



**De:** Louis Pelletier [pelletl@crm.umontreal.ca](mailto:pelletl@crm.umontreal.ca)  
**Objet:** CONFÉRENCE PRIX CRM-SSC 2015 (11/02/2016, Matias Salibián-Barrera)  
**Date:** 7 décembre 2015 16:09  
**À:** Suzette Paradis [paradis@crm.umontreal.ca](mailto:paradis@crm.umontreal.ca)

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CONFÉRENCE PRIX CRM-SSC 2015

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CONFÉRENCIER(S) / SPEAKER(S) :  
 Matias Salibián-Barrera (University of British Columbia)

TITRE / TITLE :  
 "Outlier Detection for Functional Data Using Principal Components"

LIEU / PLACE :  
 CRM, UdeM, Pav. André-Aisenstadt, 2920, ch. de la Tour, salle 1360

DATE :  
 Le jeudi 11 février 2016 / Thursday, February 11, 2016

HEURE / TIME :  
 15h30 / 3:30 p.m.

RESUME / ABSTRACT :  
 Principal components analysis is a widely used technique that provides an optimal lower-dimensional approximation to multivariate observations. In the functional case, a new characterization of elliptical distributions on separable Hilbert spaces allows us to obtain an equivalent stochastic optimality property for the principal component subspaces of random elements on separable Hilbert spaces. This property holds even when second moments do not exist.

These lower-dimensional approximations can be very useful in identifying potential outliers among high-dimensional or functional observations. In this talk we propose a new class of robust estimators for principal components, which is consistent for elliptical random vectors, and Fisher-consistent for elliptically distributed random elements on arbitrary Hilbert spaces. We illustrate our method on two real functional data sets, where the robust estimator is able to discover atypical observations in the data that would have been missed otherwise.

This talk is the result of recent collaborations with Graciela Boente (Buenos Aires, Argentina) and David Tyler (Rutgers, USA).

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Le café sera servi à 15h00 et une réception suivra la conférence au Salon Maurice-L'Abbé (salle 6245).

Coffee will be served before the conference and a reception will follow at Salon Maurice-L'Abbé (Room 6245).

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<http://www.crm.math.ca/Salibian-Barrera>

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