TAG-BASED VISUAL AND FUNCTIONAL CHARACTERISTIC OF PRODUCTS USING SVM-CLASSIFICATION

[1]Dr Kanchana JS, [2]Sanjay M, [3]Santhosh Kumar R, [4]Sathish Chockalingam R

[1]Professor, [2]Student Final Year, [3]Student Final Year, [4]Student Final Year
Information Technology Department,
K.L.N College of Engineering, Sivaganga, Tamil Nadu, India

***Abstract*: Recommender systems have become an important tool which can help users to select the information of interest in many web applications such as social networks, e-commerce, online reading and so on. Nevertheless, the decision-making process of users is highly complex, not only dependent on the personality and preference of a user, but also complicated by the characteristics of a specific product. This work, focus on fine-grained modeling of product characteristics to improve recommendation quality. Specifically, the proposed system first divides a product's characteristics into visual and functional aspects which means the visual appearance and functionality of the product. One insight is that, the visual characteristic is very important for products of visually-aware domain, while the functional characteristic plays a more crucial role for visually non-aware domain. To address technical challenge, computationally efficient classification algorithm based on Support Vector Machine (SVM) will be devised. Furthermore, the system provides an online updating procedure of the algorithm, shedding some light on how to adapt the method to real-world recommendation scenario where data continuously streams in. Extensive experiments on real-world datasets demonstrate the effectiveness of the proposed system**

***Index Terms*: fine-grained, modeling, Support Vector Machine (SVM), Visual Aspects, Functional Characteristics**

INTRODUCTION

Recent years have witnessed persevered efforts in enhancing the effectiveness and performance of recommender systems. Such systems have emerge as an fundamental aspect in assisting customers to discover their desired Products and helping enterprise proprietors to earn greater income, starting from movies, news, to point-of-interests (POIs). Distinct from those applications, person intake behaviors in E-trade are even greater complex, which can be typically prompted with the aid of using many inner and external factors. This makes it hard to appropriately version a person's actual preference. Consider a real-lifestyles on-line shopping situation in which a person is keeping a basket of merchandise. A high-stage query obviously arises: what influences the person's selection making? Namely, which factors of merchandise drive the person to buy the merchandise? To awareness on fine-grained modeling of product traits to enhance advice quality. To conscious the customers from shopping for inefficient product is the primary goal of this proposed device. To divide a product's traits into visible and Functional aspects, the visible look and capability of the product. To deal with the technical challenge, this proposed device devises a computationally efficient algorithm called Support Vector Machine (SVM). This algorithm will classify the user reviews as positive and negative rating on the basis of visual and functional characteristics.

MOTIVATIONOFTHEPROJECT

To propose a Visual and Functional characteristic model to capture product characteristics in a fine-grained manner to model user preference using SVM classifier algorithm to buy an efficient product.

LITERATURESURVEY

In this paper "Modeling Product's Visual and Functional Characteristics" the Authors Bin Wu, Xiangnan He, Yun Chen, LiqiangNie, Kai Zheng, and Yangdong Ye told that, this System focus on fine-grained modeling of product characteristics to improve recommendation quality. Specifically, first divide a product's characteristics into visual and functional aspects—i.e., the visual appearance and functionality of the product. One insight is that, the visual characteristic is very important for products of visually-aware domain (e.g., clothing), Second the functional characteristic plays a more crucial role for visually non-aware domain (e.g., office products). To contribute a novel probabilistic model, named Visual and Functional Probabilistic Matrix Factorization (VFPMF), to unify the two factors to estimate user preferences on products.

Jing (Selena) He, Meng Han, Shouling Ji, Tianyu Du, and Zhao Litold in this paper titled "Spreading Social Influence with both Positive and Negative Opinions in Online Networks **"**Social networks are important media for spreading information, ideas, and influence among individuals. Most existing research focuses on understanding the characteristics of social networks. To investigating how information is spread through the "word-of-mouth" effect of social network. It presents a greedy approximation algorithm to address the MPINS selection problem. Finally, to validate the proposed greedy algorithm, conduct extensive simulations and experiments on random graphs and seven different real world data sets that represent small-, medium-, and large-scale networks

In this paper "Sentiment Analysis: Mining Opinions, Sentiments, and Emotions"AuthorBing Liu told that, Sentiment analysis is the

