

CprE 492 - sdmay20-13

Detection and classification of cracks on transportation infrastructure using UAV based aerial imagery

February 16th - February 29th

Team Members

- Ian Seal - Reporting Lead
- Lauren Arner - Project Manager
- Madi Jacobson - Data Lead
- Ben Ferreira - Testing Lead
- John Schnoebelen - Software Developer
- Jack Temple - Software Developer

Past Week Accomplishments

- TensorFlow research and training
 - After multiple attempts at trying to get the original PyTorch project working again, we decided to look at similar projects on GitHub that use TensorFlow
 - Found public TensorFlow project that we began trying to work with
 - Multiple errors were originally encountered with the code, but after resolving some we were successfully able to train the model and tested it on a few images
 - There are still remaining bugs to work out, as well as the accuracy will need to be assessed
- UI development and research
 - Looked at possible ways of creating a GUI which can dynamically scale with different window sizes
 - Had a discussion with the TensorFlow team to iron out UI functionality requirements
 - Created test UI to use as a format for different PyQt5 widgets

Pending Issues

(If applicable: Were there any unexpected complications? Please elaborate.)

- TensorFlow
 - TensorFlow is different than PyTorch and there is a learning curve.

- We are having to use an older version of Python to successfully run the project
- The project we are working with occasionally won't output images

Individual Contributions

Team Member	Individual Contributions	Hours this sprint	Total Hours
Ben Ferreira	<ul style="list-style-type: none"> - Discussed functionality for GUI with Jack and Ian - Created test UI to use as a format for different pyqt5 widgets 	4	16
John Schnoebelen	<ul style="list-style-type: none"> - Researched grid layout alignment - Updated functional requirements of UI - Developed new functions to increase UI code readability and modularity 	4	15
Lauren Arner	<ul style="list-style-type: none"> - Added grids to all photos for human crack identification - Update project timeline - Evaluated half the pre-processed photos - Evaluated half the tested photos 	5	19
Madison Jacobsen	<ul style="list-style-type: none"> - Evaluated half the pre-processed photos - Evaluated half the tested photos - Completed more research on program accuracy 	5	19
Ian Seal	<ul style="list-style-type: none"> - Worked on issues with training branch - Researched similar projects using TensorFlow - Successfully trained TensorFlow project - Began debugging output of TensorFlow project - Scheduled client meeting for next weekend 	6	20
Jack Temple	<ul style="list-style-type: none"> - Experimented with TensorFlow ML Library - Discussed functionality of GUI with Ben - Reached out to client to set up meeting - Setup environment to handle TensorFlow frameworks - Moved data off of HPC. Lack of functionality 	6	20

Plans For Coming Week

Lauren -

- Secondary process of the other half of the processed photos
- Begin calculations for human vs machine crack identification
- Participate in meeting with client

Madi -

- Secondary process of the other half of the processed photos
- Begin calculations for human vs machine crack identification
- Evaluate program functional and non-functional requirements
- Participate in meeting with client

Ian -

- Participate in meeting with client next week
- Further debug issues in TensorFlow project
- Compare TensorFlow vs PyTorch output images

Benjamin -

- Participate in client meeting next week
- Have a functional UI created to demo for client
- Figure out how to display images before/after crack detection
- Start adding additional functionalities to UI to improve user-friendliness

John -

- Participate in client meeting next week
- Have a functional UI created to demo for client
- Choose a folder and run epoch through all pictures in specified folder
- Run python commands from button presses

Jack -

- Attend next weeks client meeting
- Debug the TensorFlow project to fix the outputs
- Clean up code to get it ready for GUI implementation
- Add option to remove grass in algorithm