

600034 - Precision Control Technologies for ROVs and AUVs

Week 50

1. Rich Henthorn
 - a. Simulating two vehicles with TRN and CoNav

Week 49

1. Rich Henthorn
 - a. LRAUV simulations with TRN and CoNav

Week 48

1. Kent Headley
 - a. Completed code review (with some modifications) for TRN in simulation loop for Dorado.
2. Rich Henthorn
 - a. Working on gazebo simulation
 - b. Training session with Kieft

Week 47

1. Kent Headley
 - a. Committed a branch of work related to TRN (terrain relative navigation) in the ROV context in the libtrnav and MB-System. Worked closely with Steve Rock and Dave Caress to use the LASS data set collected in October at Sponge Ridge to develop and demonstrate a complete TRN pipeline on Ventana. We were able to use a combination of sensors from the LASS sled and the vehicle to produce TRN output in post-processing. A long term objective is to use sensors of opportunity to efficiently locate places of interest in repeat surveys, increasing time available for science activities. Kudos to the Rachel Carson crew and Ventana pilots for their support and accommodation to collect this data set.
 - b. Working to wrap up TRN dorado simulation code review submitted by Rob McEwen

Week 46

1. Rich Henthorn
 - a. Met briefly with Rock
 - b. CoNav

Week 45

1. Rich Henthorn
 - a. CoNav sim glue app
 - b. Meet with Rock

Week 44

1. Kent Headley
 - a. Processing Sponge ridge ROV TRN dataset
2. Rich Henthorn
 - a. Aux r&b emitter for LRAUV sim

Week 43

1. Kent Headley
 - a. See seafloor mapping
2. Rich Henthorn
 - a. CoNav simulation prep

Week 42

1. Rich Henthorn
 - a. Scoping auxiliary LCM streams to support CoNav simulation

Week 40

1. Kent Headley
 - a. reviewing pull request for mbtrnpp sim integration
 - b. added plugin handler support
 - c. working on geometry updates and hopefully new handler
2. Rich Henthorn
 - a. Meeting with Rock and LRAUV team about the way forward for TRN and CoNav

Week 39

1. Rich Henthorn
 - a. Running gazebo simulation with TRN

Week 38

1. Rich Henthorn
 - a. Issue with LCM communications between BSC and conduit

Week 37

1. Kent Headley
 - a. support Rob on simulator cleanup
2. Rich Henthorn
 - a. Meet with Rock

Week 36

1. Kent Headley
 - a. Working with Rob to wrap up MB-System TRN in simulation loop

Week 35

1. Rich Henthorn
 - a. mbtrnpp simulation interface
2. Rob McEwen
 - a. Completed simulation of Caress's Axial mission. This includes both the flight code and mbtrnpp.
 - b. The simulation was successful. Recent word was that Trn worked up there a few days ago, as predicted by the simulation.
 - c. Working on eliminating duplicate multibeam code from the simulation.

Week 34

1. Kent Headley
 - a. Supported Rob in running a Dorado sim of the upcoming Axial mission with MB-System TRN processing in the loop (a goal of the project for 2023)
2. Rich Henthorn
 - a. Dorado simulation mbtrnpp issue
 - b. LCM networking issues between conduit and rastro

Week 33

1. Kent Headley
 - a. Helping Rob run simulations
2. Rich Henthorn
 - a. Efforts to get Gazebo sim running with TRN on BSC

Week 32

1. Rich Henthorn
 - a. LRAUV sim with TRN
 - b. Backseat computer needs backseat helper

Week 31

1. Kent Headley
 - a. Looking at GRD/binary octree map conversion utility
 - b. Replacing debug output library with new mframe module. Used in libtrnav/MB-System
2. Rich Henthorn
 - a. Reviewed CoNav and TRN comms and status
 - b. Met with LRAUV SW dev team and Rock about TRN and CoNav work
 - c. Agreed on short term work plan involving simulations and comms

Week 30

1. Kent Headley
 - a. Helping Rob with TRN integration into Dorado simulation

Week 29

1. Kent Headley
 - a. Working w/ Rob to complete integration of mb-system TRN into the Dorado AUV simulation
2. Rich Henthorn
 - a. Dorado simulation with mbtrnpp
3. Rob McEwen
 - a. Completed first pass at adding mbtrnpp to the simulator. It's working.
 - b. Second pass will eliminate duplicated code and unnecessary computations.
 - c. Found long-standing bug in Attributes class.

Week 28

1. Kent Headley
 - a. Working out some QNX build issues in the context of integrating multibeam filtering w/ TRN into the dorado simulator
2. Rich Henthorn

- a. Dorado simulation with mbtrnpp
 - b. Proposal discussions
- 3. Mike Risi
 - a. Meeting to discuss the development of Real-time 3D topography model for obstacle avoidance and path planning of autonomous vehicles.
 - b. Worked on input for the 2024 proposal.

Week 26

- 1. Kent Headley
 - a. Helping Rob to get mbtrnpp simulation running again
- 2. Rich Henthorn
 - a. Scope work for remainder of 2023
- 3. Rob McEwen
 - a. Resuming work on integrating mbtrnpp into the simulator. Much debugging.

Week 24

- 1. Mike Risi
 - a. Meetings with Steve Rock on 2024 proposal.

Week 22

- 1. Kent Headley
 - a. Working with Rob to sync mbtrn sim work with dorado repo updates

Week 21

- 1. Kent Headley
 - a. Helping Rob with code merge
- 2. Rob McEwen
 - a. Working through FLS moving-map code.

Week 20

- 1. Kent Headley
 - a. Helped Rob w/ some git operations

Week 14

- 1. Mike Risi
 - a. Changes to mwt-control to accommodate update to MiniROV status topic

Week 10

- 1. Rich Henthorn
 - a. Addressing some issues Rock is having with batch processing of TRN replays

Week 9

- 1. Rich Henthorn
 - a. Rock visit with discussion of TRN progress on LRAUV, CoNav options
- 2. Rob McEwen
 - a. Meeting later today (Tues) on porting the flight code and simulation to Linux

Week 7

1. Rich Henthorn
 - a. Setup spare Nano for LRAUV lab use

Week 6

1. Kent Headley
 - a. Met with Steve Rock, who had put together a great compilation of Terrain Relative Nav data from Portuguese ledge. It showed consistently good TRN performance and repeatability over 75 missions. There was some interesting structure, which (if I understand correctly) may be related to noise/biases associated with location (terrain?) or direction.
2. Rich Henthorn
 - a. Met with Rock and LRAUV team about TRN and CoNav
 - b. Working on ingesting TRN data into front seat
 - c. Setup spare Jetson board for use by LRAUV folks
 - d. Data input to CoNav undergoing some change, will require some redesign

Week 4

1. Rich Henthorn
 - a. Looking at re-architecting a little to simplify the main TRN application

Week 3

1. Rich Henthorn
 - a. TRN upgrades