

THESIS PROJECT PORTFOLIO

Implementing Video Sending for Facebook iOS

(Technical Report)

Mitigating Teen Harm from Facebook Data and Advertisement Targeting

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Department of Computer Science

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SOCIOTECHNICAL SYNTHESIS

IMPLEMENTING VIDEO SENDING FOR FACEBOOK IOS

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**MITIGATING TEEN HARM FROM FACEBOOK DATA AND ADVERTISEMENT
TARGETING**

STS advisor: Kent Wayland, Department of Engineering and Society

PROSPECTUS

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Instagram, Facebook's platform with the most teen engagement, gets approximately 22 million teens logging on each day in the US. Teens have certain habits, such as consumerism and impulsiveness, which make them more vulnerable and likely to be subjected to advertising than adults. 97.9% of all of Facebook's revenue, largely coming from Instagram, was from advertisements as of 2020. Much of this revenue can be attributed to Facebook's advanced targeting algorithm, which allows advertisers to specify their preferred audiences. In the past three years, Facebook's studies have shown that Instagram is mentally harmful to a large percentage of their young user base. According to the study, Instagram makes body issues worse for one in three girls, which can be attributed to targeted advertising towards teens and the news feed algorithm. My STS project dives into potential solutions to Facebook's harm towards teens using a sociotechnical framework called Surveillance Capitalism. The technical aspect of my thesis describes my work as an intern at Facebook in which I added video sending capabilities in the Facebook iOS application.

For my STS research, I explored the following question: what changes in legislature and Facebook's policy and practices are best suited for mitigating teen harm and who should be responsible for these changes? Through using literature review of academic journals, I found three potential solutions. The first solution was to increase public media and online privacy literacy. While this solution would address the problems of surveillance capitalism, it is much too difficult and long of a process to increase national literacy of these topics for potentially minimal results. The second solution was to resort to the Federal Trade Commission (FTC) and state attorneys general to regulate Facebook policy and practices. This solution is very viable given that both have histories of protecting individuals online and data privacy. This third solution provided direction to the second solution and involved changes to the monetary penalty

and age limit of the Children's Online Privacy Protection Act (COPPA). By implementing this change, companies would reconsider the economic implications of not abiding by COPPA. In addition, parents and teens would reconsider whether they are at a mature enough age to be using social media platforms. Ultimately, I found that by turning to the FTC and state attorneys general to enforce a stricter version of COPPA as described above, teen harm could be mitigated in the future.

My technical project involved explaining my project as an intern for Facebook during the summer of 2021. Facebook's iOS application includes a messaging tool widely used in developing countries. Previously this messaging tool lacked support for sending video messages, which led users to move to other messaging platforms. My project added video-sending support with a real-time progress bar and a camera with filters by modifying the iOS Facebook app built in Objective-C. I was able to support video uploading through the use of a data querying tool called GraphQL. In addition, I worked closely with backend engineers to add server-side support for videos. After completing full functionality for video sending, my tool underwent successful internal testing. By the end of my internship, my tool was nearing the end of public testing and was almost in the release stage. This was possible due to a slightly positive delta in message-sending through nearly a million exposures to the video-sending capability. The addition of video-sending will continue to improve the messaging experience within Facebook iOS.