



KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506 015, Telangana, INDIA.

काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान, वरंगल - ५०६ ०१५ तेलंगाना, भारत

కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ - ౫౦౬ ౦౧౫ తెలంగాణ, భారతదేశము

(An Autonomous Institute under Kakatiya University, Warangal)

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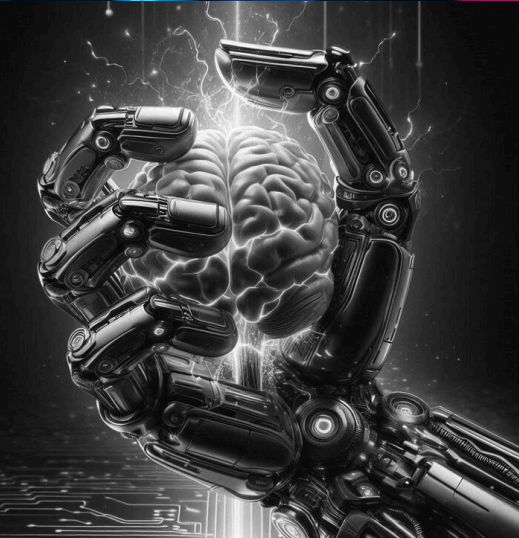
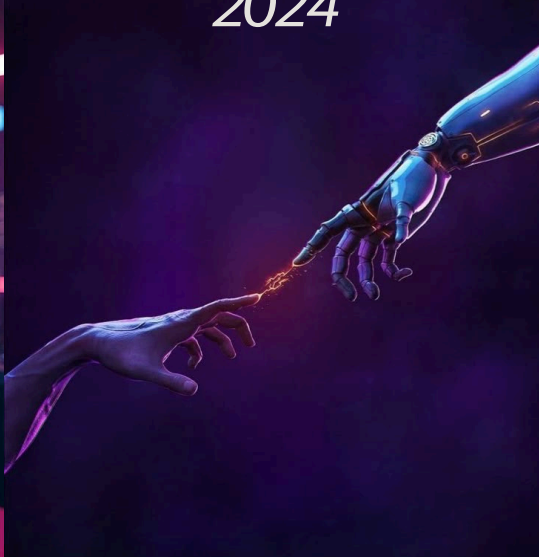
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ROCKSE

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It gives me immense pleasure to know that the next issue of newsletter is ready. I congratulate all those who have contributed in bringing this out. I appreciate the efforts of the editor board in collecting the information related to this magazine.

Professor K. Ashoka Reddy
Principal, KITSW



It's a pleasure to announce the release of focus which majorly comprises articles with the updates in the latest technology. The unique feature of this newsletter is that it is being planned and designed by the students.

Dr. P. Niranjan
Professor & Head
Department of CSE



**Department of Computer Science and
Engineering presents**

roCkSE

**A
maga technical zine**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION

Attaining centre of excellence status in various fields of Computer Science and Engineering by offering worthfull education, training and research to improve quality of software services for ever growing needs of the industry and society.

MISSION

- Practice qualitative approach and standards to provide students better understanding and profound knowledge in the fundamentals and concepts of computer science with its allied disciplines.
- Motivate students in continuous learning to enhance their technical, communicational, and managerial skills to make them competent and cope with the latest trends, technologies, and improvements in computer science to have a successful career with professional ethics.
- Involve students to analyze, design and experiment with contemporary research problems in computer science to impact socio-economic, political and environmental aspects of the globe.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- Graduates with fundamental knowledge should escalate the technical skills within and across disciplines of Computer Science Engineering for productive career by maintaining professional ethics.
- Graduates should develop and exercise their capabilities to demonstrate their creativity in engineering practice and exhibit leadership with responsibility in teamwork.
- Graduates should refine their knowledge and skills to attain professional competence through life-long learning such as higher education, research and professional activities.

PROGRAM SPECIFIC OUTCOMES (PSOs):

- **Software Development and Quality assurance**
- **Transform various legacy or manual systems into computer automated systems using Modern Programming Languages, Integrated Development Environments, and apply Testing Tools for efficient verification and validation of those software systems.**
- **Maintenance Demonstrate knowledge in fixing and updating multidisciplinary software problems working in real time environment.**
- **Immediate professional practice**
- **Work as a software practitioner or continue higher education by adopting advanced technologies in various fields of computer science and Engineering**

PROGRAM OUTCOMES(POs): B.TECH

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PROGRAM OUTCOMES (POs): M.Tech

- **Engineering Knowledge:**

An ability to independently carry out research/ investigation and development work to solve practical problems.

