# Week of: \_\_\_\_\_5/25/2016\_\_\_\_\_\_\_\_

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| **Semester Goals:**   1. Have a research paper on drones – contraction mapping (Slotine) 2. MBZIRC - Implement different control algorithms for a drone on a moving vehicle 3. scaling chain integrator – robustness, time constraints (reaching goals in a fixed time), Astar, 4. C++ controller on board (attitude)– ROS interface off board (MATLAB) (position control) |
| **Results from last Week:**  * Submitted controller for scaling chain integrators * Almost converted scaling chain integrators implementation to MATLAB * Setup simulation platform for the MBZIRC challenge |
| **Plan for this Week:**  * Learn the code base for the MBZIRC challenge * Test and tune the CBF\_CLF scaling chain controller * Read papers on contraction mapping to learn more about its applications on drones – limit time on reading papers; 2 hours maximum * IT’S A WAR AGAINST KNOWLEDGE!! |
| **Questions for this Meeting:**  1. How should I go about the scaling chain integrators MATLAB implementation testing? |

# Week of: \_\_\_\_\_6/1/2016\_\_\_\_\_\_\_\_

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| **Semester Goals:**   1. Have a research paper on drones – contraction mapping (Slotine) 2. MBZIRC - Implement different control algorithms for a drone on a moving vehicle 3. scaling chain integrator – robustness, time constraints (reaching goals in a fixed time), Astar, 4. C++ controller on board (attitude)– ROS interface off board (MATLAB) (position control) |
| **Results from last Week:**  * Learn the code base for the MBZIRC challenge – done * Test and tune the CBF\_CLF scaling chain controller – done implementation, with plotting left * Read papers on contraction mapping to learn more about its applications on drones – limit time on reading papers; 2 hours maximum – not started * BATTLE LOST |
| **Plan for this Week:**  * Scaling chain integrators – Journal paper   + Outline – main results, Thrusday * MBZIRC –   + Intertia Matrix estimates for the drone   + Modify control topic to see quad behaviours – hover control   + Gimbal control in simulation * IT’S A WAR AGAINST KNOWLEDGE!! |
| **Questions for this Meeting:**  1. Scaling chain integrator takes a long time for simulation, how do I modify it to reduce time? 2. For MBZIRC how else should I progress? Should we focus on trajectory control or first get gimbal control working to ensure we can perform visual servoing? 3. Code Profile in MATLAB, ODE15s 4. CAD model should give intertia matrix |

# Week of: \_\_\_\_\_6/10/2016\_\_\_\_\_\_\_\_

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| **Semester Goals:**   1. Have a research paper on drones – contraction mapping (Slotine) 2. MBZIRC - Implement different control algorithms for a drone on a moving vehicle 3. scaling chain integrator – robustness, time constraints (reaching goals in a fixed time), Astar, 4. C++ controller on board (attitude)– ROS interface off board (MATLAB) (position control) |
| **Results from last Week:**  * Scaling chain integrators – Journal paper   + Outline – main results, Thrusday – CLF, state\_bound\_const working * MBZIRC –   + Intertia Matrix estimates for the drone - done   + Modify control topic to see quad behaviours – hover control – not started   + Gimbal control in simulation– not started * BATTLE LOST * Other sub goals:   + Worked on setting up MATLAB with ROS |
| **Plan for this Week:**  * MBZIRC –   + Visual servoing in simulation   + Modify control topic to see quad behaviours – hover control – not started * ROS-C++ interface:   + Set up connection with drone   + Basic ROS stuff in MATLAB * Scaling chain integrators – Journal paper   + main results, Monday – finite time, robustness, obs\_constraints, testing   + paper - Tuesday * IT’S A WAR AGAINST KNOWLEDGE!! |
| **Questions for this Meeting:**  1. How to reduce i/p chattering with obstacle constraints? Reduce Gamma? 2. Implentation algorithms for finite time and robustness |