CSC420 – Progress Report[1]

Make a copy of this progress report, then complete it. Submission instructions and a grading rubric are included below.

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Date: <mark><02/21/2023></mark>

Progress Report

- **Accomplishments**: What did you accomplish since the last class meeting, the last progress report, or since you started the project? If you didn't complete anything since the last report, enter **N/A**.

  > In my previous report, my first step was to gather and label a dataset of images of various public facilities, such as schools and hospitals, in various conditions (e.g. well-maintained, in need of repair, etc.). So, I actually managed to find a good dataset that consisted in a total of 6000 images of both damaged and non-damaged classes together. I was successful enough to download the dataset and upload it in Google Drive, splitting them into the training and testing sets. My third goal from my previous report was to start building a user interface and setting up the environment for mobile app development. So,I started writing the code to normalize the images and started building a neural network. I decided to go with Convolutional Neural Network and found a good tutorial from TensorFlow about it. I was also successful in installing the Flutter SDK and set up the environment to build my application. Consequently, I managed to create a homepage for my mobile application and made sure my emulator is running correctly. I was also able to familiarize myself with the Dart language.

- **Future Goal**: What do you plan to accomplish before our report? These plans should be related to roadblocks or discussion points. It you plan to change direction, explain why.

  > Future goal is to make sure my neural network is working the way it is supposed to – so it has high accuracy for identifying if the building in the image is damaged or not. I need to be able to create a good internal structure for my neural network, trying to figure out how many layers to use, how many epochs to pass and many other parameters.

- **Challenges**: What are your current roadblocks?

  > I think it is one of the hardest things because it is going to be a challenge to tune the various layers in the neural network and might take some time to accomplish this goal. For example, there might be a problem of overfitting or underfitting, when my AI won't be able to learn enough or overlearn based on the images I feed it in. The neural network structure might be a blocker as it is a kind of black box, where you have to keep tuning it to get more accurate results. For example, I might need to increase the number of my dataset or decrease it. In order not to face this challenge, I will try my best to learn how all the parameters being passed through different layers of the neural network actually work and try to choose reasonable numbers. I also found one similar project and would like to see if I can create the same kind of a neural network since it worked for them.

- **Desired Discussion Points**: Do you have any desired discussion points that are not related to roadblocks?

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[1] This progress report is based on a Weekly Progress Report created by Dr. Nakazawa for CSC493

I would like to talk about the limitations of my project, such as that my dataset is based on the images from random buildings in Nepal (not just schools and hospitals as if I was planning) and if it is going to be useful for other types of buildings at all.

Submission to your Project github repository

1. Download the completed report as a PDF
2. Give your PDF a unique name, for example: ***2023-02-21-progress-report.pdf***, obviously change the date as appropriate.
3. Add the PDF to your Project github repository, add it, commit it, and then push it by the due date listed in Moodle.

Rubric:

The following rubric will be used, but they might change as needed.

Accomplishments (3 points)

1 point for a general description of progress, 2 points for specifics on progress, 3 points for specifics AND referring to previous targets and explaining how currently accomplishments build on previous ones.

Challenges (3 points)

1 point for mentioning there are roadblocks, 2 points for specifics, 3 points for specifics AND what was done already to try to overcome them.

Desired discussion points (2 points)

1 point for at least one relevant discussion point as a general question, 2 points for relevant discussion points with specifics

Future Goals (2 points)

1 point for concrete future targets (i.e. "working more on the project" is a zero, but "working on getting component X to interface with component Y" suffices), 2 points for tying in the targets with what was hopefully discussed in the meeting.