

Sentiment Analysis in the Era of Large Language Models: A Reality Check

Wenxuan Zhang^{*1,2} Yue Deng^{*1,3} Bing Liu⁴ Sinno Jialin Pan^{1,3} Lidong Bing^{1,2}

¹DAMO Academy, Alibaba Group, Singapore ²Hupan Lab, 310023, Hangzhou, China

³Nanyang Technological University, Singapore ⁴University of Illinois at Chicago

^{*}The Chinese University of Hong Kong

{saike.zwx, yue.deng, l.bing}@alibaba-inc.com

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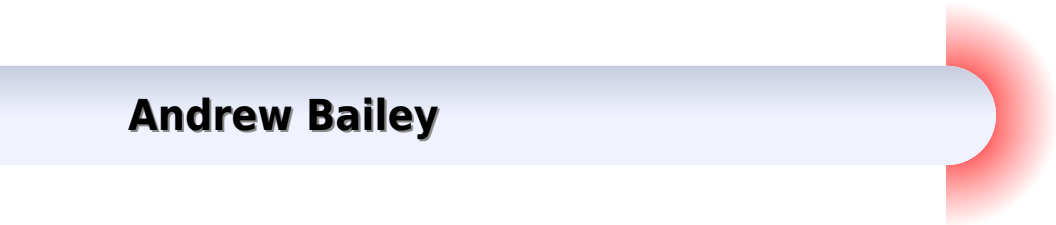
Abstract

Sentiment analysis (SA) has been a long-standing research area in natural language processing. With the recent advent of large language models (LLMs), there is great potential for their employment on SA problems. However, the extent to which current LLMs can be leveraged for different sentiment analysis tasks remains unclear. This paper aims to provide a comprehensive investigation into the capabilities of LLMs in performing various sentiment analysis tasks, from conventional sentiment classification to aspect-based sentiment analysis and multifaceted analysis of subjective texts. We evaluate performance across 13 tasks on 26 datasets and compare the results against small language models (SLMs) trained on domain-specific datasets. Our study reveals that while LLMs demonstrate satisfactory performance in simpler tasks, they lag behind in more complex tasks requiring a deeper understanding of specific sentiment phenomena or structured sentiment information. However, LLMs significantly outperform SLMs in few-shot learning settings, suggesting their potential when annotation resources are limited. We also highlight the limitations of current evaluation practices in assessing LLMs' SA abilities and propose a novel benchmark, SENTIEVAL, for a more comprehensive and realistic evaluation. Data and code are available at [opinions, sentiments, emotions, etc., through computational methods \(Liu, 2015; Poria et al., 2020\). Since its inception \(Turney, 2002; Hu and Liu, 2004\), this field has attracted significant interest from both academia and industry given its wide range of applications, such as analyzing product reviews and gaining insights from social media posts \(Barbieri et al., 2020; Zhang et al., 2022\). Furthermore, achieving a deep understanding of human subjective feeling through sentiment analysis is undoubtedly an important step toward developing artificial general intelligence \(Bubeck et al., 2023\).](https://</p></div><div data-bbox=)

In recent years, large language models (LLMs) have demonstrated impressive performance on various NLP tasks (Brown et al., 2020; Chowdhery et al., 2022; OpenAI, 2023, inter alia). They can directly perform tasks in zero-shot or few-shot in-context learning manner and achieve strong performance without the need for any in-domain supervised training (Bang et al., 2023; Ye et al., 2023; Zhong et al., 2023; Yang et al., 2023). Although there have been some initial attempts to apply LLMs to sentiment analysis (Deng et al., 2023; Zhong et al., 2023; Wang et al., 2023), these studies are often limited to some specific tasks and adopt different models, datasets, and settings in experiments. As such, the extent to which existing large language models can be leveraged for sentiment

