Visual Navigation for Flying Robots

Project proposal

Waving recognition

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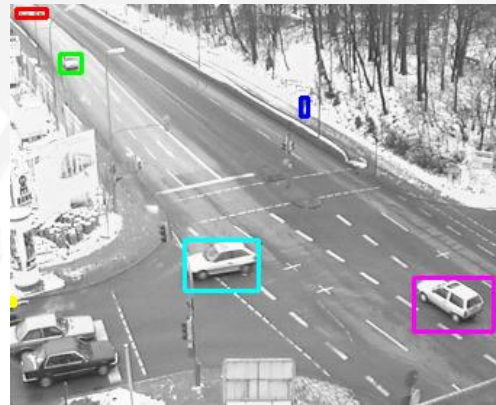## Garcia Mario

Habon Laszlo

Idea

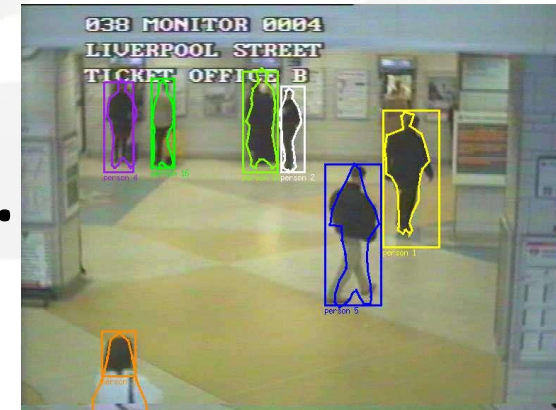- **Use of the drone in a visual surveillance framework**

Idea

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Idea

- **Use of the drone in a visual surveillance framework**
- **Graffiti prevention context**

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- **Use of the drone in a visual surveillance framework**
- **Graffiti prevention context**
- **Action recognition: waving**

VIDEO HERE

Research problem

- **Vision-based activity recognition**

- **Understand the behaviour of agents through videos taken by various cameras**

- **Many applications: human-computer interaction, user interface design, robot learning, surveillance…**

- **Multiple aspects: single pedestrian tracking, group tracking, detecting dropped objects, action recognition…**

- **Recognition of classes of human actions such as "running", "walking" and "hand clapping". The method exploits local action representation in terms of space-time interest points**

- **Detection of local events in video with distinct properties in space-time. Space-time interest points enable matching of corresponding space-time points across video sequences**

Approach

- **Recording waving videos of group components**

- **Using waving videos publicly available**

- **Extraction of Spatio-Temporal Interest Points (STIPs)**

- **Computation of HOGHOF descriptors**

- **Cluster by K-means to form a dictionary of words and histograms of words are built for each video**

- **Compute the χ2-kernel and train an SVM classifier**

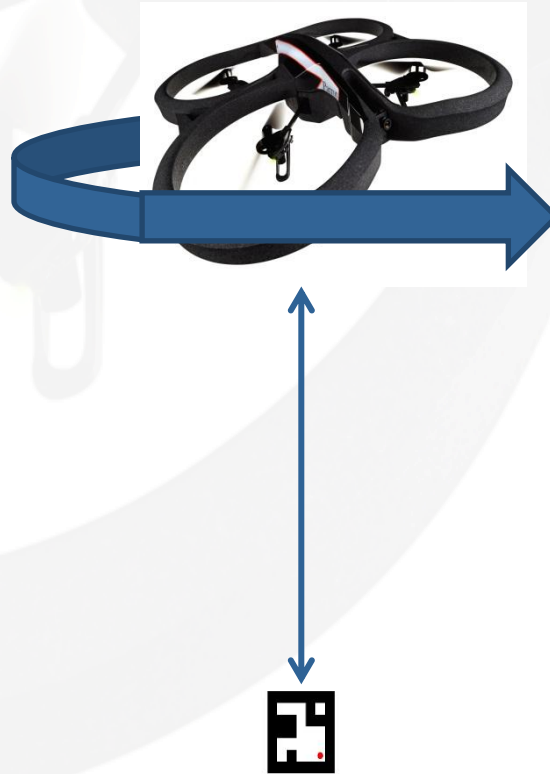Classification Using Bag of Spatio-Temporal Features

Implementation plan

- **Take off and steadily hoover at a certain (adjustable) height over a marker**
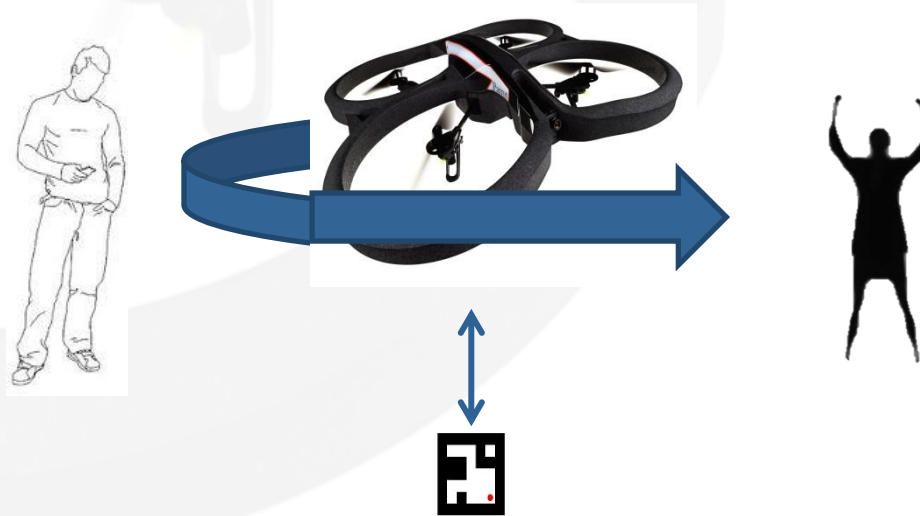
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- **Make a 360° rotation at a certain (adjustable) speed**

- **Grab video and looking for waving person**

- **Take a picture or blink screen if found**

Casaburo Dianov Garcia Habon