

sdmay19-37: Are Cross Country Courses Avoiding Hills?

Report 2

February 3rd - February 9th

Team Members

Connor Smith — *Ground Truth Engineer*

Thomas Chambers — *Ground Truth Engineer*

Ryan Hilby — *Data Handling Engineer*

Jacob Feldman — *Data Handling Engineer*

David Kirshenbaum — *Data Analysis Engineer*

Andrew Mumm — *Data Analysis Engineer*

Summary of Progress this Report

Significant progress was made on all facets of the project this week. All pieces of the rating algorithm have been prototyped and are functional, but more testing of them is needed in order to fine tune them. We also collected elevation data from a variety of nationally-renowned courses to use in calibrating our rating system. The ground truth team contacted additional sources regarding possible course data that we can use to test our hypothesis but did not receive much help. The software team worked mainly on two fronts: connecting our preprocessed LIDAR data files in to our database scheme, and developing the user front-end's UI to allow for visualization of the results of the rating algorithm.

Pending Issues

While things are looking great and we are ahead of schedule right now on all fronts, we still are struggling to find historical course data that can be used to test our project's ultimate hypothesis that cross country courses are indeed becoming less hilly. Members of the team will be reaching out to our hometown XC coaches for assistance since we're coming up empty-handed everywhere else.

Past Week Accomplishments

- Connor
 - Contacted IAHSAA regarding additional historical course data
 - Fixed energy cost calculation component of the rating algorithm
 - Obtained elevation data from notoriously difficult race courses around the world and evaluated it with my energy cost calculation program to calibrate our rating algorithm
- Thomas
 - Emailed another school district for courses
 - Wrote prototype script for rolling hills
- Ryan
 - Worked on scripts to detect big/average hills
- Jacob

- Worked on setting up a way to programmatically upload preprocessed lidar elevation data to our database scheme.
- David
 - Worked on scorecard UI for the website
 - Added components for displaying statistics of the course
- Andrew
 - Worked on connecting to our database in AWS

Plans for Upcoming Reporting Period

- Connor
 - Merge energy cost calculation program with Thomas and Ryan's hill classification programs
- Thomas
 - Calibrate rolling hills script
- Ryan
 - Continue working on improving scripts
- Jacob
 - Finish moving elevation data for Story county to our database, then test that the data was correctly moved.
- David
 - Work on the landing page of the site.
 - Keep updating scorecard to get it functional
- Andrew
 - When I have a successful connect to our AWS DB from lambda I will get a full test with elevation data from our lambda function to the DB and back.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Connor Smith	Energy cost calculation & rating system calibrating	4	10
Thomas Chambers	Rolling hills detection	5	8
Ryan Hilby	Big Hill detection	4	8
Jacob Feldman	Uploading elevation data for Story county to our database	4	12
David Kirshenbaum	Prettying the website up	6	11
Andrew Mumm	Working on connecting to aws database	2	8