Project abstract

Since early this summer, we’ve been playing around with the idea of developing a small-scale optically guided [CIWS](https://en.wikipedia.org/wiki/Close-in_weapon_system) system for engaging small enemy drones. We got this idea after seeing footage of soldiers in Ukraine shooting at drones with shotguns and targeting manually.

A necessary component of such a system would be an image classifier for detecting drones. Unfortunately, the drone image datasets available on the web are not very good and largely do not show the sort of drones we would like to detect in flight. So, we will be doing a research project evaluating the feasibility of using stable diffusion to generate large batches of training images specifically tailored to our goals (effectively we will tell it to generate what the camera on the system would see operationally). If we can build the image classifier with substantial time remaining in the semester, we will begin working to use it to identify objects in video and/or begin to incorporate it into a targeting algorithm.