2013 and Best Student Paper Award at SODA 2010. Dr. Moseley's research interests are broadly focused in the field of theoretical computer science. Specifically, he is interested in the design, analysis and limitations of algorithms. He is also interested in the applications of algorithms. Recently, his work has focused on problems arising in resource allocation, large data analysis, and sustainable computing.