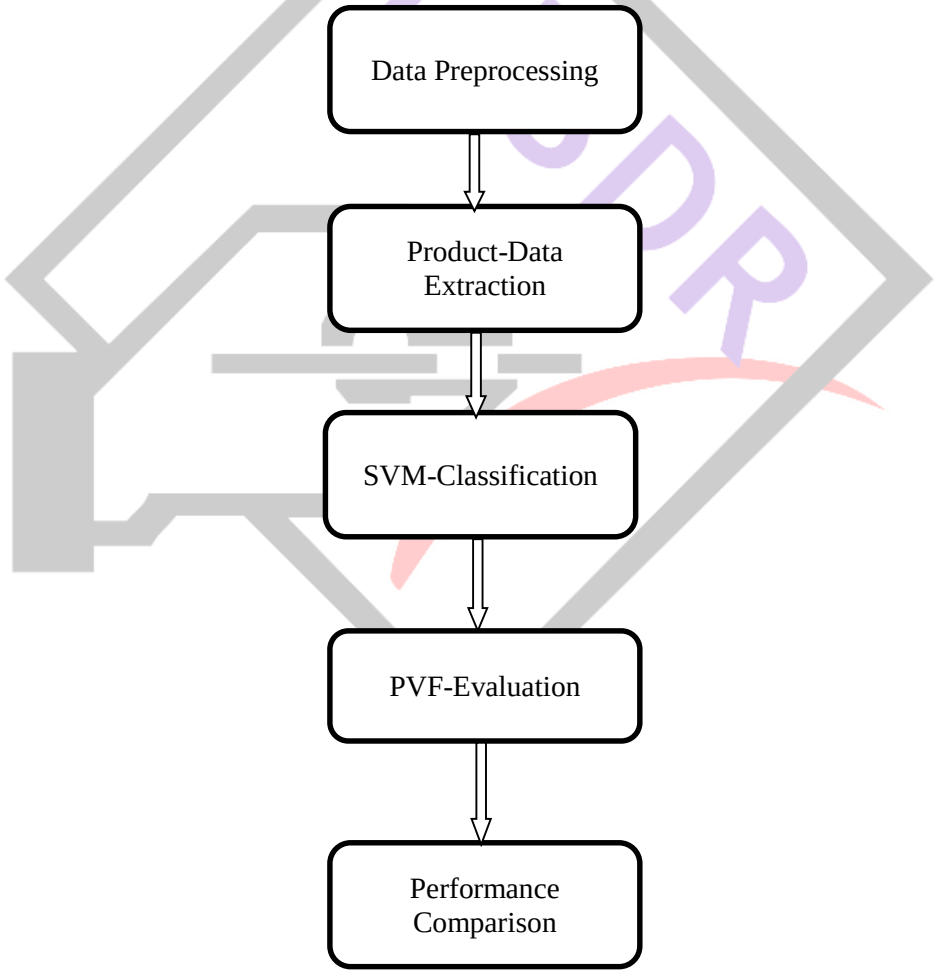
computational study of people's opinions sentiments, emotions, and attitudes. This fascinating problem is increasingly important in business and society. It offers numerous research challenges but promises insight useful to anyone interested in opinion analysis and social media analysis. This methodology gives a comprehensive introduction to the topic from a primarily natural-language-processing point of view to help readers understand the underlying structure of the problem and the language constructs that are commonly used to express opinions and sentiments.

Morgan Kaufmann told in this paper titled"Sentiment Analysis in Social Networks", Sentiment Analysis in Social Networks begins with an overview of the latest research trends in the field. It then discusses the sociological and psychological processes underlying social network interactions. The methodology explores both semantic and machine learning models and methods that address context-dependent and dynamic text in online social networks. It showing how social network streams pose numerous challenges due to their large-scale, short, noisy, context- dependent and dynamic nature.

PROPOSEDSYSTEM

An effective recommender system can significantly help customers to find desired products and assist business owners to earn more income. In this method specifically, divide a product's characteristics into visual and functional aspects—i.e., the visual appearance and functionality of the product. Introduce a novel probabilistic model, named, Visual and Functional characteristics using SVM Classification to unify the two factors to estimate user preferences on products. The extensive experiments to explore our method on five products of real-world datasets. Four commonly ranking-based metrics, i.e., Precision@N, Recall@N, MAE@N and F1-Score@N, are used for evaluating the performance of this method.

