Sentiment and Ethical Analysis of AI Decision-Making Systems: A Cross-Disciplinary Study

INTRODUCTION

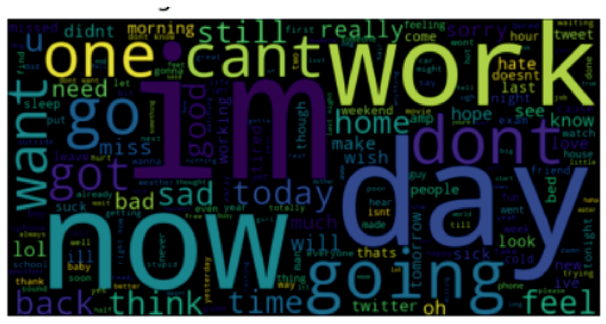
Project Description:

This project explores public sentiment regarding AI tools such as facial recognition, credit scoring, and predictive policing. It evaluates ethical concerns using the FATE framework (Fairness, Accountability, Transparency, and Ethics).

Goals:

- Understand public opinion on AI decision-making tools.
- Analyze sentiment distribution across ethical categories.
- Provide actionable recommendations for businesses, policymakers, and researchers.

Positive Tweets: 800,000



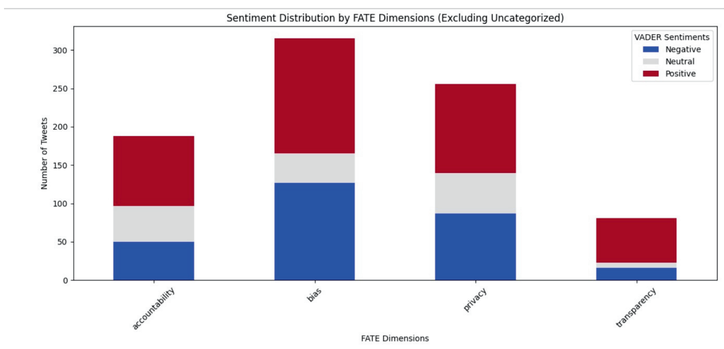
Negative Tweets: 800,000

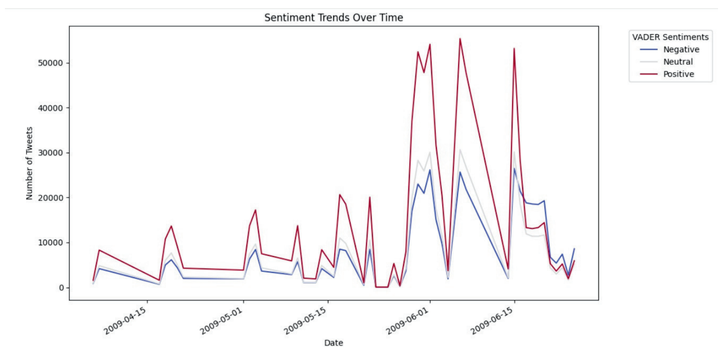
Visualizations Sentiment Word Clouds:

- Positive Tweets: Highlighting words like "fair," "transparent," "secure."
- Negative Tweets: Highlighting concerns such as "bias," "privacy," "surveillance."

Vader Sentiment

The sentiment analysis suggests that there was a notable event or trend in early June 2009 that triggered a surge in discussions, primarily with a positive sentiment, although negative and neutral sentiments also saw corresponding increases. The overall trend indicates positive sentiment remained higher throughout the period, with peaks and drops in all categories aligning closely





FATE Framework

- Bias and privacy are the most discussed FATE dimensions, with bias attracting more negative attention.
- Transparency, although less discussed, is viewed positively.
- Accountability shows a relatively even mix of sentiments, reflecting a balanced perception.

