Client Meeting Notes with CS Team - 11/18/19

* Meagan present for the meeting (wengrove@oregonstate.edu)
* Dr. Nash met with a handful of people at Virginia Tech who do a lot of work with high-speed video and observations of the actions, and creating structures from the data at an extremely high FPS
* One of the things we might want to do in the lab is try to use high-speed video to watch the bubbles bursting underwater
* People at Virginia Tech have an ROV on a winch system, 0.5-1 Horsepower, overkill for what we would need for the scope of our project
* They will share the drawings for the motor/spool system so we can try to design our own
* Another group is developing an autonomous ROV/drone system, they suggested that we use a threaded rod and spin the rod out and have it extend out 30 to 40 cm
* We cannot access the glacier itself until April
* Nash knows the underwater GPS system that we should be using for the system, get specific details from him
* ROV overheats when testing in the lab
* Send Nash another email tomorrow if he hasn’t ordered the ROV yet
* Isaac has a meeting set up to speak with a company about an underwater lidar system at 11am, Meagan will be present on that phone call with him
* If water is clear enough, lidar system will be better than sonar system for detection
* People at VT suggested getting a short tether for testing, potentially purchase a longer one later down the road when we actually go to AK
* Surface current is fairly quick, Nash is hoping that we can go underwater to avoid the strong currents
* You can easily see a foot underwater, maybe our first prototype should have smaller arms (50-60cm)
* Need to worry about the center of mass, buoyancy, and proportion all to be the same on the ROV, need counterweight, needs to hang properly suspended in the air and underwater
* Need to start testing the “melting into ice”, Nash made a chunk of ice that is about a cubic foot and can keep making those to test melting into something, once we get the ROV, marking up the mechanical parts of it and figuring out stability, decide if we need vectrinos onboard or can do everything optically
* Meagan suggested possibly putting a PIV system on it, can we make the laser system that we need? But it needs really detailed calibrations, high powered lasers, can get very expensive
* GoPro video will not be sufficient for video feed to get the velocities of the bubbles underwater
* Nash/Meagan need to resubmit the proposal by the middle of December, think very clearly about how this is going to work, get the GoPro cameras