

EE/CprE/SE 492 WEEKLY REPORT 03

2/11/24 – 2/24/24

Group number: 07

Project title: Skin Cancer Diagnosis Using Artificial Intelligence on the Cloud

Client &/Advisor: Ashraf Gaffar

Team Members/Role:

Evan Hanson - Project Manager/Programmer

Ziyad Alqahtani - Researcher/Programmer

Wonjun Choi - Researcher/Programmer

Anirudh Ambore - Researcher/Programmer

Abdelrahman Mohamed - Researcher/Programmer

Mishari Alharbi - Researcher/Programmer

- **Weekly Summary**

- The group has been divided into two subgroups: one to work on the Flask side, which is the interface where the user will upload an image of their skin and get a result back. The other subgroup will work on deploying the model on Amazon Web Services (AWS).
- We communicated with ETG to fund us to get an AWS account. They were collaborative with us, and they provided us with an AWS account that we can use to deploy our model.
- We followed the getting started page of AWS and made progress in setting up the cloud services.

- **Past week accomplishments**

- **Evan Hanson:** This week I reached out and began implementing our Flask web application along with Ani, We were able to set up the application to accept photos, and currently attempting to run the model as an executable to create a prediction based on the user submitted photo (InceptionV3 Is the model we are utilizing) **Total hours: 7 Hours**
- **Anirudh Ambore:** This week I worked with Evan on improving our current AI models and working on a simple Flask application that will act as our

interface for users to upload images of skin lesions. The application can currently accept photos. We are working on finding a way to export the AI model so that it can be utilized by our application for skin cancer prediction.

Total hours: 7 Hours

- **Abdelrahman Mohamed:** The past week, I worked with our sub-group to setup Amazon Web Services, AWS. I also spent time reading more about the services offered by amazon to know the services we are going to use and how to use them. **Total hours: 7 Hours**
- **Ziyad Alqahtani:** Throughout the past week, my primary focus was directed towards expanding my knowledge of Amazon Web Services (AWS) and understanding the complications of deploying machine learning models on the cloud. Working closely with the team, we established an AWS account, laying the essential groundwork for our upcoming deployment. We started the initial stages of deploying our model on AWS. In addition, I dedicated time to self-study for AWS. One particular resource I found beneficial was an instructional video, which I followed to gain a deeper understanding of model deployment on AWS. **Total hours: 8 hours.**
- **Mishari Alharbi:** Along with my group, I worked on researching AWS services to understand and find the available and needed resources for our project. I met with the group to begin setting up the AWS cloud and made progress. We mainly followed the getting started page in the AWS website to make sure we have the basic and main services ready. **Total hours: 8 hours.**
- **Wonjun Choi:** I successfully created a school AWS account via ETG, completed the setup and deployment of an Amazon EC2 instance, utilizing a sample model to familiarize myself with the process and functionalities of EC2 instances, and research and design on the AWS services required to facilitate an image upload process. **Total hours: 8 hours.**

- **Pending issues**

- Create an AWS EC2 instance.
- Deploy flask application on AWS EC2 instance.
- Set up other needed cloud services, like S3 to save data.

- **Plans for the upcoming week**

- Run Flask Application with model with user submitted photo.
- Finish setting up AWS EC2 instance.
- Start the deployment of our AI model once we get done with setting up AWS EC2 instance.

- **Broader Context**

- **Updates to broader context effects:**

Area	Description	Examples
Technology	This project will benefit the society in the advancement of technology by utilizing and testing more AI and Cloud services, which add to advancement of technology overall. Using AI to solve a humanitarian issue, like skin cancer, can lead to the advancements of other technologies in other fields that can benefit from the same services.	Increasing the test cases and data that can used to find solutions of other humanitarian issues that can benefit from utilizing AI and Cloud services.

- **Plans to demonstrate evidence of positive effects:**

- Display results of multiple trained models along with accuracy
- Display flask application running on a cloud service

- **Ways to address or justify negative effects based on meetings with your team, client(s), and advisor:**

- Continuous refinement and improvement of the AI model to minimize false positives and false negatives, which could lead to unnecessary patient anxiety or missed diagnoses.
- Implementing robust data privacy and security measures to protect patient information and comply with regulatory requirements such as HIPAA.