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Towards IoT data classification through semantic features

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Abstract

The technological world has grown by incorporating billions of small sensing devices, collecting and sharing huge amounts of diversified data. As the number of such devices grows, it becomes increasingly difficult to manage all these new data sources. Currently there is no uniform way to represent, share, and understand IoT data, leading to information silos that hinder the realization of complex IoT/M2M scenarios. IoT/M2M scenarios will only achieve their full potential when the devices work and learn together with minimal human intervention. In this paper we discuss the limitations of current storage and analytical solutions, point the advantages of semantic approaches for context organization and extend our unsupervised model to learn word categories automatically. Our solution was evaluated against Miller-Charles dataset and a IoT semantic dataset extracted from a popular IoT platform, achieving a correlation of 0.63.

Keywords: IoT, M2M, context information, semantic similarity

1. Introduction

With the advent of the Internet of Things (IoT) [1], an increasing number of devices has been equipped with sensing and processing capabilities. These allow them to communicate with each other, and even with services on the Internet, to

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