Simple Hand-Gesture Based Control of Quadcopters
Idea
Research problem

- Recognize the hand (distinguish it from the environment)
- Feature extraction (recognize both a left and a right hand)
- Follow the hand's movement
- Follow the hand's velocity
Approach

- Detect Features using Front Camera
- Apply PCA to get a coordinate frame
- "Lock" the quadcopter-frame with the hand-frame
- Quadcopter follows height, distance (possible use of Kalman Filter/PID)
- Control roll and yaw (ignore pitch)
Implementation plan

- Extend marker tracking to recognize hand
- Extract Hand-Features
- Track Feature-Points over time (Find robust matches)
- Compute the Transformation between old Hand-Pose and new one
- Apply Transformation to AR-Drone
Future work

● If the wrist/person rotates the quadrocopter should follow in a circular motion
● Closing the fist should make the quadrocopter land
● Changing hands in-flight
● Etc..