

Mr. Speice

Independent Study Mentorship 3A

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Embedding Creativity into Natural Language Processing

Assessment 6 - Interview Assessment

Name of Professional: Vincent Ng

Title: Natural Language Processing Professor

Company: University of Texas at Dallas

Date of Interview: 26 October 2020

Works Cited:

Vincent Ng, Informational Interview. 26 Oct. 2020

Assessment:

A Tweet is a fascinating way to express one's thoughts and this can make natural language processing an especially challenging task to complete. There are multiple streams of thoughts in Tweets including the content of the tweet, hashtags, and emoticons. To overcome the multiple representations of tweets, it was necessary to embed creativity to process these thoughts. During an interview with Professor Vincent Ng, an Professor of Natural Language Processing and Machine Learning University of Texas at Dallas, we went over several state of the art natural language techniques that allow machine learning engineers to overcome these problems through workarounds.

Initiating the conversation, we discussed the merits and drawbacks of becoming a professor in natural language processing. One of the primary merits to note is having the opportunity to innovate the newest technologies that will be used by engineers all over the world. This is especially important to note because this can be monumental when deciding a career

between academia and industry. Academia would allow innovation while industry allows application and this is fundamental when it comes to deciding what exactly one wants to do in life. On the other hand, one of the drawbacks is not working on implementations and solely mathematics and theory. This is insightful in the sense that it brings awareness that academic work is more based on research and less on programming, a fundamental reason why software engineers choose industry work over academia. Through this conversation, there is excellent insight into the differences as well as highlighting red flags regarding the different career paths for natural language processing engineers.

Beyond career knowledge, we had the opportunity to discuss the text classification process as well as the data collection process. One of the things noted is the way you can use smaller classifiers for more data. This is especially important to note because generally it is difficult to gain accurate data and manual collection can be time-consuming. However, through using a smaller classifier, the time saved will be immense and these techniques can be applied to later projects as they are commonly used by professional machine learning engineers around the world. Additionally, with Tweets, it is important to note that they have multiple parts to them. To ensure that all parts of the tweet are counted in the classification process, it is important to use a multi-pronged approach by allowing multiple input streams. This process is important to note because it introduces a creative approach to bypass the limitations of traditional neural networks. Using multiple input streams allows for parts of my classification models to have added flexibility which they would not have using sequential style networks. Through this, the models will better be able to represent the emotions via tweets.

The final topic of discussion was transformer networks which allow for text generation. They use encoder-decoder networks and this is important because these will fundamentally shape

the style of the network used for the text generation model of the deep-learning-based chatbot. Additionally, transformer networks can be applied beyond this project whether it be making a summarizer, a self-generating storyline game, or essay completion. This is important in the sense that transformers will be especially prevalent in future natural language processing projects and it is important to gain an early understanding of them now.

From this interview, many questions regarding efficiency and theory were answered. Because of this, my extent of knowledge in a deep-learning-based approach to natural language processing has increased. In synthesis, this interview was important to establish a framework of knowledge that can directly be applied to projects.

[Interview Notes](#)