

Mr. Speice

Independent Study Mentorship 3A

22 September 2020

The Nature of Natural Language Processing

Assessment 3 - Interview Assessment

Name of Professional: Trey Blankenship

Title: Software Developer

Company: Raytheon

Date of Interview: 20 September 2020

Works Cited:

Trey Blankenship, Informational Interview. 20 Sept. 2020

Assessment:

Natural Language processing is a very powerful field in the sense that it has the power to connect the humanities and human condition with science and technology. However, because of this, encoding the human language into numbers that computers can use is one of the most difficult tasks in artificial intelligence. Despite the challenges natural language processing presents, the applications of natural language processing are broad and have the potential to impact humanity at its core. During an interview with Trey Blankenship, a Software Developer at Raytheon, we discussed specific natural language processing techniques and how they can be applied to real projects.

We initiated the interview process through discussing some natural language processing technologies including Bag-Of-Words, Word2Vec, and Doc2Vec. These technologies allow for us to convert language to numerical values. This knowledge is especially useful in the sense that it bridges the gap between one of the greatest challenges: quantifying words. However, unlike in

image processing where once an image has been converted into numbers it can easily be applied, in natural language processing, there is something beyond solely words: context and meaning. In order to overcome the contextuality barrier, we discussed additional technologies including Markov Decision Models and N-Grams. These techniques prove to be especially useful because they allow you to not only analyze singular words but a sequence of words--something that is vital to modern day natural language processing. This, in turn, broadens the scope of natural language processing projects. Collectively speaking, by discussing natural language processing specific techniques, any future projects will be far more refined than solely using traditional machine learning techniques which do not account for the complexities that linguistics provides.

Since natural language processing connects the humanities and human condition to science and technology, there are broad applications across several fields. Some fields that we discussed which may have direct applications in natural language processing were, finance, entertainment, logistics, management, and mental health. In order to narrow down the options, I focused on modern problems that require modern solutions. Because COVID-19 has depreciated mental health and more cases of depression, anxiety, and stress have appeared among individuals, aiming for a project within mental health seemed like an ideal pathway to pursue. This proves to be beneficial because it allows for a clearer direction toward a project. However, in the near future, it will be necessary to develop methods to collect large amounts of data regarding mental health and develop a methodology to process this data into a usable form. Additionally, since a mental health project connects the human condition with computers, it is incumbent that it be created with an idea of scalability in mind.

During this interview, confusions regarding how to overcome natural language processing challenges were resolved through exploring modernized natural language processing

technologies. Because of this interview, my depth of knowledge in natural language processing and ideas for projects have expanded. All things considered, this interview served as an essential leap into the world of natural language processing as it introduced state of the art natural language techniques while also presenting potential applications. Because of this interview, the future of any project pursued seems to be brighter because of the increased confidence in my knowledge.

[Interview Notes](#)