Statement of Purpose
of Jimmy Lin (CS Ph.D applicant for Fall–2015)

My research interest lies

The most significant research project in my investigative study in the field of machine learning was *Convex Optimization on Hard Clustering and Hierarchical Dirichilet Process*. The partner I coordinated with for this research project was Ian Yen, an Ph.D student supervised by Prof. Pradeep Ravikumar and Prof. Inderjit Dhillon. This project, based on examplar-based model, aimed at developing efficient algorithm with optimality guarantee on hard clustering problem(DP model) and (HDP model). Our approaches employed ADMM technique and obtain decent achievement on hard clustering problem in various datasets. After reaching desired consequence on clustering problem, we figured out that it could be a decent breakthrough if we apply this framework on the topic-model problem, whose essential goal was to cluster bag of words within collections of documents. We designed objective function under our framework and corresponding computing routines with both optimality guarantee and significantly re-fined functionality. The theory looked perfectly good but we failed to implement the computaion due to incompatibility between our algorithm and the objective component contributing to functionality augmentation. After trial on theoretical debugging, we had to, with slight frustration, give up the tempting functionality augmentation for topic model and derived an efficient algorithm that seeks optimality of HDP model with guarantee.

Job Analytics was the project through which I made the first touch to CS research with rigorous mathematics. The initial idea of matching jobs to people in an intelligent way came from Prof. Pradeep Ravikumar. This is

Realize that excellent mastery of mathematics does matter.

Another research project taken PHD program.

Why do you need a Ph.D.

Before summer of 2014, my perception towards Carnegie Mellon University was the top in the area of computer science. My personal feeling that Carnegie Mellon University was beta version of beloved Australian National University, a place giving high respects to the CMU. My honor thesis supervisor Prof. Pradeep Ravikumar had his doctoral career in CMU. He treated us as an individual researcher and discussed details with us.