Abstract

A city’s “smartness” depends greatly on citizens’ participation in smart city services. Furthermore, citizens are becoming technology-oriented in every aspect concerning their convenience, comfort and safety. Thus, they become sensing nodes—or citizen sensors—within smart-cities with both static information and a constantly emitting activity system. This paper presents a novel approach to perform visual sentiment analysis of big visual data shared on social networks (such as Facebook, Twitter, LinkedIn, and Pinterest) using transfer learning. The proposed approach aims at contributing to smart citizens sensing area of smart cities. This work explores deep features of photos shared by users in Twitter via convolutional neural networks and transfer learning to predict sentiments. Moreover, we propose big data architecture to extract, save and transform raw Twitter image posts into useful insights. We obtained an overall prediction accuracy of 83.35%, which indicates that neural networks are indeed capable of predicting sentiments. Therefore, revealing interesting research opportunities and applications in the domain of smart sensing.
References


35. C. N. dos Santos and M. Gatti, “Deep Convolutional Neural Networks for Sentiment Analysis of Short Texts.”


**Index Terms**

Computer Science

Distributed Systems

**Keywords**

Sentiment analysis; citizen sensing; opportunistic sensing; smart cities; big data; data warehousing