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**Lab 01 Getting Started with Pytorch**

**L03 ITAI 2376**

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**Getting Started with Pytorch**

**Introduction**:

In this reflection paper, I will discuss my personal insights, experiences, and growth in relation to learning the PyTorch deep learning framework through a specific course. The purpose of this reflection is to analyze my learning journey, the challenges faced and the skills learned during the lab. This paper will cover the background of the lab, my initial thoughts, the impact of my experience and how I can apply what I learned in the future.

**Description of Experience or Topic:**

The lab was split into two parts, data manipulation using PyTorch and the differentiation in deep learning optimization algorithms. The main topics covered in the lab included exploring tensors, indexing and slicing tensors, common tensor operations, and converting tensors to other Python objects. The lab also shined light on the importance of GPU support and automatic differentiation in PyTorch.

**Personal Reflection:**

I originally felt excited about diving into PyTorch for deep learning. I vaguely remember using it during my machine learning and computer vision classes in previous semesters. I was also intrigued by the prospect of working with tensors and leveraging GPU acceleration. Starting the lab, I received an error running the install libraries cell. The first thing I did to fix the error was look at the next cell and see what it was requiring. The next cell was the import basic libraires to work with data and tensors cell so I ran the libraries first and then ran !pip install and was able to run the remaining cells with no problem. I was happy to know how to fix an error without having to use ChatGPT to help me. The hands on part of the lab helped with getting the practical applications of viewing the tensor shapes, reshaping tensors into a matrix.

The lab content was closely related to the theoretical knowledge I gained while going through the PowerPoint provided and previous learning in machine learning and computer vison classes. Most of the exercise was straight forward. I found the automatic differentiation section a challenging to understand at first with all of the math terminology required a deeper level of thinking.

**Discussion of Improvements and Learning:**

Personal Growth: I realized the importance of understanding the foundational concepts of tensors and their operations while running the remaining cells. I believe by spending more time on the topics I found challenging and looking into additional resources will help me understand better in the long run. This lab helped contribute to my personal growth by providing a comprehensive understanding of PyTorch and its application in deep learning. The exercise helped reinforce my ability to learn concepts I have learned in the past and reinforce what was learned previously. Throughout the lab I was able to develop skills like data manipulation using tensors, performing tensor operations and understanding the role of automatic differentiation in optimization algorithms. What I was able to learn in the lab can be applied to various future applications like using PyTorch to develop neural network models and optimizing their performance. This can be invaluable in my future research and career endeavors.

**Conclusion**:  
Overall my reflection focuses on the insights and experiences gained while learning PyTorch deep learning framework. The lab was divided into two parts, data manipulation using PyTorch and differentiation in deep learning optimization algorithms. The lab emphasized the importance of GPU support and automatic differentiation in PyTorch.

I was able to experience excitement and challenges and the hands on exercise helped provide a practical application that reinforced my understanding of theoretical knowledge from previous class work. I was able to encounter a problem and resolve the errors independently, which has boosted my confidence. This experience contributed to my personal and academic growth, enhancing my problem-solving skills and reinforcing my ability to learn complex concepts. The skills and knowledge acquired from this lab will be valuable in future academic and real-life applications, especially in developing and optimizing neural network models using PyTorch.