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1:1 with Jeremy Vogel

August 17, 2023

1. SWOT Analysis: Ongoing
2. India Travel Dates: To confirm in 2 weeks
3. NC Travel Plans: In touch with Adam on what dates might make sense. Indications of event occuring in Oct week 1. In that might have to skip the plan.
4. Green Card Status: No Updates

Section Meeting

People

1. Incubator/Simulation Team
   1. Aram Ebtekar, Incubator team: simulation
   2. Colin Chen, Incubator team: simulation
   3. Jason Chiu,
   4. Nasa Rouf, Team Lead
   5. Venkata Dandibhotla, Incubation team: supporting applications using simulation
   6. Sanket Bachuwar, Incubator team: simulation
2. 1A Planning, Navigation
   1. Steve Daniluk: Team lead
   2. Payam Ghassemi: manuever manager, ML Project
   3. Spencer Davis: Perception, Controls, CfH program AHS, bringing legacy CAT Autonomy to 1aPlanning
   4. Sapan Agrawal: Sanford Test Track Project, Trajectory Evaluation Suite
   5. Sarthake Choudhar: Trajectory Evaluation Suite
3. 1A Planning, Terrain Planning
   1. Jeff Berry: Team Lead
   2. Kianoosh Naveh (2019), Terrain Planning: Hex, Wheel Loaders, Decision Making
   3. Samuels Bettens
4. Andrew Sucato, AIS group: 1A Interfaces
5. Benjamin Hodel, Implement planning lead: buckets, blades, grippers, excavators, digcycle planner, application messages
6. Justin Peters
7. Ben Floyd
8. Louis Roy
9. Jeremy Vogel, Manager

Team Standups (Weekly)

August 15, 2023

1. ToDo: Testing with high acceleration values.

August 14, 2023

1. Worked on PRs for most of the time.
    1. Map annotations PR is in
    2. Worked on Metric Container => Ready for Review
    3. Ported Mason's code and added unit tests for smoothness calculations.
2. Ongoing:
    1. Resolving lurching issue
    2. ToDo: Come up with simple test. Drive the machine across the barrier & see if the machine stops.
3. Traj Evaluation:
    1. Discussion with CfU
    2. Another interest from later testing for UG project. On machine testing
    3. We want a solid i/o structure.
    4. Sarthake: wrap up the tooling & help Sapan in metric calculation.
4. Payam
    1. AHS standups on Wednesdays
    2. Describing AHS planning architecture from external perspective
    3. Behavior Manager
5. Kianoosh - UQ Planner in Knowledge Sharing Session

Planning Knowledge Sharing (Weekly)

August 22, 2023

1. AHS 101
2. LCP

August 15, 2023

1. AHS 101
2. UQ Planner
    1. Receding Horizon Control Framework - Kianoosh's PhD Thesis
        1. Tree Search Planner
    2. [Question]: Tree Search Vs Graph Search

Planning Team Sync (Bi-Weekly)

August 17, 2023

Payam's Presentation

1. [Presentation](#)
2. [Technical Doc](#)
3. Changing terrain using various machines with increasing complexity
4. Wheelloader: Where is the next location to dig ? DigCycle Planner
5. Terrain Manipulation Model: Predicts how the terrain changes after digging given initial terrian, machine pose, etc
6. Terrain height is modelled as image
7. Use image to image models for solving the problem
8. (Q) How are the other inputs fed to the network other than the input terrain image ?
9. Autodig: moves straight in +X
10. (Q) How are labels generated ?
11. (Q14) How do you quantitavily find if data is valid or invalid ?
12. (Q) What are the training/testing accuracy ?
13. Any Bias-Variance tradeoff done to check if the model is overfitting to the training dataset ?
14. Looks to me that the labels are generated for multiple digs cycles. And these machine poses are not fed into the model.
15. I didn't understand this part -> How does the model learn

Questions on CfH, CfU Planning

1. Describing & documenting the navigation side.
2. What's the navigation architecture solution looks like ?
3. {A} Kontz & Phillip: Present AHS Planning Architecture
4. What is the vision for 1APlanning team 5 years later ?
5. What's the state of CfH, CfU Planning ?
6. How can we align 1APlanning goals with current & future states of CfH/CfU ?
7. Payam link for AHS presentation videos.

Reinforcement Learning (Bi-Weekly)

Performance Review

General Notes

1.