Progress Report

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1 Specific Research Goals

- VPQEKF (IROS - Mar. 1st): Work on the paper.
- DLO Manipulation Proposal: Work on a persoal statement.

2 To Do

- PVQEKF:
  - Go over code and write matrix equations.
  - I will go over the paper once every morning and expand sections for 30 minutes to an hour.
  - Double-check my data prep implementation. Use KITTI Python module.
  - Test with Hilti dataset.
  - Add L2-norm and L2 loss features. – On-going.
  - I need to separate the state observation and control input vectors from the z matrix.
  - Develop object tracking and robust-to-truncation feature.
  - Get ROS environment up and running. I need to install Armadillo (C++) with a certain dependency configuration.

3 Progress

The following items are listed in the order of priority:

- Fellowship: I finished the research proposal with Dr. Gans' help, but I had not thought about the personal statement. I will develop that on the side and share it with you for review. I will also put together a budget for the project. A copy of the final proposal is attached.
- VPQEKF: I am working on the L1 and L2 loss functions. I am debugging it at the moment. Moreover, I went over the paper again, added more material and fixed some issues. I am reading [1] once again.
- NBV Grasping Project: No updates.

- PyTorch Tutorials: Transfer learning.
- Pose Estimation: I will need it for DLO segment localization.

4 Intermediate Goals - Fall 2021:

- QEKF: Finish paper.
- Active Learning.
- UR5e: Do the tutorials.

References

[1] W. Zinsser, "On writing well: The classic guide to writing nonfiction," *New York, NY*, 2006.