THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON STATISTICS

Speaker: **Prof. Quanxi SHAO** **CSIRO data61** **Australian Resources Research Centre**		Venue : **Room 4472** **(Lifts 25/26)**
Date	**Time**	**Title**
5 May 2023 (Fri)	**2:00-3:00pm**	**Big data challenges in hydro-climate-Agriculture research**

Abstract

Big data has been becoming a popular and hot research topic in many research fields and has attracted many industrial investments. It is undoubted that any big data product is a multi-disciplinary effort. For our fellow statisticians, we need to identify our role in the big data game. Based on our experiences in the statistical applications in hydro-climate and agricultural research, in this talk, I will share and present some thoughts with examples on where we can make significant contributions in the big data movement.

5 May 2023 (Fri)	**3:00-4:00pm**	**Embedded Model problems with applications to modelling environmental extremes**

Abstract

Modelling Hydrological extremes is an important issue in hydrology and water resources research. In Statistics, there are two types of extreme value theory. Classic extreme value distributions, including Weibull, Gumbel and Fréchet distributions, are derived for the normalized extreme value of a data set and are used to model block maxima such as annual data. The peak over threshold (POT) models the tail distributions directly and therefore can be used for daily data. Under mild conditions, the exceedance over threshold asymptotically follows the so-called generalized Pareto distribution (GPD) as the threshold increases. In this talk, we discuss the use of the so-called extended Burr XII distribution Their performances are assessed by comparing with the other popularly used distribution is hydrology using both real data and simulation study. However, the parameter estimation for the extended Burr distribution is not straightforward due to the so-called embedded model problem. In this talk we will also provide the solution for this problem.

All are Welcome!