Obstacle Avoidance for a Quadrotor

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Introduction

- Obstacle avoidance for an ARDrone 2.0 quadrotor
- Use the approach in *Obstacle avoidance for small UAVs using monocular vision* (Lee et al. 2011)
- Test with real data as opposed to simulations

Proposed Solution

- Extract SIFT and MOPS features from two images
- Match SIFT and MOPS features in images to locate points in 3D
- Use MOPS to get object outlines
- Use SIFT to get internal object structure
- Determine type of object

MOPS

- Multi-Scale Oriented Patches (*Image Matching using Multi-Scale Oriented Patches* (Brown et al. 2004))
- TODO: Include sample image

Some Results: SIFT

Example of SIFT matches on data

Some Results: MOPS

Example of MOPS matches on data

Some Results

Discuss how MOPS doesn't work well and the paper isn't robust

A Better Idea

Discuss idea of using SIFT features on contours

Further Results

Conclusions