

Thesis Project Portfolio

Finding Meaningful Features to Increase Notification Engagement in a Logistic Regression Model

The Effect of Artificial Intelligence on Human Ingenuity

An Undergraduate Thesis

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Sociotechnical Synthesis

My technical research paper was centered around the objective impact that Big Tech Censorship has on tangible action in the world. Specifically, this paper examined if the large growing decision within big tech companies to enforce censorship on their platforms was justified by a reduction in hate crimes. The context behind my reasoning to write this paper, was there was a large number of contentious censorship decisions at companies like Twitter and Meta where they were shutting down the account of users they deemed to be breaking their policy. While some of their rhetoric was controversial I also found this to be a violation of the first amendment right regarding free speech. As a result, I wanted to dive deeper and find out if there was a strong or weak correlation between hate crimes and speech on these platforms. My STS research actually changed in between STS 4500 and STS 4600. My 4500 STS topic was about whether it was morally right for the tech industry to get involved with censorship. This paper was very tightly coupled with my technical work since they were both about censorship. However, as I reviewed this in STS 4600, I realized that I was no longer passionate about this topic, and I wanted the opportunity to write about something that I found interesting which was Artificial Intelligence. Around this time, Open AI had released Chat GPT using GPT-3. I found this to be industry changing but was also concerned on how humanity would be impacted and in particular how human ingenuity would change. This was the inspiration for my STS research in 4600. While it is very loosely coupled to my technical work, it does share a concern with how society is being impacted by new and growing tech products and whether it is an overall benefit or detriment.

My capstone project is a description of the project that I completed last summer as part of an internship. My internship was at Meta in the Menlo Park Office, and I was a Software

Engineering Intern. My project consisted of building a Machine Learning Model that could predict the likelihood of a user clicking on a notification. With the ability to predict this likelihood, the Facebook engineers could then build the right code to construct notifications with the biggest probability of success (meaning that users would probably engage with it). My capstone paper was mainly about the feature selection and engineering process that I went through over the course of this project. When it comes to building an accurate Machine Learning Model, there needs to be a lot of data. The model also needs to be able to sift through many features. These features could include how many followers the user has, who they have interacted with in the past 30 days and many more. Theoretically, there are a limitless number of features that can be included in a machine learning model. However, not all of these features are important, and some may actually be detrimental towards the learning process. Having too many features may also be very computationally expensive. Within the paper I described multiple techniques for whittling down the number of features so that the model can still learn well and be efficient.

My STS research paper discussed the effects of increasing Artificial Intelligence Technology on human ingenuity. My paper examined different studies that discussed how previous technologies impacted society. It also considered the effects of technology on human memory capacity and creativity. Finally, my paper looked over recent events involving Artificial Intelligence to conclude how this technology will play out in the future. An example of this is how Generative Artificial Intelligence recently won a Colorado Art competition that was meant for humans. This means that it was able to rival humans in creativity which is a characteristic that was for the longest time thought to be unique to humans. My paper concluded that AI will have a numbing impact on human ingenuity but there are ways to fight against it, and even

though human creativity and memory might suffer, humans will evolve in other domains that we did not think necessary before.

My capstone project and my STS research paper definitely share a lot of obvious similarities. My capstone project was a machine learning model project that was deployed within Facebook's codebase and likewise my STS research paper examined the impacts of increasing Artificial Intelligence Technology. In fact, I believe that the project that I did last summer was what inspired me to make my STS research paper about AI. I did not complete these two papers exactly in tandem, but one definitely did inspire the other. I also recall on multiple occasions while writing my STS research paper, using my experience from my capstone project as a lens to understand AI at a higher level.