Summer 2012 Report

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During this summer, I participated in 2012 Industrial Math/Stat Modeling Workshop for Graduate Students held by SAMSI and North Carolina State University from July 16 to July 24. In this workshop, students were divided into five or six-member teams to work together on projects presented by engineers or scientists from industry and laboratories. Each team is mentored by the problem presenter and a faculty advisor. I was assigned to collaborate on the project of Saltwater Intrusion and Freshwater Supply in Coastal Aquifers with other five students. We worked very hard on that project throughout the whole workshop and finally submitted a report and gave a presentation by the end of the workshop. This workshop brought me great experience in solving challenging and exciting real-world problem which is not considered in classrooms but arising in industrial and laboratory research. It is indeed beneficial to my further research. For more information about this workshop, please see http://www.samsi.info/workshop/2012-industrial-mathstat-modeling-workshop-graduate-students-july-16-24-2012

Meanwhile, I continue working on my research project of DG Fast Sweeping Methods. I am trying to improve the accuracy in the $L^1$ norm from second order to third order by using a quadratic polynomial instead of a linear polynomial on each cell. This algorithm can be used to solve Hamilton-Jacobi equations with many applications, e.g. optimal control, image processing and computer vision, etc.