

APPLICATION OF MACHINE LEARNING TECHNIQUES TO PREDICT FINANCIAL PERFORMANCE USING DISCLOSURE TONE

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ABSTRACT

This study investigates the application of disclosure tone variables, positivity, negativity, and uncertainty, within machine learning models to enhance the accuracy of financial performance forecasting for non-financial entities in Pakistan. It also evaluates the comparative performance of various machine learning algorithms using datasets that integrate quantitative financial indicators with qualitative textual sentiment. Textual data were extracted from annual reports of Pakistani non-financial firms and analyzed using a financial tone lexicon. These tone variables were then combined with key financial metrics, including Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS), to train predictive models. The machine learning algorithms tested included Support Vector Machine (SVM), Artificial Neural Networks (ANN), Random Forest (RF), and Long Short-Term Memory (LSTM). Among these, the Random Forest model consistently outperformed the others, achieving the highest accuracy across all three dependent variables (EPS: 0.82, ROA: 0.82, ROE: 0.85). SVM and ANN demonstrated moderate predictive capabilities, while the LSTM model showed comparatively lower performance, especially for EPS (0.64). These findings suggest that ensemble-based models like Random Forest are well-suited for financial forecasting tasks involving both structured and unstructured data. The research holds important practical implications. By incorporating disclosure tone into financial prediction, the study offers a more holistic framework for evaluating firm performance. This approach can support investors, analysts, and corporate decision-makers in making more informed and timely decisions, especially within volatile and information-asymmetric environments like emerging markets. Moreover, the findings can guide future developments in financial technology and policy related to corporate transparency and disclosure practices.

Keywords: Disclosure Tone, Sentiment Analysis, Machine Learning, Financial Forecasting, Pakistani Non-Financial Entities, Random Forest.

THE IMPACT OF PROJECT CRITICAL SUCCESS FACTOR ON PROJECT SUCCESS. A MEDIATED MODERATED MODEL

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ABSTRACT

The evolving dynamics between social media, consumer sentiment, and brand reputation have redefined brand management in the digital era. Ethical controversies present distinct challenges, undermining consumer trust, credibility, and advocacy. This study examines the role of big data analytics, particularly sentiment analysis of consumer interactions on X (formerly Twitter), in mitigating the reputational risks associated with brand controversies. Using a dataset of 100,000 tweets filtered from an original collection of 680,308 posts, this research leverages advanced text analytics and natural language processing (NLP) to decode patterns in consumer sentiment and identify trends during controversies in the food sector. To validate the findings from sentiment analysis, a comprehensive survey of 250 respondents was conducted, offering additional insights into consumer perceptions and behavior. Despite significant research on brand crises, a critical gap exists in utilizing real-time analytics to decode the cascading effects of ethical controversies on brand perception and consumer behavior. The research explores how controversies impact consumer trust and credibility through the framework of brand resonance theory and assesses the potential of sentiment analysis in proactive brand management. Results highlight that ethical controversies disrupt essential components of the brand resonance model, profoundly impacting trust, diminishing advocacy, and intensifying negative perceptions. Analysis revealed that consumer sentiment tends to shift rapidly during controversies, with negative emotions such as distrust and anger peaking within the first 72 hours, significantly impacting long-term brand advocacy. By integrating big data insights with survey validation, the study offers actionable strategies to mitigate reputational damage, restore resonance pathways, and rebuild consumer trust in the digital age. This research bridges gaps in theory and practice, showcasing how big data tools combined with survey insights enhance brand resilience and sustain resonance. These findings equip brands with a framework for navigating ethical challenges, fostering stronger consumer relationships, and achieving a competitive edge in an increasingly dynamic marketplace.

Keywords: Brand resonance, ethical brand management, big data analytics, sentiment analysis, consumer trust, brand advocacy, social media controversies.

