

Computer Vision Project Proposal

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Problem:

Human Interaction with/direction of sUAS (small airborne drones) via visual signals and hand gestures.

Proposed Solution:

Leverage the open-source libraries and the latest research papers to build an online model that would analyze the poses in the frames of a video and build a model to identify the gestures in these frames.

Sample gestures:

- Target
- Hover
- Climb
- Descend
- Move forward
- Move backward
- Stop

Application:

This solution could enable the usage of drones by law enforcement agencies and first responders on the field without them needing to have a wireless remote controller.

Objectives:

1. Collect the required visual dataset.
2. Detect the poses (Pose Estimation) in each of the frames.
3. Train a model to identify the gesture from the input poses.
4. Optimize the above steps for an online application.

Proposed final technology demo:

A working system that takes in video and outputs the name of the gesture performed in it.

Challenges:

Optimizing the models for an online application is the aspect that we think would be challenging.