

EE/CprE/SE 492 Bi-Weekly Report 4

April 8 - April 21

Team sdmay23-05

Project Title: Skin Lesion Classification

Client/Advisor: Dr. Ashraf Gaffar

Team Members:

Asad Abdalla - Dev Ops Manager/User Interface Developer

Rashed Alyammahi - Backend Manager/User Interface Developer

Mohammed Elbermawy - Client Interaction/User Interface Developer

Yannick Fumukani - Frontend Manager/User Interface Developer

Richard Gonzalez - Cloud AI Developer/ Developer

Meet Patel - Advisor Interaction/User Interface Developer

Adam Sweiger - Status Reporter/On-Ground AI Developer

Summary of Past Two Weeks

During this period, the on-ground subteam expanded the storage capacity of the VM, downloaded the full ISIC image dataset, conducted training using the full dataset, and documented results. In addition, another dataset was downloaded according to diagnosis of the skin lesion (e.g. nevus, melanoma, etc.). Then, using the same code as the benign/malignant model, the on-ground subteam trained a model with a slightly different architecture that uses each of the 27 ISIC diagnosis categories as a class. The UI subteam completed the frontend of the UI and continued work on the backend endpoint for the deployment of the model. The team planned work for completing project deliverables.

Accomplishments from Past Two Weeks

- Richard Gonzalez: Downloaded full ISIC dataset. Trained benign/malignant model on AWS SageMaker with full ISIC dataset. Document results of training on SageMaker, and worked with the Ground VM team to complete drafts of comparison documentation.
- Adam Sweiger: Expanded the disk space on the VM to 150 GB so that more images can be stored for training. Downloaded full ISIC dataset of about 70,000 images. Trained benign/malignant model on VM's GPU on the full dataset. Downloaded another dataset of ISIC images that labels them according to diagnosis, then used the same image classification model code to train on the 27 diagnosis classes with this new dataset. Documented results of training and worked with on-cloud subteam to complete draft of comparison document.
- Yannick Fumukani: Implemented all the UI components and tested them in different scenarios.
- Mohammed Elbermawy: Styled all the components and improved the UI look.
- Asad Abdalla: Worked on the deployment of the model. Still receiving errors when testing the endpoint, so more work will be needed to complete implementation.
- Rashed Alyammahi: Worked with AWS endpoint to resolve error regarding an AssertionError between a tensor [potential mismatch in float datatype?] as well as a ModelError exception that is thrown when attempting to execute the lambda model
- Meet Patel: Work with Ground Cloud Subteam and UI team to complete needed documentation.

Individual Contributions

Team Member	Contributions	Hours over Two Weeks	Cumulative Hours
Asad Abdalla	Worked on the model deployment	40	78
Rashed Alyammahi	Attempted to dig into model file to determine if cause of AssertionError exception is due to the keras model itself, or if there is a problem with Sagemaker. Also looked into problems with the lambda eventhandler, and potentially if where a problem with the endpoint name might not properly be communicating with the called function.	12	36
Mohammed Elbermawy	Styled all new components	4	23
Yannick Fumukani	Created all the remaining components	5	25
Richard Gonzalez	Downloaded full ISIC dataset. Trained benign/malignant model on AWS SageMaker Document results of training on SageMaker. Worked W/ Ground VM team	10	47
Meet Patel	Work with Ground VM team and UI team to complete needed documentation.	5	17
Adam Sweiger	Expanded VM disk space. Trained benign/malignant model on VM	10	

	GPU. Trained diagnosis model on VM GPU. Documented results of training. Worked with on-cloud team to transfer dataset to the cloud and conduct training comparisons.		40
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Plans for the Upcoming Two Weeks

- The team will send drafts of important documents to Dr. Gaffar for feedback.
- The team will complete all final documents required for the class and prepare for the presentation and demonstration on May 1.
- Adam Sweiger (On-Ground Subteam): Complete training documentation. Work with UI subteam to get model endpoint working. Work with team to finalize all project deliverables.
- Richard Gonzalez (On-Cloud Subteam): Finalize all training models, finalize all documentation. Work with team to finalize all aspects of the project.
- Rashed Alyammahi (On-UI Sub Team): Resolve all issues with endpoint generation on AWS such that the UI can properly pass a sample image data for prediction into it
- Yannick Fumukani (On-UI Sub Team): Inspect and optimize the frontend as a whole, help finalize all documentation and project deliverables..
- Mohammed Elbermawy (On-UI SubTeam): help the frontend team with the documentation
- Meet Patel (On-UI SubTeam): Connect Frontend with Backend, finalize all documentation. Work with team to finalize all deliverables.
- Asad Abdallal (On-UI SubTeam, Cloud Subteam): Expose the model to the frontend through an endpoint.