

600034 - Precision Control Technologies for ROVs and AUVs

Week 51

1. Kent Headley
 - a. Committed a large set of code cleanup changes to the libtrnav repository; thanks to Rich and Rob for reviewing those changes.

Week 50

1. Kent Headley
 - a. Working on code review for cppcheck updates to core code w/ Rich, Rob and Rock, checking a couple of critical changes
2. Rich Henthorn
 - a. CoNav development and test
 - b. Review CoNav design and implementation
 - c. TRN pull-request reviews
3. Rob McEwen
 - a. TRN pull request reviews
 - b. Working through Octree code
 - c. Working through Rock's CN code

Week 49

1. Kent Headley
 - a. Working on a large set of code changes on core Terrain Relative Nav code aimed at addressing issues indicated by the static analysis tool cppcheck. Rich, Rob and I are doing code reviews on change sets.
2. Rich Henthorn
 - a. CoNav computations and testing
 - b. CoNav data logging
 - c. libtrnav pull requests

Week 48

1. Rich Henthorn
 - a. CoNav logging
 - b. CoNav computations
2. Rob McEwen
 - a. Reviewing Adam's Matlab code for cooperative navigation and simulation.

Week 46

1. Kent Headley
 - a. Working on TRN MB1 ingest; initial implementation complete
 - b. Working w. Team on general bathymetry/navigation ingest format for MB-System beam filtering
2. Rich Henthorn
 - a. Developing Terrain-Relative Co-Navigation
 - b. Cooperating vehicle message player completed (for bench-testing)
 - c. Bench-test applications ready for use
 - d. TRN Meeting

3. Mike Risi
 - a. Updating and documenting framework
 - b. Getting blob tracking working for Molly Z. at ARL

Week 45

1. Rich Henthorn
 - a. Terrain-Relative Co-Navigation application design and prototype
 - b. CoNav test apparatus
2. Rob McEwen
 - a. Reviewing Cooperative Navigation algorithm

Week 44

1. Kent Headley
 - a. Working on integration of TRN into Dorado simulation

Week 43

1. Rich Henthorn
 - a. Merged TRN for LRAUV into TRN repo
2. Rob McEwen
 - a. Reviewing simulator code in preparation for mbtrnpp inclusion.

Week 42

1. Kent Headley
 - a. Worked on a long-standing issue with dorado syslog. A log is generated by sending the stderr output stream to a file is corrupted because multiple processes write asynchronously to that stream, resulting in interleaved output. A new log was added that enables concurrent output.
 - b. Code is pending some additional test (by Rob) and review
2. Rich Henthorn
 - a. Test analysis for TRN on LRAUV
 - b. Corrected minor issues using logplayer
 - c. Progressing towards real-time position updates
 - d. Merging updates with master
3. Mike Risi
 - a. Fixing some issues with the common ROV control code.
 - b. Added remote monitoring for classes that use the status logging interface.

Week 40

1. Kent Headley
 - a. Implementing feature for TRN resets with location and bounds, bug fixes; in test

Week 39

1. Kent Headley
 - a. Working on proposed development branch to add TRN filter reinit with location and window bounds
 - b. Libtrnav repo restructure
 - c. Meet w/ Steve Rock re status, code updates
2. Mike Risi
 - a. Met with Stevee to go over KCF based tracker integration and compiled data for testing.

Week 38

1. Kent Headley
 - a. Worked with Rob to debug an issue where it appeared that TRN was failing in some contexts related to digital elevation maps (DEM). Turns out to have been a subtle dual-factor problem: though TRN was working fine with DEM maps, the first component was that some auto-generated code inserted a DEM map name into a config file instead of the name of a binary octree (BO) map file. When BO maps were used, TRN would attempt to load the DEM maps as BO files. Since the file structure is different, this should have failed. The second component was inadequate validation to detect the incorrect file format, and by a stroke of (bad) luck, the data in the files produced invalid output instead of segfaulting. We need to add some checks and validation.
 - b. Worked with Rich to rearrange some directories and code in the libtrnav repo to separate app-specific code from core TRN library build
 - c. Checked in changes related to issue documented earlier re compilation defaults, and am revisiting a change set proposed last year that will address this; am discussing this with the team.
2. Rich Henthorn
 - a. Debugging TRN issue
 - b. Problem solved
 - c. Input data for TRN-LRAUV validated, ready for use
3. Rob McEwen
 - a. Worked with Kent to solve a problem where Trn wasn't loading .grd maps.

Week 37

1. Kent Headley
 - a. Working w. Rich and Rob on issue in libtrnav (Terrain Relative Nav). libtrnav behaved differently during some testing that Rich was doing. After some clever sleuthing, Rich narrowed the problem down to a couple of possible branches in libtrnav code. I found that the apparent root cause was some compile-time parameters changed for a mapping cruise in 2020.
2. Rob McEwen
 - a. Working with Rich to track down a problem with libtrnav where it won't converge over Portuguese Ledge with the Dvl or with a .grd format map.
 - b. Ran simulations of the various scenarios above.
 - c.