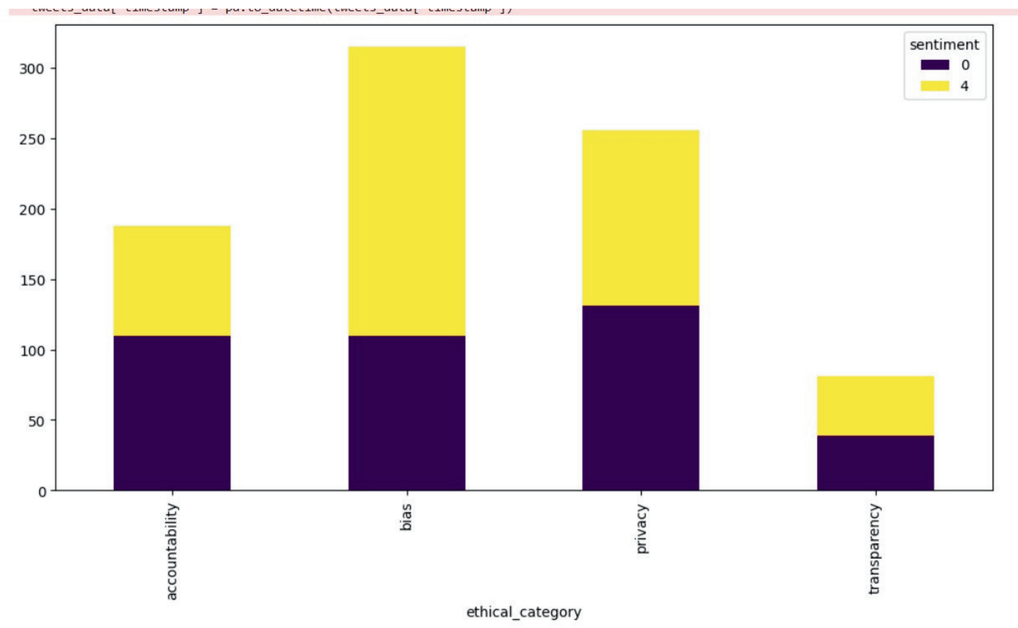


Chart: Sentiment by Ethical Concern
A stacked bar chart showing sentiment distribution by ethical category.

Ethical Insights

Bias:

- Frequent mentions of fairness, discrimination, and algorithmic inequality.

Transparency:

- Concerns over "black-box" systems and lack of explainability.

Privacy:

- Issues like data misuse, surveillance, and personal data security.

Accountability:

- Questions about ownership and moral responsibility in AI decisions.

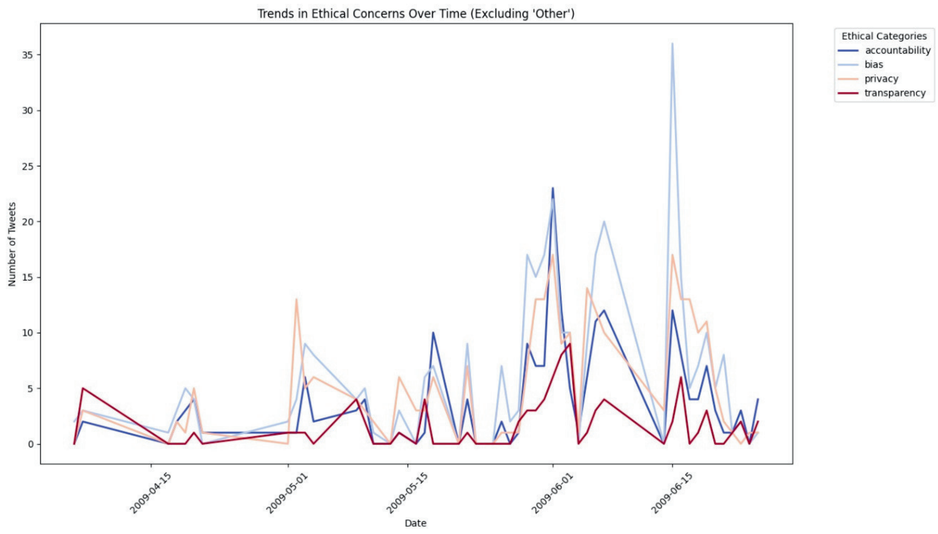
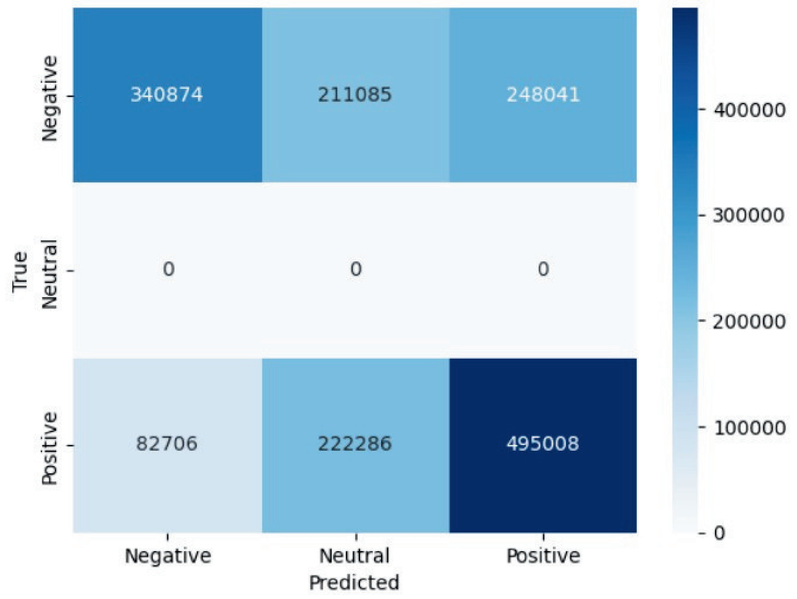


Chart: Trends in Ethical Concern

Tools and Methodology:

- **Python libraries:** Pandas, Matplotlib, WordCloud, Transformers.
- **Dataset:** 1.6 million tweets analyzed for sentiment and ethical keywords.
- **Framework**: FATE (Fairness, Accountability, Transparency, Ethics).



Confusion Matrix

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Scan QR Code for dgital poster, project report, and project files

Recommendations for Businesses:

Invest in Explainable AI (XAI) to improve transparency.
Regularly audit algorithms for fairness and accountability.

For Policymakers:

Develop guidelines ensuring AI adheres to ethical standards.
Encourage public involvement in decision-making.

For Researchers:

Focus on reducing biases in AI systems.
Study the societal impact of AI decision-making.

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