

## SÉMINAIRE DE MATHÉMATIQUES ACTUARIELLES ET FINANCIÈRES

organisé par Quantact, le Laboratoire de mathématiques actuarielles et financières du CRM

CMT-2106

2425, rue de l'Agriculture, Québec  
Pavillon Paul-Comtois, Université Laval

13 Octobre 2017, 14:00-16:30

### **Christian Robert**

ISFA, Université Lyon 1

#### **Non parametric individual claim reserving**

Accurate loss reserves are an important item in the financial statement of an insurance company and are mostly evaluated by macro-level models with aggregate data in a run-off triangle. In recent years, a small set of literature that proposed parametric reserving models using underlying individual claims data has emerged. In this paper, we introduce non parametric tools (machine learning mostly) to estimate outstanding and IBNR liabilities using covariables available for each policy and policyholder and which may be informative about claim frequency and severity as well as payments behaviors. This exercise is quite intricate and new since the target variable (claim severity) is right-censored most of the time. The performance of our approach is evaluated by comparing the predictive values of the reserve estimates with their true values on a large number of simulated data. We also compare our individual approach with aggregated classical methods such as Mack's Chain Ladder with respect to the bias and the volatility of the estimates.

Joint work with Maximilien Baudry (DAMI Chair, LSAF, UCBL)

### **Fateh Chebana**

Centre Eau Terre Environnement (ETE)  
Institut national de la recherche scientifique (INRS)

#### **Risque hydrologique: approches basiques et avancées**

Statistics play a key role in solving hydrological problems and providing tools to guide decision making in the field of water resources including floods and droughts. This talk focuses on hydrological risk evaluation which is based on hydrological frequency analysis. It covers estimation at sites where hydrological data are available (univariate and multivariate cases), as well estimation at ungauged sites where hydrological data are not available (regional analysis, also univariate and multivariate). Approaches are based for instance on copulas, functional data analysis, depth functions, extreme value theory, and spatial statistics.

## SEMINAR OF ACTUARIAL AND FINANCIAL MATHEMATICS

organized by *Quantact, the CRM Laboratory of Actuarial and Financial Mathematics*

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