The Effects of Interocular Sensor Separation on Terrain-Hazard Detection and Braking Distance

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ABSTRACT:

The objective of this AIAD was to increase the breaking distance, detect terrain hazards as well as human targets. While I was there we had to experiment on the difference between optical and biological fusion. By fusing image intensified and thermal night vision the viewer receives stereoscopic night vision. In other words the viewer can see three dimensionally through a night vision device.

In order to test this we had several human targets lined up in wooded or concealed terrain. In the general area there were also several terrain hazards. Using a steady camera a filmer would walk and take around a thirty second clip of the area. We took a total of over forty clips. The steady camera had a thermal and an image intensified lens. Once back in the laboratory I was able to video edit the clips so that the thermal and image intensified clips were synchronized.

Before even testing I had to complete an online course of ethics and subject testing for experimentation. Once I completed this I had several subjects come in to participate. Before participating, the subjects had to pass and eye exam which I administered.

Once the subjects passed the eye exam, they were then ready to be tested. I had two subjects undergo the biological fusion method and two subjects undergo the optical fusion method. I would then have the subject list for me all the terrain hazards in each clip as well as how many targets there were in each clip. Our hypothesis at HRED was that the biological fusion would allow the subject to view more terrain hazards and detect all the targets in each clip. Unfortunately the results I compiled did not allow me or anyone to create a conclusion about our data. There were several faults to our work and if there was another experiment that we would complete we would know what to fix.

Basically with the knowledge I gathered at Aberdeen Proving Ground, I was able to conclude that any sort of fusion between image intensified and thermal night vision is much better than any other night vision device.

KEYWORDS: HRED, biological fusion, optical fusion

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