



Statistics and Actuarial Science Seminar

Title: Distances between probability distributions via Stein's method

Speaker: Yvik Swan (Université Libre de Bruxelles)

Date: Thu 26th March 2020 at 3:00PM

Location: Seminar Room SCN 1.25

Abstract: After a gentle introduction to Stein's method of approximate computation of expectations, we propose a new approach which rests on probabilistic representations of certain key elements of the method which we recently discovered. We apply these to compute new sharp variance expansions for arbitrary distributions, and also to compute abstract Stein-type bounds on the Kolmogorov, Total Variation and Wasserstein distances between arbitrary univariate distributions. We also show how such representations lead to new goodness-of-fit tests. We illustrate on many examples, and compare our results with current literature on the same topic, whenever such literature is available. Our approach seems to lead to significant improvements, even for Gaussian approximation. This talk is based on papers [arXiv:1906.08376, arXiv:1906.08372v1, arXiv:1909.11518] written with Marie Ernst (Liège, Belgium) and Gesine Reinert (Oxford, UK).