

Thesis Project Portfolio

**A Framework for Automated Social Media Post Collection and Tailored Response
Generation**

(Technical Report)

The Impact of Internet Technology on Astroturfing

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Table of Contents

Sociotechnical Synthesis

Technical Report Title

STS Research Paper Title

Prospectus

Sociotechnical Synthesis

I interned for a small startup over the summer of my second year. At the time of my internship the startup ran on a tight budget. The company did not have spare capital to fund a sizable customer service team. Conveniently, a large amount of feedback and customer support requests were submitted on social media. My internship project was to create a program to automate data collection and customer feedback response on two social media platforms. The software would help address marketing and customer service needs with minimal labor costs. My technical report documents the design decisions and implementation of this program.

I was a second year student at the time of my internship. I was also a terrible software developer. Yet over the course of a few weeks, with what little computer science knowledge I had, I was able to piece together a functioning social media bot. A similar program could be written by political actors to automate the spread of disinformation. The low overhead cost of developing such technologies has made social media a viable avenue for disinformation campaigns.

During my internship I was oblivious to the political implications of my project. However, over my last two years at UVA I've become increasingly conscious of the impact of astroturfing and of the disproportionate power of the lobbying industry. I chose to focus my STS paper on how internet technology has changed astroturfing campaigns.

My technical paper revealed my growth as a software engineer and the limits of my CS education. The process of documenting my internship project forced me to confront many naive design decisions. My project was not programmed with modern sensibilities in mind; it was not horizontally scalable and did not follow common standards. The technical paper also revealed the gaps in my CS education. Even after four years of UVA CS there are still elements of this project I feel ill-equipped to solve.

My STS research this year has been equal parts enlightening and depressing. I initially had hoped to examine the phenomenon of online astroturfing and to analyze potential solutions to the problem. I was unable to find any convincing remedies. Instead I discovered the pervasive influence of online astroturfing in political discourse.

Over time my research shifted away from the construction of solutions towards a lengthy diagnosis of the issue of online astroturfing. I found that the medium of social media naturally augments disinformation narratives. Regulatory capture also reduces the importance of public consent in astroturfing campaigns. Since astroturfing is both a technical and a sociopolitical problem, potential remedies cannot be purely technological in scope. Future research on solutions to online astroturfing needs to address political issues like regulatory capture and digital media literacy.