Week 36

1. Kent Headley
 - a. Working with Rich and the team to investigate an issue with TRN and DVL data from LRAUV
2. Rich Henthorn
 - a. Getting to the bottom of a tricky TRN regression test issue
 - b. Making progress on TRN for LRAUV

Week 35

1. Kent Headley
 - a. Set up repo for TRN regression test data and related content
 - b. Meetings are code maintenance and related planning/activities

Week 34

1. Rich Henthorn
 - a. Proposal stuff

- b. TRN

Week 33

- 1. Rich Henthorn
 - a. TRN meetings

Week 32

- 1. Kent Headley
 - a. Developing maintenance list for TRN codebase
 - b. Attended team meeting re TRN input architecture and data fusion methods
- 2. Rich Henthorn
 - a. TRN
- 3. Rob McEwen
 - a. Discussing next steps for Trn.

Week 31

- 1. Kent Headley
 - a. Developing task list for maintenance work
 - b. Met w/ Rob and Steve re TRN internals question

Week 30

- 1. Kent Headley
 - a. Developing code maintenance list
 - b. Meeting w/ Rock, McEwen re status, planning

Week 28

- 1. Kent Headley
 - a. Proposal input
- 2. Rich Henthorn
 - a. Dorado TRN interface updates

Week 26

- 1. Kent Headley
 - a. Meeting with team to discuss status and proposal plan
- 2. Rich Henthorn
 - a. Proposal input
 - b. TRN

Week 24

- 1. Kent Headley
 - a. Using Rob M's matlab scripts, made some plots of last week's Dorado test data as part of an investigation into a vehicle oscillation that developed in the early June cruise. Erik T, Eric M, Dave consulted w/ Hans and it seems like it may be a DVL hardware issue.

Week 22

- 1. Rich Henthorn

- a. Merging Dorado code bases

Week 20

1. Mike Risi
 - a. Testing mid-water tracking interface to Doc Ricketts

Week 19

1. Mike Risi
 - a. Working on mid-water tracking interface for Doc Ricketts

Week 17

1. Rich Henthorn
 - a. TRN and OA work
2. Ben Raanan
 - a. Met with Steve to review data

Week 16

1. Rich Henthorn
 - a. TRN
2. Ben Raanan
 - a. Data analysis for multi-vehicle TRN data collection run at Portuguese Ledge

Week 15

1. Kent Headley
 - a. Reviewing relevant code for TRN sim
2. Rich Henthorn
 - a. Analyzing LRAUV TRN performance

Week 14

1. Kent Headley
 - a. Gathering requirements and approaches to TRN filtering in simulation
 - b. Discussion w. Rich, Rob and Steve re TRN filtering in simulation
 - c. Bug fixes to libtrnav build
 - d. Code review/merge for UDP multicast
2. Rich Henthorn
 - a. Multibeam Simulation meeting
 - b. OA and TRN debugging
3. Mike Risi
 - a. Working on roV-control pilot interface
 - b. Implemented rate-limiting filters for the MiniROV mid-water code to avoid overworking the thrusters
 - c. Tested rate-limiting filter in test tank with mid-water tracking software

Week 13

1. Kent Headley
 - a. Developing some notes/ideas for discussion on TRN and simulation
2. Rich Henthorn
 - a. TRN and OA apps for LRAUV

3. Brian Kieft
 - a. Flipped DAT rotations to be correct following Steve's data analysis
4. Rob McEwen
 - a. Verified libtrnav for Dvl and Reson in the simulator for the Boulder Crossing mission at Portuguese Ledge.
 - b. Still need to check Imagenex.

Week 12

1. Rich Henthorn
 - a. Worked on TRN and OA issues with McEwen
 - b. Debugging the TRN application program for LRAUV

Week 11

1. Rich Henthorn
 - a. Using logged message data to test TRN modifications

Week 10

1. Rich Henthorn
 - a. Prep lcm logs for OA and TRN playback
 - b. Tested playback against OA and TRN
2. Ben Raanan
 - a. Met with Steve and the team to review results from last LRAUV-TRN deployment.

Week 9

1. Rich Henthorn
 - a. Meeting with Rock Lab

Week 8

1. Mike Risi
 - a. Restarted roV-control development
 - b. Meeting with Steve to discuss testing for March 17th Rachel Carson cruise

Week 7

1. Rich Henthorn
 - a. TRN and OA tests on LRAUV

Week 3

1. Rich Henthorn
 - a. Refactoring libtrnav modules

Week 2

1. Rich Henthorn
 - a. Removing qnx-utils from Obs Avoidance repo