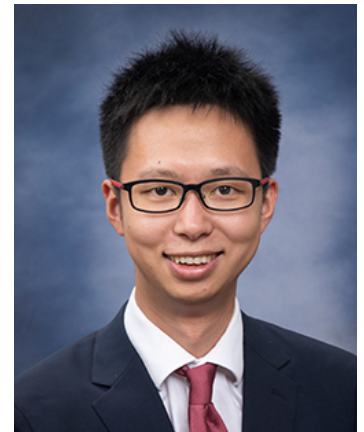


When: Friday 12:40 – 13:40

Where: ETB 1020

Speaker: Rui Tuo

Department of Industrial and Systems Engineering
Texas A&M University



Title: Uncertainty Quantification with Gaussian Processes: Uniform Error Bounds and Convergence Properties

Date: 3-29-2019

Abstract: Kriging based on Gaussian random fields is widely used in reconstructing unknown functions. The kriging method has pointwise predictive distributions which are computationally simple. However, in many applications one would like to predict for a range of untried points simultaneously. In this work we obtain some error bounds for the kriging predictor under the uniform metric. It works for a scattered set of input points in an arbitrary dimension, and also covers cases where the covariance function of the Gaussian process is misspecified. These results lead to a better understanding of the rate of convergence of kriging under the Gaussian or the Matérn correlation functions, the relationship between space-filling designs and kriging models, and the robustness of the Matérn correlation functions.

Bio: Rui Tuo is an Assistant Professor in the Department of Industrial and Systems Engineering and an adjunct Assistant Professor in the Department of Statistics at Texas A&M University. Tuo's research interest mainly lies in data science for computer simulations, including design and analysis of computer experiments and uncertainty quantification. Tuo received his PhD degree at University of Chinese Academy of Sciences in 2013. He visited Georgia Tech during his PhD program and finished his thesis there, and after graduation, he visited Oak Ridge National Laboratory, National University of Singapore and Georgia Tech.