To: Prof. Dr. Johannes Fürnkranz,

Editor-in-Chief,

Data Mining and Knowledge Discovery

Dear Prof. Fürnkranz,

We hereby submit the manuscript entitled “ParCorr: Efficient Parallel Methods to Identify Similar Time Series Pairs across Sliding Windows” for the ECMLPKDD 2018 special issue to be considered for publication in the Data Mining and Knowledge Discovery journal. We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal or conference or book chapter.

The paper presents a method for finding correlations across millions of parallel streaming time series which could be the first step in a variety of data mining applications which might require similarity metrics across portions of time series. The method uses an incremental sketching approach, which leads to a very efficient parallelization. Compared to the state-of-the-art, the approach achieves 1000+ times speedup and scales to millions of parallel time series, at the expense of an approximate solution, which sacrifices 5% of the true positives. However, for some applications, which we discuss, this 1000-fold speedup is worth the minor reduction in recall.

Our work considers the latest research trends in the field of time series correlations, some of which are listed below:

* The iSAX method for indexing and similarity querying of time series (same problem as ours; we offer much faster performance at some loss in recall);
* The Matrix Profile set of methods for all-pairs similarity joins across long time series (related problem);
* The AEGIS method for correlation discovery over streaming time series data (similar problem but different approach)

We would like to nominate the following candidate reviewers, especially thanks to their extensive research in the last years on time series and/or data stream analytics:

(I will remove two, once agreed on the final list) [Please let Florent pick the final four]

* Christos Faloutsos, Carnegie Mellon University (christos@cs.cmu.edu)
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Thank you for your consideration of this manuscript!

On behalf of the co-authors,

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