

Mr. Speice

Independent Study Mentorship 3A

15 December 2020

Twitter Bots For Social Good

Assessment 10 - Original Work Reflection

Date: 16 October 2020 to 6 December 2020

Time: 32 Hours

Assessment:

The Twitter Bots for Social Good project involved multidisciplinary components with aspects from literature, linguistics, mental health, computer science, and artificial intelligence. In short, the mission of the project was to diagnose and provide therapy for mental illnesses based on Tweets on Twitter. As a result, this served as a foundational point of growth for me as I learned to integrate many unrelated fields to serve society and the world.

To start the original work process, an important decision that was made was to take a deep learning-based approach to process the English language so that the rigidity of traditional natural language processing techniques could be avoided. Through maintaining the fluidity of the English language, there were phenomenal results with the text classification portion of the project. My classification models beat state-of-the-art classification models and had an accuracy of around 99.6%. These successes taught me important technical lessons on how powerful deep learning-based approaches have become and the necessity of ensuring the nature of language can be understood even when it changes. On the flip side, the dedication to maintaining the fluid nature of the English language also proved to be a barrier. Language generation models (with the exception of those that are created by large corporations) have not developed enough to generate English-like text. Because of this, it was necessary to reevaluate the options available which

were to either scrap the chatbot feature or research information retrieval based chatbots. To deliver a usable product to consumers, it was imperative that there be some interactive element and for that reason, continuing with a retrieval-based chatbot like Eliza would be important. Throughout this entire process, there were times where certain approaches worked well and other times where they completely failed; however, from these experiences, this project has turned me into a more versatile developer than anything. This has taught me to persevere and be consistent with my goals while maintaining an open mindset because, in fields like machine learning, one technique may work incredibly well on one task but completely fail in another. I believe that this project has served as an excellent precursor for a more comprehensive and complex project for the final product.

Beyond my technical developments, going through the original work process has given me an opportunity like none another to develop interpersonally. During the interview process, I noticed improvements in confidence even after having done this for one year. Each interview felt smoother and the conversations became more productive as I learned more about natural language processing. Additionally, I experienced interpersonal growth through the presentation process. The presentation process plays a fundamental role in developing leadership characteristics and, for me specifically, I learned how my perceptions of the presenter can differ from the perspectives of the audience. This is especially important because, in most prior presentations that I have engaged in, the general flow felt smooth however I never was really considering it from the audience's perspective but rather was considering it from the presenter's perspective.

To conclude, the original work process has been an extensive and comprehensive process that has led to much growth. At the beginning of the year, I had the mission to develop a

prominent personal brand, grow as a developer, and become an impactful leader in order to create noteworthy. Through these experiences, I believe I have had the chance to develop myself as a person and as a professional while creating a product that intrinsically solves the issue of social media mental illnesses. It goes without saying that the work done so far is exemplary but there is still progress. For the second semester, it would be beneficial to continue improving in order to develop the best iteration of myself.

[Original Work Folder](#)