

Thesis Project Portfolio

A Systems Analysis Approach for Business Optimization: Integrating Technology Development with Data Analytics and Marketing for GolfCask

(Technical Report)

Analyzing Recommender Systems in Social Media

(STS Research Paper)

An Undergraduate Thesis

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Social media use has been linked to negative mental health effects in children and young adults. Sites like Tiktok and Instagram provide users suggested content on “Explore” pages, and the content that each user sees is controlled by recommender systems. Recommender systems are algorithms that use user data to predict which content will lead to maximum engagement. By analyzing how users interact with recommender systems, and vice versa, we can better understand how they contribute to the effects social media has on users. Social media sites are used by billions of people and are a place for social discord and connection. Considering this, if I can identify social media use practices that lead to a more enjoyable online experience, my findings can be used to create more harmonious online communities. The Social Worlds Theory was useful in this analysis, I identified use practices that create boundaries between Social Worlds and analyzed the emotional states of users in each Social World.

I created a survey that asks respondents about their social media use habits and how often they feel negative emotions such as depression or anxiety. I distributed the survey electronically to fourth year students at the University of Virginia and received 33 responses. To gauge user habits, I asked questions about how often the user experienced certain things, like being provided content that upset them or feeling influenced by the algorithm. Responses used the Likert scale, with integers 1 to 5 representing the frequency of the action from never to all of the time.

After collecting and formatting the responses, I grouped users by their responses and averaged the Likert-scale frequency at which each group experienced each negative emotion. I did this for each question about user habits and created bar graphs, allowing me to visually compare the average frequency of negative emotions for users in different Social Worlds. I narrowed my search down to focus on the emotions that seemed most correlated with these

Social Worlds; feeling anxious and feeling overwhelmed. Once I felt I had identified use practices that directly affected these emotions, I created linear models to verify my findings. I found that within the questions I created, there are statistically significant predictors for these negative emotions. The frequency at which users feel they are being influenced by their algorithm is directly correlated to how often they feel overwhelmed. The frequency at which users are served upsetting content is directly correlated to how often they experience anxiety. When considered in concert with our capstone, this research will allow us to create a social media platform that avoids the pitfalls of other platforms, creating a positive user experience.