Challenged Claims – U.S. Pat. No. 10,514,711	
Claim Element	Claim
1[a]	A method of performing a flight control operation of a reference aerial vehicle, comprising:
1[b]	receiving an image captured by an image sensor of the reference aerial vehicle;
1[c]	detecting a target in the image including by applying a machine learning model to the image to identify a portion of the image that includes the target;
1[d]	determining a three-dimensional relative location of the target with respect to the reference aerial vehicle based on the image including by determining a distance to the target based at least in part on a size of the target detected within the image; and
1[e]	performing the flight control operation based on the three-dimensional relative location of the target with respect to the reference aerial vehicle, wherein performing the flight control operation includes determining a speed adjustment factor based on a magnitude of deviation of a direction of the three-dimensional relative location with respect to a current flight direction of the reference aerial vehicle.
2	The method of claim 1, wherein the reference aerial vehicle is a multirotor unmanned aerial vehicle and the target is an aerial vehicle.
3	The method of claim 1, wherein performing the flight control operation includes one or more of the following: turning the reference aerial vehicle towards the target, adjusting a speed of the reference aerial vehicle, or engaging a mechanism to capture the target.
4	The method of claim 1, wherein detecting the target in the image includes identifying a model type of the target.
5	The method of claim 1, wherein detecting the target in the image includes identifying a bounding box outlining a portion of the image that includes detected features of the target.
6	The method of claim 5, wherein determining the three-dimensional relative location of the target includes determining the distance to the target based on an area of the bounding box of the target within the image.

7	The method of claim 1, wherein determining the three-dimensional relative location of the target includes determining the distance to the target based on a size of the target within the image and a physical size corresponding to an identified type for the target.
8	The method of claim 7 wherein performing the flight control operation includes determining a speed adjustment factor based on the determined distance to the target.
9	The method of claim 1, wherein determining the three-dimensional relative location of the target includes determining a direction of the target with respect to the reference aerial vehicle.
10	The method of claim 1, wherein determining the three-dimensional relative location of the target includes determining an azimuth angle and an altitude angle to the target from the reference aerial vehicle.
11	The method of claim 1, wherein determining the three-dimensional relative location of the target includes converting a two-dimensional vector to a three-dimensional vector representing the three-dimensional relative location.
12	The method of claim 1, further comprising: receiving a geographical location associated with the target detected at least in part using a ground-based sensor; autonomously navigating the reference aerial vehicle towards the received geographical location; and determining to allow image-based navigation.
13	The method of claim 1, wherein the speed adjustment factor is greater for a smaller magnitude of deviation as compared to for a greater magnitude of deviation.
14	The method of claim 1, wherein performing the flight control operation includes scaling a speed adjustment factor to smooth and limit a rate of change of a speed of the reference aerial vehicle.
15	The method of claim 1, wherein performing the flight control operation includes determining a direction adjustment factor based on a magnitude of deviation of a direction of the three-dimensional relative location with respect to a current flight direction of the reference aerial vehicle.
16	The method of claim 15, wherein performing the flight control operation includes scaling the direction adjustment factor to smooth and limit a rate of change of a direction of the reference aerial vehicle.

17	The method of claim 1, wherein the distance to the target is determined based at least in part using a radar.
18	The method of claim 1, wherein it is determined to allow the image-based navigation based on whether the reference aerial vehicle is within a threshold distance away from the received geographical location.
19[a]	A reference aerial vehicle, comprising:
19[b]	an image sensor configured to capture an image;
19[c]	a processor configured to: detect a target in the image; and
19[d]	[the processor configured to:] determine a three-dimensional relative location of the target with respect to the reference aerial vehicle based on the image; and
19[e]	a flight controller configured to perform a flight control operation based on the three-dimensional relative location of the target with respect to the reference aerial vehicle, wherein the flight controller is configured to perform the flight control operation including by being configured to determine a speed adjustment factor based on a magnitude of deviation of a direction of the three-dimensional relative location with respect to a current flight direction of the reference aerial vehicle.
20[a]	A computer program product for performing a flight control operation of a reference aerial vehicle, the computer program product being embodied in a non-transitory computer readable storage medium and comprising computer instructions for:
20[b]	receiving an image captured by an image sensor of the reference aerial vehicle;
20[c]	detecting a target in the image including by applying a machine learning model to the image to identify a portion of the image that includes the target;
20[d]	determining a three-dimensional relative location of the target with respect to the reference aerial vehicle based on the image including by determining a distance to the target based at least in part on a size of the target detected within the image; and
20[e]	performing the flight control operation based on the three-dimensional relative location of the target with respect to the reference aerial vehicle, wherein performing the flight control operation includes determining a speed adjustment factor based on

	a magnitude of deviation of a direction of the three-dimensional relative location with respect to a current flight direction of the reference aerial vehicle.