

Thesis Project Portfolio

LooperWise: A Web Application to Improve Caddy Program Operations

(Technical Report)

Social Media and Division in America: Unraveling the Ties Between Curation Algorithms and Political Polarization

(STS Research Paper)

An Undergraduate Thesis

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Rylie Gentile

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Department of Computer Science

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Sociotechnical Synthesis

In an era marked by rapid technological advancements and increasing societal divisions, the intersection of technology with social dynamics emerges as a crucial area of study. The technical project describes "LooperWise," a web-based management system designed to address operational inefficiencies at Westmoreland Country Club. This initiative showcases how tailored technological applications can enhance both service efficiency and quality. Simultaneously, the STS paper explores the broader societal impacts of technology, particularly the role of recommendation algorithms in fostering political polarization in the United States. This investigation highlights the complex ways in which algorithms on social media not only curate content but also shape user perceptions and interactions, thereby influencing public discourse and individual belief systems. These studies highlight technology's dual role in modern society: it serves both as a facilitator of operational solutions and as a powerful mediator of social interaction and political engagement. This underscores the importance of technological awareness and responsibility.

The technical report discusses the development and implementation of LooperWise, a web-based management system that I created to address operational inefficiencies in the caddy program at Westmoreland Country Club (WCC). These inefficiencies led to excessive wait times and operational challenges, emphasizing the need for an upgraded system. LooperWise utilizes advanced web technologies and database management to streamline scheduling, pairing, and ticketing processes. The newest implementation of the system features a modular architecture that integrates with existing golf software, enabling real-time data access and optimizing caddy-member matchups through detailed profiles. The initial deployment of LooperWise significantly reduced wait times for caddies and managerial workload, demonstrating the

application's potential to enhance operational efficiency. Moving forward, the implementation of enhanced requirements and design will be executed, followed by rigorous multi-dimensional testing. This iterative process, integral to the software development lifecycle, will make the real-life adaptations necessary for the successful launch of LooperWise.

The STS paper investigates the role of recommendation algorithms in shaping political polarization within the United States, focusing on how these algorithms curate content and influence user behavior across major social media platforms. With the rapid expansion of algorithmic influence beyond mere content suggestion into shaping user perceptions and interactions, this study examines the subtle yet significant ways in which these algorithms could contribute to political polarization. Drawing on a variety of sources, including a comprehensive study by Meta and various scholarly articles, the paper critiques the methodologies employed in these investigations, highlighting potential biases and gaps in the current research landscape. The thesis posits that while algorithms significantly shape user experiences and perceptions, the direct correlation to increased political polarization is complex and influenced by multiple factors including user behavior, algorithm design, and the broader societal context. The paper covers several dimensions: the psychological impact of algorithms, their role in reinforcing existing beliefs through filter bubbles and echo chambers, and the effect of these algorithms on political engagement and discourse. Ultimately, the paper advocates for a nuanced understanding of the interplay between technology and societal dynamics. It calls for more robust research methodologies and greater algorithmic transparency to effectively gauge and mitigate the potential polarizing effects of social media on democracy.

In linking these two endeavors, both the technical project and the STS paper pivot around a central theme: the profound impact of technology on both micro and macro societal levels. As explored in the technical report, LooperWise exemplifies technology's capability to resolve specific operational challenges, thereby enhancing efficiency and service quality at a local level. Meanwhile, the STS paper casts a wider net, examining how pervasive technologies like recommendation algorithms influence broader social outcomes, including political polarization. Both papers underscore a critical interrogation of technology, advocating for a mindful and strategic application to address not only localized inefficiencies but also to navigate and mitigate the complex societal repercussions that emerge from technological integration. This shared perspective stresses the need for targeted solutions that address immediate practical needs, as well as broader, reflective approaches that consider the overarching social consequences of technological adoption. Together, these strategies weave a coherent narrative about technology's dual influence on both everyday interactions and larger societal structures.