Problem Analysis: An ability to write and present a substantial technical report / document.

- **Design/Development**

of solutions: Students should be able to demonstrate a degree of mastery over as per the Specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program reading

PROGRAM SPECIFIC OUTCOMES (Psos): M.Tech

- **Software Development and Quality Assurance:** Apply the Knowledge and current technologies of software engineering to Pursue Research over complex problems of Computer Science domains.
- **Maintenance:** Equipped with the Industry Ready, Teaching Skills and Entrepreneurship Capabilities.
- **Immediate Professional Practice:** plan, manage and assess effectively the software products by using the Software Engineering Concepts and Methodologies.



HE-Gaston algorithm for frequent subgraph mining with hadoop framework

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ABSTRACT

Graph mining contributes a key role in data mining and as the size of the data increases, it becomes complicated. Identifying the interesting subgraphs in the graph is a commonly researched issue, where the subgraphs denote the commonly occurring pattern exhibiting a particular structure. Frequent Subgraph Mining (FSM) is an important task for exploratory data analysis on graph data. Though many techniques are proposed for FSM, the large dimension of the data makes FSM complex. This research proposes a novel technique for performing FSM in a Hadoop framework. Here, FSM is carried out using the proposed Holoentropy Gaston algorithm (HE-Gaston), which is developed by incorporating the Holoentropy support measure instead of the Recurrent support measure in the Recurrent-Gaston (R-Gaston) technique. Here, the weblog files are considered for FSM and are fed to the Spark framework, which encompasses a master and several slaves. The slave nodes generate the frequent subgraphs based on the Holoentropy support measure and the generated frequent subgraphs are applied to the master node which produces the final frequent subgraphs by utilizing an aggregate Holoentropy support measure. Further, the HE-Gaston shows that it recorded execution time of 43 ms, memory of 2.161 MB, and number of structures mined as 117.

1. Introduction

In recent years, cloud computing has demonstrated three key benefits, such as efficiency, scalability, and load balancing. The key notion behind cloud computing is to divide the tasks into several mappers, process the tasks, and the tasks are merged in a parallel way at the reducer. Although, in cloud computing, graph mining is a complicated task owing to the ensuing causes, pattern-preservation merging, asymmetrical information, and graph partition issues (Chen et al., 2013). Graph mining refers to the extraction of information from semi-structured graph datasets. The structure of the graph is equally significant as the characteristics of the associated entities. Various graph mining processes, such as Clustering, Community Detection, and FSM are of interest. All these processes depend on the various characteristics of the input graph and the performance and correctness of these processes are affected by the various properties of the graph. Rather than utilizing the original graph for analysis, a small representative graph can

be created by using the sampling method. A variety of sampling methods exist, and every method preserves certain aspects of the graph. The technique that creates small graphs with minimal assessment run time, high quality, and maximal accuracy is considered an ideal sampling technique (Purohit et al., 2017). The number of conceivable subgraphs rises exponentially in the case of graphs having edges. In applications, such as protein folding data, weblink data, biological and chemical data, and XML files, mining of the frequently occurring structures from graph sets is regarded as a key issue. The large number of recurrent patterns in the graph database makes mining complicated (Almethen & Che, 2015; DB, 2021). Graph mining (Chehreghani et al., 2020; Chen et al., 2018; Iqbal et al., 2020) is the foundation of numerous practical applications and various studies, in domains, like crime investigation, social networks, chemical compounds, bioinformatics, telephone networks, maps analysis, and so on (Nguyen et al., 2022; Kumar & Gupta, 2017).

Graph mining also contributes a major part in data analysis, however, as the dimension of the input graph grows it moves aggressively

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Optimized Gaussian Deep Learning Architecture With Sentimental Analysis For The E-Commerce Application

