Progress Report

Response to Dr. Leal’s Comments

1. If you are implementing CNNs from scratch, you might want to compare your implementation with CNNs not written by you. This is because you’ll likely won’t be able to implement CNNs on GPUs, so your implementation might not be very performant. Another alternative is to implement SVMs by hand and use an existing CNN implementation. What will you choose and why?

Answer: We are implementing the following Machine Learning Algorithms:

* Convolutional Neural Networks (CNNs)
* Transfer Learning with Pre-trained Models
* Support Vector Machine
* K-Nearest Neighbor

We have decided to use K-Nearest Neighbor as our ‘from scratch’ algorithm for the reason that it is less time-consuming to implement from scratch and also because we have studied it already in your class. It is possible that we will be able to implement K-Nearest Neighbor on GPUs in order to make our implementation as performant as we may.

1. Your proposal says “There have been a couple Pokémon examples in the past, but we plan to implement more than just providing the names of the Pokémon (like what a couple tutorials have done already). Since we have a dataset of Pokémon, as well as their stats, we will be adding some more information to the results of our program.” What role will ML play in providing more than just the name of the Pokémon. Wouldn’t the ML problem end the moment you recognize the Pokémon? Wouldn’t the additional features be found by consulting a database and not by doing ML? Why or why not? Explain in depth.

Answer: ML will likely not play any role in retrieving the stats of the Pokémon once the name of the Pokémon is revealed. Data Mining might play a role there in case there are missing values. Why we embarked on this task is because it would make our project unique and something that has never been formally done before. It is stipulated every time we begin a project that it should be distinct from its predecessor and add functionalities and features, and we stuck to that adage.

1. I still highly encourage you to make an app for your application, provided that you can’t find one. This would be fun and be better for your portfolios.

Answer: We fully acknowledge that your recommendation is extremely legitimate and would be a point of pride for our portfolios. We will try our best to include an app in the final project. In case we are not able to do so, we will endeavor to finish the app in the winter holidays.

1. Look into OpenCV and other computer vision packages to generate additional images (rotated, translated, reflected) to expand your dataset.

Answer: We will do look into various libraries to generate additional images for expanding our dataset.

1. For the progress report, ideally you would finish collecting the dataset.

Answer: We have not only collected but also pretrained our dataset.