# Aims

* Payload transportation with UAVs
  + Cooperative transportation for bulky and heavy objects
  + Non-reliant on centralized control (try decentralized onboard control)
  + Real-time optimal trajectory planning
* System properties
  + Homogeneous agents
  + Agents capable of agile maneuvers
  + Homogeneous, rigid loads
  + Tolerates different environmental conditions: obstacles, wind disturbances
  + Desired behaviors
    - Seamless transition between takeoff, carrying and landing modes
    - Avoid obstacles
    - Safe operation around people
    - Avoid inter-agent collisions
    - Minimize oscillations in payload motion
    - Minimize explicit communication between agents
  + Performance: minimize mission time and control effort

# Objectives

* Devise problem formulation
* Devise design requirements
* Survey academic papers dealing with UAV-based CPT schemes
* Formulate a control solution
  + Implement decentralized control algorithm in ROS
  + Integrate real-time optimal trajectory planning in ICLOCS (MPC) with the onboard controller
* Study control properties (controllability, observability)
* Simulate missions using the Gazebo visualization tool for ROS