TARGET DETECTION IN IMAGE-INTENSIFIED VISIBLE LIGHT AND LONGWAVE INFRARED NIGHTTIME IMAGERY

((J.S. McCarley, W.K. Krebs, and M.J. Sinai)) Naval Postgraduate School, Monterey, CA.

Purpose. Infrared night vision devices will soon become commercially available automobile safety features. The present study was conducted to examine the viability of infrared sensors as an aid to detecting night driving hazards. **Methods**. Nighttime imagery was collected with image-intensified visible light (ii) and uncooled longwave infrared (LWIR) sensors, mounted to the roof of a passenger vehicle. Images depicted a wooded roadway with an oncoming vehicle at a distance of 60 m. Within half of all images presented, a human target was present at one of three distances from the sensor. Observers were asked to view images and make speeded judgments of the presence or absence of a target. **Results.** RTs were reliably longer for target detection within image intensified visible light images than within LWIR images, and differences in RT between the two formats were exacerbated as the target was placed farther from the sensors. Error rates for target detection within ii images increased as targets were located nearer the glare from the headlights of the oncoming vehicle, while LWIR performance was unaffected. **Conclusions.** LWIR sensors may allow earlier detection of driving hazards under low light conditions, particularly for drivers susceptible to glare.

None Supported by Office of Naval Research