

Mr. Speice

Independent Study Mentorship 3A

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Parallels between Natural Language Processing and Machine Learning

Assessment 2 - Interview Assessment

**Name of Professional:** Won Hwa Kim

**Title:** Assistant Professor

**Company:** UT Arlington

**Date of Interview:** 7 September 2020

**Works Cited:**

Won Hwa Kim, Informational Interview. 7 Sept. 2020

**Assessment:**

Natural Language Processing is the process of analyzing human language's structure, meaning, and quantifying it into a usable form for computers. However, the foundations of natural language processing lie in the machine learning field. Machine learning shares several tools with natural language processing and these tools must be understood to gain a better understanding of modern natural language processing techniques. During an interview with Professor Won Hwa Kim, an Assistant Professor of Machine Learning UT Arlington, we went over several modernized machine learning techniques.

To initiate the interview, we discussed future research pathways. During this time, he discussed the necessity of going to universities where machine learning resources are abundant and the professors are younger. This was particularly insightful in the sense that it shows computing resources and intelligent willing professors are absolutely necessary to make innovations within a highly complicated field like machine learning. Additionally, this

information enables smarter decisions because it will help narrow down the list of potential future universities to attend. Going forward, this knowledge serves to shape the future of my machine learning career and enhance a machine learning-based career.

Continuing the conversation, we discussed the technical components of the parallels between machine learning and natural language worlds. During this, we talked about technologies such as recurrent neural networks, Naive-Bayes classifiers, and sampling techniques. This was especially important to learn for the future of any natural language processing projects because these technologies will likely make up the central portion of the product as they will likely control all functionality and results of the product. In knowing these technologies, it will be easier to implement a far more enhanced iteration of the systems therefore yielding a more impactful product.

The next topic we covered was regarding the intersection between databases and machine learning. Databases are something that is not widely considered to be related to machine learning but because of the large amount of data they host, it proves to be a powerful supplement to traditional machine learning technology. The parallel between databases, machine learning, and natural language processing proves to be immensely beneficial because it allows engineers to create large datasets, especially for natural language, within minutes. This, in turn, allows for arguably one of the most difficult tasks to be done with relative ease. Because of this intersection, one of the major challenges in creating a successful machine learning or natural language processing product has been overcome.

To conclude the interview, we addressed a large problem many machine learning engineers face on a day to day basis: the mathematical knowledge behind machine learning. Professor Kim recommended the Coursera machine learning course. This will be helpful when

considering the specifications of any neural networks or other systems created. In doing this, customizability of the core of the program extends to limitless opportunities because understanding the math allows for engineers to fundamentally change the inner-workings of machine learning systems.

During this interview, many problems regarding a lack of knowledge in machine learning were resolved. Because of this interview, my breadth of knowledge in both the natural language processing and machine learning fields has expanded to a new magnitude. All things considered, this interview served as a stepping stone into a world full of knowledge, ideas, innovation, and interest: it was the accelerating interview into a new world.

### [Interview Notes](#)