



Statistics and Actuarial Science Seminar

Title: Monte Carlo variance reduction using Stein operators

Speaker: Leah South (Queensland University of Technology)

Date: Mon 8th November 2021 at 12:00PM

Location: Online

Abstract: This talk will focus on two new methods for estimating posterior expectations when the derivatives of the log posterior are available. The proposed methods are in a class of estimators that use Stein operators to generate control variates or control functionals. The first method applies regularisation to improve the performance of popular Stein-based control variates for high-dimensional Monte Carlo integration. The second method, referred to as semi-exact control functionals (SECF), is based on control functionals and Sard's approach to numerical integration. The use of Sard's approach ensures that our control functionals are exact on all polynomials up to a fixed degree in the Bernstein-von-Mises limit. Several Bayesian inference examples will be used to illustrate the potential for reduction in mean square error. If time permits, I will also briefly describe some benefits and challenges of Stein-based control variates in the unbiased Markov chain Monte Carlo setting.

Join the Zoom call: <https://ucd-ie.zoom.us/j/68316324831>