

ECE Capstone program
Spring 2018
Project Abstract & Info

Please provide the following information to be shared with on capstone information exchange platform:

1. Project number: S18 - 29

2. Project title (as will appear on the poster): Drone Jukes CV Style

3. Team members: Zachary Blanco, Zohaib Zahid, Kristina Poon, Richard Ahn

4. Adviser(s) name(s): Dr. Kristin Dana

5. Up to 5 keywords that will help to classify the project scope:

Computer Vision, Control Systems, Artificial Intelligence, Deep Learning, Object Detection/Classification

6. Project abstract (up to 250 words) to be shared with judges:

One caveat with current drone technology is that in order to accurately detect obstacles you either need specialized equipment or algorithms. Recent advances in computer vision have yielded effective algorithms for object and position detection within images. Applying this technology to drones with cameras allows for an effective combination that may result in improved autonomy for these aerial vehicles. With built-in cameras, drones are not only capable of capturing cinematic footage, but are also equipped with the means to fly defensively in being able to identify threats that are on collision course with itself. The latter portion is currently not commercially viable with current technology, but aspects of computer vision, such as regional convolutional neural networks (RCNN), can be applied in identifying threatening objects. From the drone's own video footage, the trajectory of such threats can be calculated between frames whose information can be communicated and processed to the drone which will respond accordingly.