

Vision Statement:

For the Holland Computing Center, plant phenotyping is a research that incorporates an overall evaluation of the existing workflow and code/script base and subsequent design and development to improve and enhance the productivity of high-throughput phenotyping community at UNL, starting with the group of Dr. James Schnable.

Scope:

Our goal is to effectively understand and implement improvements in existing research and code to minimize time-to-science. Working codes currently exist. These may be reused as is, or refactored, depending upon overall strategy decided early on. Emphasis will be on relatively isolated portions of the program that the team is able to work on independently.

Stakeholder:

HCC and Dr. James Schnable are the primary stakeholders. In addition, the Schnable group has over 15 members, several of whom will have a vested interest in the products of this research. Several other High Throughput Phenotyping researchers may use the codes and the workflow that will result from the project.

Business justification:

The code itself and techniques learned will assist in handing off products from one generation of students to the next. Further sharing of the code with HCC and other HTP researchers will follow post project.

Initial prioritized scope:

Product Backlog:

Set up Github accounts, set up HCC accounts, maintain the ZenHub board, create the backlog (user stories), set up the environment on the HCC server, transfer the data sets to HCC, understand, run, and profile the code.

Business Requirement: N/A

Plan Communication Structure:

Slack will be used to stay up to date. Team members will use email and Slack to connect with sponsors. Github will be used to manage code. Group meetings will take place three times weekly and a sponsor meeting will be once weekly. The sponsor meeting will be a discussion over what was worked on over the prior three developer meetings and what needs to be done over the next three meetings. Questions can be directed to the sponsors or tribe lead via Slack.

Risks

1. Lack of knowledge or experience makes it too difficult to optimize.

2. Cannot run code on HCC (running code on HCC takes too long)
3. Unable to increase code performance significantly or create working codes.
4. HCC server might be under maintenance or down delaying work time.
5. Lack of documents to understand the code.
6. Unable to find bottlenecks/slowdowns in the code

Assumptions/Constraints/Dependencies:

Assumptions:

1. We have already fully functional code.
2. We have the dataset to run and test the code.
3. We have a server capable of improved performance.
4. We have the knowledge to allow us to improve the code.

Constraints:

1. Limited knowledge and group experience in python/machine learning prevents our ability to completely optimize the code
2. Have some limited access to functionality on the HCC server
3. Memory allowances for the group on the HCC server

Dependencies:

1. Dataset given to us by the lab
2. Accuracy of the machine learning algorithm is dependent on an outside resource
3. Our ability to implement improvement depends on accurate data from limited reporting software options that work with the dataset and the server
4. Our ability to find reporting information depends on what's allowed on the HCC servers

Quality Plans:

Manual system tests, weekly code review from each other, Allinea profiling reports, and cProfile for profiling.

Organizational Plan

Sponsor - Derek Weitzel

Sponsor - Hongfeng Yu

Sponsor Assistant - Chenyong Miao

Squad Lead - Yinchao He

Product Manager - Yinchao He

Development Manager - Zhenghui Su

Developer - Collin Cornman

Developer - Phillip Nguyen

Developer - Yifeng Yu

Tribe Lead - Chris Bohn

Project Manager - Melanie Kugler-Wright

Coach - Lamin Jawlah

High Level Plan

Check point Dates

Release #1 – October 11th, 2019

Release #2 – November 8th, 2019

Release #3 – December 12th, 2019

Release #4 – February 7th, 2020

Release #5 – March 20th, 2020

Release #6 – April 17th, 2020

SD Showcase – May 1st, 2020

(9:30AM-12:00PM)

End of Project – May 8th, 2020

Iteration Structure

Weekly sponsor meetings - Every Tuesday from 9:00 a.m. to 10:00 a.m.

Team Time 1 - Every Tuesday 3:00 p.m. to 6:00 p.m.

Team Time 2 - Every Thursday 3:00 p.m. to 6:00 p.m.

Team Time 3 - Every Sunday 1:30 p.m. to 4:30 p.m.