

**CONNECTING SOCIAL MEDIA TO E-COMMERCE: COLD
START PRODUCT RECOMMENDATION USING MICRO
BLEEDING INFORMATION**

*A project report submitted in partial fulfillment of the requirements for
the award of the Degree of*

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

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CERTIFICATE

This is to certify that the project entitled "CONNECTING SOCIAL MEDIA TO E-COMMERCE: COLDSTART PRODUCT RECOMMENDATION USING MICROBLOGGING INFORMATION" in partial fulfillment for the of degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING, at AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, MAKAVARAPALEM, VISAKHAPATNAM is an bonafied work carried out by B.Pavani(14811A0507), D.PavanKumar(15815A0502),G.Manoj(14811A0521),S.SaiMohan(14811A0564), & Priyanka(14811A0532) under the guidance and supervision during 2017-2018.

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ABSTRACT

In recent years, the boundaries between e-commerce and social networking have become increasingly blurred. Many e-commerce websites support the mechanism of social login where users can sign on the websites using their social network identities such as their Facebook or Twitter accounts. Users can also post their newly purchased products on microblogs with links to the e-commerce product web pages. In this paper we propose a novel solution for cross-site cold-start product recommendation which aims to recommend products from e-commerce websites to users at social networking sites in "cold-start" situations, a

problem which has rarely been explored before. A major challenge is how to leverage knowledge extracted from social networking sites for cross-site cold-start product recommendation. We propose to use the linked users across social networking sites and e-commerce websites as a bridge to map users' social networking features to another feature representation for product recommendation.

In specific, we propose learning both users' and products' feature representations from data collected from e-commerce websites using recurrent neural networks and then apply a modified gradient boosting trees method to transform users' social networking features into user embeddings. We then develop a feature-based matrix factorization approach which can leverage the learnt user embeddings for cold-start product recommendation. Experimental results on a large dataset constructed from the microblogging service and the e-commerce website have shown the effectiveness of our proposed framework.

In our problem setting here, only the users' social networking information is available and it is a challenging task to transform the social networking information into latent user features which can be effectively used for product recommendation.