Save the Date INLA-Environmental Sciences Workshop

8-10 July 2024

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
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Faculty of Natural and Agricultural Sciences

Fakulteit Natuur- en Landbouwetenskappe
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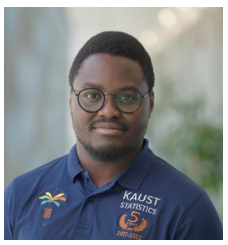
Date: 8-10 July 2024
Venue: Room 2-9 the computer labs in Geography Building
Presenters: Dr. Janet van Niekerk and Mr. Hans Montcho

A concise biography of each presenter:

Dr. Janet van Niekerk

Janet holds a PhD in Mathematical Statistics and is currently a Senior Researcher at KAUST in the Bayesian Computational Statistics group. She is a developer of R-INLA, and has presented short courses on INLA worldwide, including at the Centers for Disease Control (CDC) in the USA. She is an associate editor for the leading international Bayesian statistics journal, Bayesian Analysis and serves on various international committees for statistics. She currently consults for Red Sea Global, to model, predict and conserve mari-mammals and their associated habitats whilst advising the governing body on proposed economic activities in the area. She is a UP alumni and held a senior lecturer position until 2018 before she moved to KAUST.



Mr. Hans Montcho

Hans is a PhD Statistical Science student in the group of Prof. Haavard Rue at KAUST and works on point process modeling through stochastic partial differential equations and appropriate techniques for cross-validation of these models. He was born in Benin and graduated with a Masters degree in Statistics from the uNiversity of Sao Paulo.

About the course/workshop:

R-INLA is an R package that employs the INLA methodology. INLA is a method to estimate models while providing uncertainty quantification, based on a Bayesian framework. Since its inception in 2009, INLA has been used in more than 5000 scientific publications for data analysis in areas such as environmental statistics, epidemiology, disease mapping, survival analysis, spatial processes, dynamic volatility models and many more. More than 2900 works using INLA were published in Nature. INLA was used in more than 600 publications with regards to COVID with various governmental agencies employing INLA in their decision-making framework. The World Health Organization uses INLA routinely to model and predict global air pollution while the Malaria Atlas project uses INLA to model and predict disease burden and vector abundance, amongst other projects. In this course the participant will be briefly introduced to the methodology underpinning R-INLA, while most of the focus will be on applications. Participants will be guided through hands-on practical real data applications. Some topics to be presented are generalized linear mixed models (GAMMs) for count and binary data, overdispersion models, discrete and continuous spatial domain models as well as smoothers in space and time.