

Thursday

June 25,
2020

12:30 pm
(CET)

The **Working Group on Risk - CREAR**, with the support of the IDS dpt, Institut des Actuaire, LabEx MME-DII, and the group BFA (SFdS), has the pleasure to invite you to the seminar by:

Prof. Julie JOSSE

Ecole Polytechnique - Université Paris Saclay

Visiting Researcher at Google Brain

'Treatment effect estimation with missing attributes'

via Zoom Link : <https://zoom.us/j/95074354926>

Inferring causal effects of a treatment or policy from observational data is central to many applications. However, state-of-the-art methods for causal inference suffer when covariates have missing values, which is ubiquitous in application. This work is motivated by medical questions about different treatments based on a large prospective database. The missing data greatly complicate causal analyses as they either require strong assumptions about the missing data generating mechanism or an adapted unconfoundedness hypothesis. In this talk, we will first provide a classification of existing methods according to the main underlying assumptions, which are based either on variants of the classical unconfoundedness assumption or relying on assumptions about the mechanism that generates the missing values. Then, we will present two recent contributions on this topic: (1) an extension of doubly robust estimators that allows handling of missing attributes, and (2) an approach to causal inference based on variational autoencoders adapted to incomplete data. We will illustrate the topic on an observational medical database which has heterogeneous data and a multilevel structure to assess the impact of the administration of a treatment on survival.

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Prof. Julie Josse

Ecole Polytechnique, Université Paris-Saclay

Visiting Researcher at Google Brain

Dr. Julie Josse is Professor of Statistics at Ecole Polytechnique (Paris-Saclay), and visiting researcher at Google Brain. Her research focuses on the development of methods to manage missing data (inference, multiple imputation, matrix completion, missing non at random data, supervised learning with missing values). She gives many courses and tutorials on the subject and has created a platform (<https://rmisstastic.netlify.app/>) to collect works and give resources to users. Julie is dedicated to reproducible research with the R statistical software: she has developed packages including FactoMineR, denoiseR, missMDA to transfer her work; she is a member of the R foundation and of Rforwards to increase the participation of minorities in the community. For the last three years, she has been working on causal inference problems with applications in public health and in particular with the APHP Traumabase group for the management of polytrauma patients.



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