Visual Navigation for Flying Robots

Waving Recognition

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Implementation

- Take Off
- Hover at a given height
- Record a video (4 sec)
- Rotate 90° 4 times
- Land down

Waving detection
Recording videos

1. Record 4 seconds
2. Rotate 90°
Waving recognition

- Detection of Space-Time Interest Points (STIPs)
- Get Descriptors from Cuboid centered at STIP
- Bag-of-Words approach:
  - Minibatch K-meaning of all descriptors
  - Histogram of descriptors of each video sequence
  - Grid-search for best C-Parameter
- Training of an SVM
  - Over 20 runs
  - Test size: 30%
Waving recognition
Precision and Accuracy

Action recognition from ARDrone video

True positives (tp) vs False positives (fp)

Ratio of Correct Predictions

KTH Database

$\frac{tp}{(tp + fp)}$
Precision and Accuracy

Action recognition from ARDrone video (Group Videos)

True positives (tp) vs False positives (fp)

Ratio of Correct Predictions

Our Database
Waving Recognition

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