Sentiment Of Reality

Andrew Bailey



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excellent works and recent research trends of scholars and graduate students from the 8th International Conference on Artificial Intelligence and Virtual Reality AIVR 2024 Fukuoka Japan July 19 21 2024 hosted and organized by Fukuoka Institute of Technology in conjunction with other four universities and Beijing Huaxia Rongzhi Blockchain Technology Institute The topics of AIVR 2024 cover system techniques performance and implementation content creation and modelling cognitive aspects perception user behaviour AI technologies interactions interactive and responsive environments AI VR applications and case studies These technologies have the potential to support AI and VR systems in many areas of production management business healthcare networks intelligent control traffic management logistics crisis response human interfaces etc Psychological Review James Mark Baldwin, James McKeen Cattell, Howard Crosby Warren, John Broadus Watson, Herbert Sidney Langfeld, Carroll Cornelius Pratt, Theodore Mead Newcomb, 1901 Issues for 1894 1903 include the section Psychological literature The Sentimental Mode Jennifer A. Williamson, Jennifer Larson, Ashley Reed, 2014-02-28 This collection of new essay examines how authors of the 20th and 21st centuries continue the use of sentimental forms and tropes of 19th century literature Current literary and cultural critical consensus seems to maintain that Americans engaged in a turn of the century refutation of the sentimental mode an analysis of 20th and 21st century narratives however reveals an ongoing use of sentimental expression that draws upon its ability to instruct and influence readers through their emotions While these later narratives employ aspects of the sentimental mode many of them also engage in a critique of the failures of the sentimental deconstructing 19th century perspectives on race class and gender and the ways they are promoted by sentimental ideals **The Artist's Reality** Mark Rothko, 2023-07-11 Mark Rothko's classic book on artistic practice ideals and philosophy now with an expanded introduction and an afterword by Makoto Fujimura Stored in a New York City warehouse for many years after the artist's death this extraordinary manuscript by Mark Rothko 1903 1970 was published to great acclaim in 2004 Probably written in 1940 or 1941 it contains Rothko's ideas on the modern art world art history myth beauty the challenges of being an artist in society the true nature of American art and much more In his introduction illustrated with examples of Rothko's work and pages from the manuscript the artist's son Christopher Rothko describes the discovery of the manuscript and the fascinating process of its initial publication This edition includes discussion of Rothko's Scribble Book 1932 his notes on teaching art to children which has received renewed scholarly attention in recent years and provides clues to the genesis of Rothko's thinking on pedagogy In an afterword written for this edition artist and author Makoto Fujimura reflects on how Rothko's writings offer a lifeboat for art world refugees and a model for upholding artistic ideals He considers the transcendent capacity of Rothko's paintings to express pure ideas and the significance of the decade long gap between The Artist's Reality and Rothko's mature paintings during which the horrors of the Holocaust and the atomic bomb were unleashed upon the world First Philosophy II: Knowledge and Reality - Second Edition Andrew Bailey, 2011-07-08 First Philosophy Knowledge and Reality brings together classic and ground breaking readings on

epistemology and the philosophy of science Andrew Bailey's highly regarded introductory anthology has been revised and updated in this new edition The comprehensive introductory material for each chapter and selection remains and new sections on philosophical puzzles and paradoxes and philosophical terminology have been added New readings include Edmund Gettier on justified true belief Wesley Salmon on induction and Helen Longino on feminist science **HCI**

International 2021 - Late Breaking Papers: Multimodality, eXtended Reality, and Artificial Intelligence

Constantine Stephanidis, Masaaki Kurosu, Jessie Y. C. Chen, Gino Fragomeni, Norbert Streitz, Shin'ichi Konomi, Helmut Degen, Stavroula Ntoa, 2021-11-10 This book constitutes late breaking papers from the 23rd International Conference on Human Computer Interaction HCII 2021 which was held in July 2021 The conference was planned to take place in Washington DC USA but had to change to a virtual conference mode due to the COVID 19 pandemic A total of 5222 individuals from academia research institutes industry and governmental agencies from 81 countries submitted contributions and 1276 papers and 241 posters were included in the volumes of the proceedings that were published before the start of the conference Additionally 174 papers and 146 posters are included in the volumes of the proceedings published after the conference as Late Breaking Work papers and posters The contributions thoroughly cover the entire field of HCI addressing major advances in knowledge and effective use of computers in a variety of application areas *Reality* Burnett Hillman Streeter, 1926

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Table of Contents Sentiment Of Reality

1. Understanding the eBook Sentiment Of Reality
 - The Rise of Digital Reading Sentiment Of Reality
 - Advantages of eBooks Over Traditional Books
2. Identifying Sentiment Of Reality
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Sentiment Of Reality
 - User-Friendly Interface
4. Exploring eBook Recommendations from Sentiment Of Reality
 - Personalized Recommendations
 - Sentiment Of Reality User Reviews and Ratings
 - Sentiment Of Reality and Bestseller Lists
5. Accessing Sentiment Of Reality Free and Paid eBooks
 - Sentiment Of Reality Public Domain eBooks
 - Sentiment Of Reality eBook Subscription Services
 - Sentiment Of Reality Budget-Friendly Options

6. Navigating Sentiment Of Reality eBook Formats
 - ePub, PDF, MOBI, and More
 - Sentiment Of Reality Compatibility with Devices
 - Sentiment Of Reality Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Sentiment Of Reality
 - Highlighting and Note-Taking Sentiment Of Reality
 - Interactive Elements Sentiment Of Reality
8. Staying Engaged with Sentiment Of Reality
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Sentiment Of Reality
9. Balancing eBooks and Physical Books Sentiment Of Reality
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Sentiment Of Reality
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Sentiment Of Reality
 - Setting Reading Goals Sentiment Of Reality
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Sentiment Of Reality
 - Fact-Checking eBook Content of Sentiment Of Reality
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

- Interactive and Gamified eBooks

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