PREDICTING VOLATILITY OF CRYPTOCURRENCIES: DEEP LEARNING AND GARCH FAMILY MODELS

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ABSTRACT

Cryptocurrency markets are characterized by high volatility, posing significant challenges for accurate forecasting. This study evaluates the performance of various models in predicting cryptocurrency volatility, with a focus on the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) family of models, deep learning techniques, and hybrid approaches. The research addresses three key hypotheses: (1) GARCH family models significantly predict cryptocurrency volatility, (2) deep learning models outperform traditional time series models in forecasting cryptocurrency volatility, and (3) hybrid models integrating GARCH family models with deep learning techniques provide more accurate volatility forecasts compared to standalone models. Using a dataset of daily closing prices for major cryptocurrencies, the study compares the forecasting accuracy of GARCH models with deep learning models. The results indicate that while GARCH models offer valuable insights into volatility prediction, deep learning models, especially when combined with GARCH models, significantly improve forecasting accuracy. The study demonstrates that hybrid models can effectively capture the complex dynamics of cryptocurrency markets, providing more precise and reliable volatility forecasts. These findings have important implications for investors, traders, and policymakers, offering a more robust approach to managing the risks associated with cryptocurrency volatility.

Keywords: Cryptocurrency volatility, GARCH models, deep learning, hybrid forecasting models, volatility prediction.

Impact Of Artificial Intelligence Chabot Features Customer Engagement In The Context Of Internet Service Providing Companies In Pakistan

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ABSTRACT

The rapid proliferation of artificial intelligence (AI) chatbots has transformed customer engagement across industries; however, their impact within the context of Pakistani internet service providers (ISPs) remains underexplored. This study aims to bridge this gap by examining how key factors, technology optimism, technology self-efficacy, perceived ease of use, perceived usefulness, enjoyment, novelty seeking, and customer satisfaction, influence customer engagement with AI chatbots. Guided by the Technology Acceptance Model (TAM), the research employs a quantitative approach using data collected from tech-savvy university students who frequently interact with chatbots. Statistical analyses, including correlation and regression, were conducted to assess the relationships among these factors and to explore the mediating role of customer satisfaction. The findings provide valuable insights for ISPs seeking to enhance customer engagement through more user-friendly and effective chatbot systems. By leveraging chatbot technology strategically, ISPs can strengthen customer support, improve data-driven service delivery, and foster sustained engagement. Academically, this research extends the understanding of technology adoption and customer engagement dynamics in emerging digital contexts, offering a foundation for future studies and model development in this evolving field.

Keywords: AI chatbots, customer engagement, technology acceptance model, Pakistani ISPs

THE IMPACT OF ARTIFICIAL INTELLIGENCE PERCEPTION, SKILL DEVELOPMENT, AND PROFESSIONAL EFFICACY: A BUSINESS ANALYTICS PERSPECTIVE

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ABSTRACT

This study intends to identify the impacts of Perception of Artificial Intelligence on Professional Efficacy, not in isolation, but by taking the mediating role of learning demand, technical skills, and conceptual skills in a sequential manner. By using the tenet of Transactional Theory of Stress and Coping, the study identified that Artificial Intelligence is working as potential evoker of learning demand, specifically in the context of working environment in the age of technological advancement. Quantitative research methodology has been adopted to meet the objectives of the current study. Data is collected by using the self-administrated questionnaires and the sample of 118 professional students who are working in public and private organizations were taken into account. Purposive sampling techniques were used to collect the data. Data was analyzed by using Python in Google Collaboratory where correlation and regression were applied to test the hypotheses. The results suggested the positive perceptions towards Artificial Intelligence are characterized by a higher motivation to learn and improvement in technical & conceptual skills results in an enhanced professional performance. In the light of the research findings, it has essential implications to developing positive perception towards Artificial Intelligence at the organizational level by implementing effective training severance that encouraging learning and skill improvement.

Keywords: Perception of Artificial Intelligence, Learning Demand, Skill Acquisition, Professional Efficacy, Technical Skills Development, Conceptual Skills Development, Transactional Theory of Stress and Coping.