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ISM 1

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Research Assessment #3

Date: September 16, 2021

Subject: TensorFlow Basics

MLA citation(s):

Johnson, Daniel. "TensorFlow Basics: Tensor, SHAPE, TYPE, Sessions & Operators." *Guru99*, Guru99, 27 Aug. 2021, www.guru99.com/tensor-tensorflow.html.

Assessment:

As I wanted to learn about the applications of machine learning and how I should apply machine learning for my future project, I was exploring the realms of the software used to facilitate machine learning and I specifically liked Google's free TensorFlow software to use as a beginner. Furthermore, since I wanted to study how I could learn machine learning, I found an article for learning the very basics of TensorFlow: "TensorFlow Basics: Tensor, SHAPE, TYPE, Sessions & Operators."

First and foremost, through the article, I got to learn about how coding in TensorFlow would look like as well as was able to explore how someone would code some of the basics such as creating a tensor, initializing/accessing the shape, variable, and data type, creating sessions, learn how graphs would look like etc. From learning about the basis of machine learning of how "a tensor is a vector or matrix of n-dimensions that represents all types of data" (Johnson 1) to learning about how to evaluate certain functions using TensorFlow graphs and code segments, I

found out how I could apply each of the programming steps to recreate the specific instances. I also learned about the notation of using tf or tensorflow to call several methods such as constant(), zeros(), ones(), cast(), mathematical functions (sqrt(x), multiply(x,y), etc), get_variable(), placeholder(), session(), and properties such as shape, data type, etc (Johnson). I think this article provided really essential details to help beginners learn and it was really helpful. Although this newly gained knowledge did answer some of my questions about the basics of TensorFlow, I am really curious to learn about how I can start training models and creating specific problems that apply machine learning from this basic knowledge and learn how I can get started from here to dig deeper into machine learning in TensorFlow.

This knowledge also matches what I expected of learning about the basics of TensorFlow as I was already exposed to Collab exercises (Google software) that use TensorFlow software that helped me understand the theory of several basic machine learning concepts from my Google Machine Learning Crash Course. I think another connection that I made through this article about TensorFlow basics is that it connected with my mathematical knowledge of matrices and vectors and how they are used in machine learning to develop algorithms in software such as TensorFlow. However, I still have a persisting question about how algorithms in machine learning work which I strive to answer in the coming weeks.

I want to continue to learn more about the thought process related to creating practical applications in machine learning and how someone could actually implement machine learning projects that could solve real-world problems in the future. Through the knowledge I gained from the article, it has helped me gain some basic knowledge about TensorFlow and some of its basic declarations of constants, variables, tensors, run operations, analyze graphs, as well as

create sessions to compute graph operations and generate output. This new perspective of the basics increased my interest even more for applying machine learning in the real world.