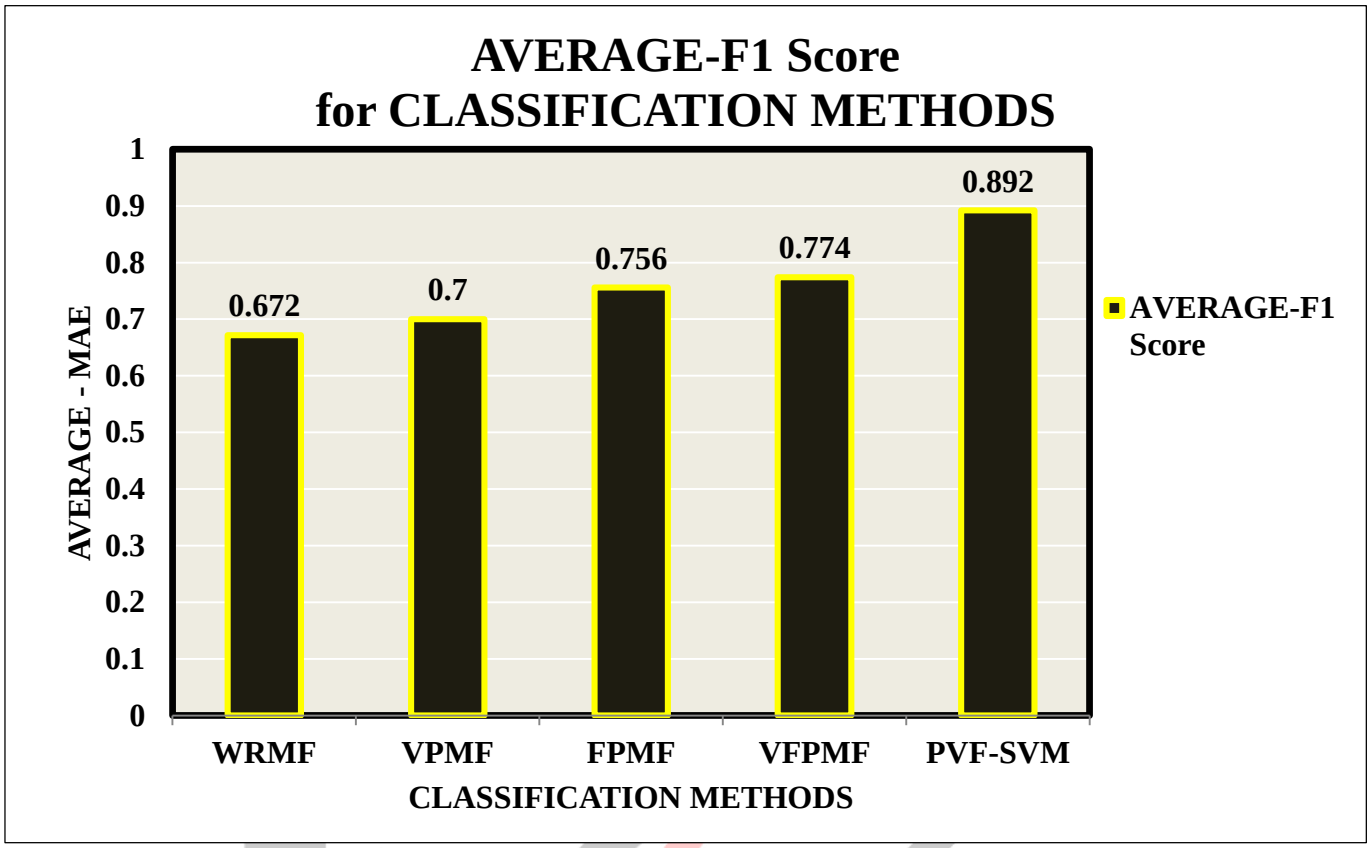
BLOCK DIAGRAM



TABLES AND GRAPHS

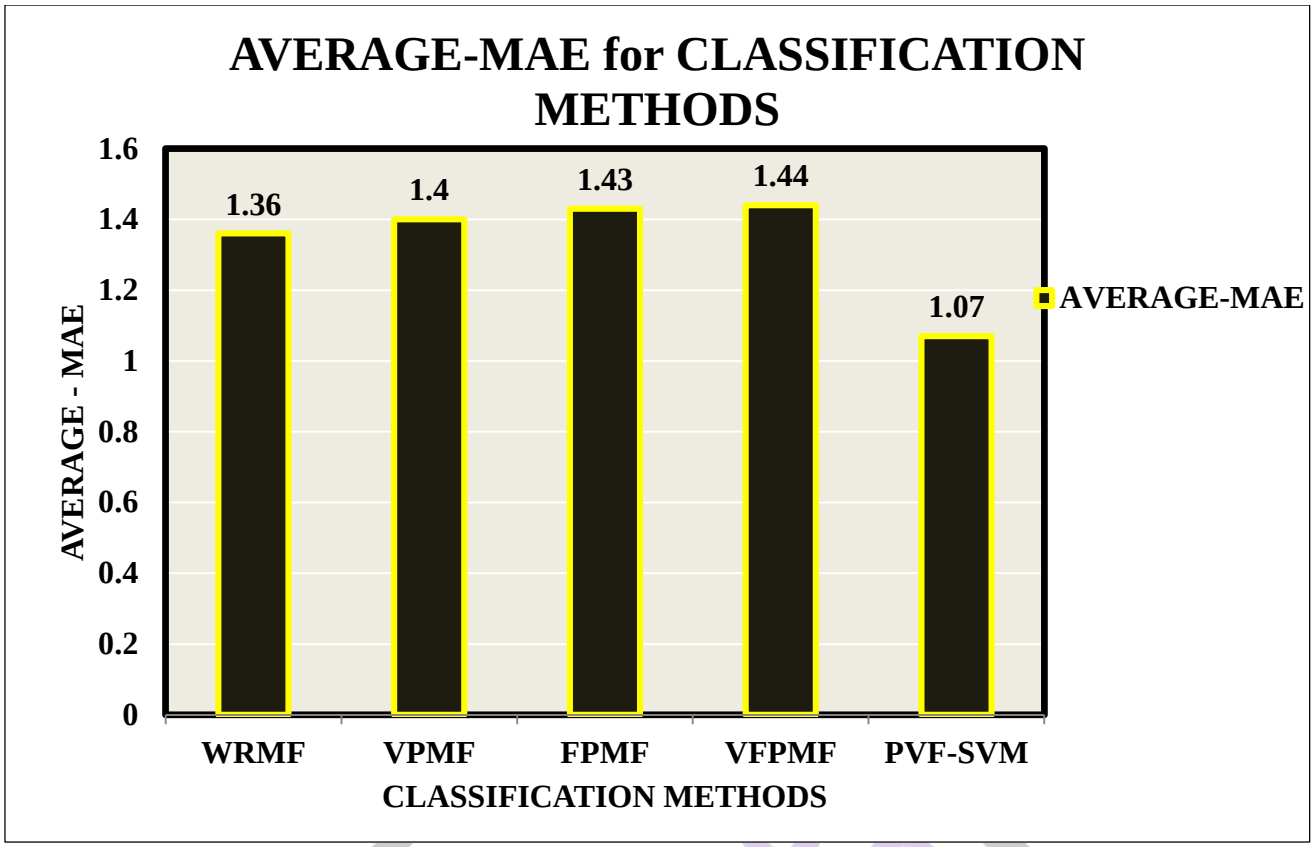
F1 Score Comparision of Classification Methods

S.No	CLASSIFICATION METHODS	AVERAGE-F1 Score
1	WRMF	0.672
2	VPMF	0.7
3	FPMF	0.756
4	VFPMF	0.774
5	PVF-SVM	0.892



AVERAGE-MAE Comparision of Classification Methods

S.No	CLASSIFICATION METHODS	AVERAGE-MAE
1	WRMF	1.36
2	VPMF	1.4
3	FPMF	1.43
4	VFPMF	1.44
5	PVF-SVM	1.07



CONCLUSION

The PVF-SVM Classification method was proposed to exploit both product's visual and functional characteristics for product recommendations. An efficient learning algorithm (PVF_SVM) for optimizing the proposed model and proved its convergence in experimental results which have demonstrated both the effectiveness and efficiency in terms of F1 Score and Mean Absolute Error(MAE). One insight isfound that the visual characteristic was very important in visually-aware product domain, while the functional characteristic played a more crucial role in visually non-aware product domain.

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