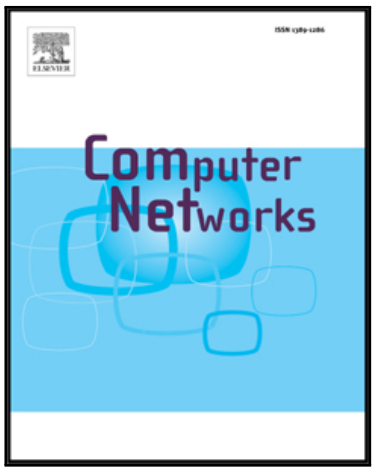

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PII: S1389-1286(18)30006-9
DOI: 10.1016/j.comnet.2018.01.005
Reference: COMPNW 6353

To appear in: *Computer Networks*

Received date: 26 July 2017
Revised date: 16 November 2017
Accepted date: 8 January 2018

Please cite this article as: Miguel L. Bote-Lorenzo, Eduardo Gómez-Sánchez, Carlos Mediavilla-Pastor, Juan I. Asensio-Pérez, Online machine learning algorithms to predict link quality in community wireless mesh networks, *Computer Networks* (2018), doi: 10.1016/j.comnet.2018.01.005

Online machine learning algorithms to predict link quality in community wireless mesh networks

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Abstract

Accurate link quality predictions are key in community wireless mesh networks (CWMNs) to improve the performance of routing protocols. Unlike other techniques, online machine learning algorithms can be used to build link quality predictors that are adaptive without requiring a predeployment effort. However, the use of these algorithms to make link quality predictions in a CWMN has not been previously explored. This paper analyses the performance of 4 well-known online machine learning algorithms for link quality prediction in a CWMN in terms of accuracy and computational load. Based on this study, a new hybrid online algorithm for link quality prediction is proposed. The evaluation of the proposed algorithm using data from a real large scale CWMN shows that it can achieve a high accuracy while generating a low computational load.

Keywords: community networks, wireless mesh networks, link quality prediction, machine learning

1. Introduction

Community networks are distributed networking infrastructures owned and managed by local communities to provide their members with a variety of free

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