

Thesis Project Portfolio

Tempo: A Personalized Audio Experience

(Technical Report)

It's Not Good #ForYou: Exploring the Influence of Social Media Algorithms on Youth Media Consumption and Diet Culture

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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Spring, 2025

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Sociotechnical Synthesis

My Capstone research addresses how algorithm-driven recommendation systems on social media platforms influence youth media consumption patterns, particularly in relation to diet culture and body image.

For my technical project, we developed the *Tempo* iOS application in response to the rise of streaming and the growing popularity of recommendation systems. This app leverages Spotify's API and OpenAI's GPT to deliver music suggestions based on a user's in-app query. To further enhance the personalized listening experience, we also built an interactive Bluetooth speaker featuring high-quality audio transmission and an integrated LCD touch display.

Recommendation algorithms actively shape how society consumes media, influencing users' thoughts, actions, and perspectives. While they enhance user experience on platforms like Spotify, their effects are often opaque and far-reaching, raising ethical concerns about their role in reshaping user-platform dynamics. This influence is particularly visible on social media, where complex recommender systems curate content based on engagement patterns. Young users are especially vulnerable, with algorithms shaping perceptions of diet culture and lifestyle habits. While prior research has examined social media's general impact, few studies have explored how algorithm-driven content reinforces unhealthy narratives and promotes disordered behaviors. My research investigates how TikTok's recommendation system exposes young audiences to diet-related content and its broader effects on user autonomy and digital well-being.

Susan Leigh Star's Framework of Infrastructure examines how systems become embedded into everyday life, shaping societal behaviors while remaining invisible to users. Using Star's theory, I explored how recommendation algorithms act as guiding structures that influence user engagement on social media platforms. I analyzed how these systems become

embedded, routinized, and unquestioned, reinforcing specific narratives around diet culture among young users.

To conduct my research, I performed a case analysis involving two TikTok accounts: one control account with no targeted searches and another that actively searched for diet-related hashtags. Over a ten-day period, I systematically tracked the content each account was exposed to on their respective feeds. I compared the content exposure between accounts, focusing on the prevalence of diet-related material and engagement-driven patterns shaped by the platform's recommendation system. Alongside these results, I incorporated relevant and current research findings to further contextualize and strengthen my analysis.

At the conclusion of the study, I found that TikTok's recommendation system disproportionately exposed one account to diet-related content, while the control account received a broader mix of material. Consistent interactions with diet-related content led to a progressive amplification of similar material over time, narrowing the feed and illustrating the compounding influence of early engagement patterns.

My research demonstrates how social media algorithms reinforce narrow and potentially harmful narratives. When considered alongside my technical Capstone project, these findings highlight the invisible, yet powerful role algorithms play in shaping user experiences and perceptions. Together, my Capstone project and research emphasize the need for greater transparency, ethical design practices, and user education to mitigate the risks posed by recommendation systems on social media platforms.