

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, May 8

3:00 – 4:00 PM

Maria Sanford, Room 101

ONLINE PRESENTATION

REAL-TIME SENTIMENT ANALYSIS ON SOCIAL MEDIA WITH DATA SCIENCE

CHECK ALLAHOUDINE
CENTRAL CONNECTICUT STATE UNIVERSITY
DATA SCIENCE CAPSTONE PRESENTATION

Abstract: This capstone project presents the design and evaluation of a near-real-time sentiment analysis system for public discourse on the X (Twitter) platform. The content (tweets) is classified into Positive, Neutral, and Negative sentiment categories to capture evolving public opinion. The system leverages a scalable, event-driven Apache Kafka streaming architecture combined with Natural Language Processing models to enable low-latency sentiment detection. Two approaches are compared: the rule-based VADER model and a domain-fine-tuned RoBERTa transformer, with performance visualized through real-time dashboards. In addition to raw sentiment classification, the system incorporates engagement-weighted analysis using likes, retweets, and replies to measure how highly engaged content amplifies sentiment signals. Results demonstrate that fine-tuned RoBERTa consistently outperforms VADER, particularly for nuanced language, and that engagement weighting provides a more representative view of how public sentiment is formed and influenced on social media.

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