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Abstract

In the context of E-commerce, sentiment analysis plays a crucial role in understanding and evaluating the subjective information present in customer reviews, feedback, and comments. With implementation of sentimental analysis automatically identify and classify sentiments as positive, negative, or neutral, providing valuable insights into how customers perceive products, services, or overall experiences. Sentiment analysis in E-commerce encounters challenges such as contextual ambiguity, difficulty in detecting sarcasm, data imbalance with an abundance of positive reviews, domain-specific language nuances, multilingual diversity, adapting to various product types, accounting for temporal shifts in sentiments, addressing privacy concerns, tackling review spam, and ensuring effective integration into business decisions. This paper proposed a novel approach to sentiment analysis in E-commerce utilizing the Gaussian Long Short-Term Memory (G-LSTM) model. The proposed G-LSTM model implements Fejer Kernel filter for the data pre-processing followed by the dictionary-based model for the feature extraction process. The feature selection is performed with the optimization of the features such as Seahorse Optimization mode. Finally, the classification is performed with the Gaussian Long Short Term Memory (LSTM) model for the classification. The G-LSTM model showcases remarkable performance, achieving an accuracy of 98.3% along with superior precision, recall, and F1-Score compared to baseline LSTM, SVM, and Random Forest models.

Keywords: E-commerce, Sentimental Analysis, Gaussian, Classification, Fejer-Kernal, Dictionary model, Seahorse Optimization

1. Introduction

Sentiment analysis, also known as opinion mining, is a computational technique that involves determining and extracting the sentiment expressed in a given text. This process aims to understand whether the writer's attitude towards a particular subject is positive, negative, or neutral [1]. In recent years, sentiment analysis has gained significant attention due to the exponential growth of textual data on the internet and social media platforms. The methodology behind sentiment analysis typically involves natural language processing (NLP) techniques and machine learning algorithms [2]. By analyzing the words, phrases, and context within a paragraph, the system can

OPTIMIZED DEEP LEARNING MODEL FOR SENTIMENTAL ANALYSIS TO IMPROVE CONSUMER EXPERIENCE IN E-COMMERCE WEBSITES

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ABSTRACT

Sentiment analysis plays a pivotal role in deciphering customer sentiments from vast amounts of unstructured data, particularly in the context of e-commerce where customer reviews are prolific. The evolution of e-commerce reviews toward a multimodal format, including images, videos, and emojis, introduces new dimensions to sentiment analysis. Traditional text-based models may struggle to effectively capture sentiments expressed through non-textual elements. This paper proposed an effective sentiment analysis model for the E-Commerce Platform to improve the user consumer experience. The proposed method comprises Fejer Kernel filtering for data points estimation in the E-commerce dataset points. Within the estimated data points fuzzy dictionary-based semantic word feature extraction is performed for the estimation of features in the E-Commerce dataset. The dataset for the analysis is computed with the Optimized Stimulated Annealing for the feature extraction and selection. The classification of customer opinion is classified with the BERT deep learning model. The feature extracted from the model is the opinion of consumers in the E-Commerce dataset. The classification of consumer preference experience is based on opinion of customers in the E-commerce dataset. Simulation results demonstrated that proposed model achieves the higher classification accuracy for the E-Commerce platform.

Keywords: *Sentimental Analysis, Deep Learning, BERT, Fejer-Kernal, Stimulated Annealing, E-Commerce*

1. INTRODUCTION

In recent years, e-commerce websites have witnessed unprecedented growth and transformation, reshaping the way consumers engage in commerce. The surge in online shopping is attributed to factors such as increased internet penetration, widespread smartphone adoption, and evolving consumer preferences [1]. E-commerce platforms offer a vast array of products and services, ranging from consumer electronics and fashion to groceries and digital content. The competition among these websites has led to innovations in user experience, with personalized recommendations, seamless payment options, and efficient logistics becoming the norm [2]. Moreover, the integration of artificial intelligence and machine learning has empowered e-commerce platforms to analyze consumer behavior, optimize marketing strategies, and enhance overall customer satisfaction. Social commerce has also gained momentum, with platforms integrating shopping

features directly into social media channels. The rise of sustainable and ethical consumerism has prompted e-commerce websites to prioritize eco-friendly practices, contributing to a more responsible and conscious marketplace [3]. As e-commerce continues to evolve, the industry's adaptability and commitment to enhancing the online shopping experience are poised to shape the future of retail.

Sentiment analysis, also known as opinion mining, plays a crucial role in the realm of E-commerce websites, offering businesses valuable insights into customer perceptions and preferences [4]. This analytical approach involves evaluating and understanding the sentiment expressed in customer reviews, comments, and feedback. E-commerce platforms leverage sentiment analysis to gauge customer satisfaction, identify areas for improvement, and tailor their offerings to meet evolving demands [5]. Advanced natural language processing (NLP) algorithms are employed to



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