

The Summer Undergraduate Research Fellowship (SURF) Symposium
2 August 2018
Purdue University, West Lafayette, Indiana, USA

EFVS Effects on Pilot Performance

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ABSTRACT

Flight tests have been conducted at Purdue University using a computer-based flying simulator in an attempt to determine and measure the effects of Enhanced Flight Vision Systems (EFVS) on the performance of pilots during landing. Knowledge of these effects could help guide future design and implementation of EFVS in modern commercial aircraft, and further increase pilots' ability to control the aircraft in low-visibility conditions. The problem that has faced researchers in the past has revolved around the difficulty in interpreting the data which is generated by these tests. The difficulty in making a generalized conclusion based on the large amount of data containing various increases, decreases, and absences of difference has led to many either contradicting or inconclusive results. A close look was taken at previously obtained sets of data in order to potentially discover any new statistically significant correlations between the use of EFVS and pilot performance. The data included multiple sets detailing errors, deviations, and eye fixation. Results of these tests were summarized in order to look for patterns in the data which indicated a distinct difference between flying with and without EFVS. Most tests failed to find a correlation, but there was a higher frequency of a test finding or almost finding a statistically significant difference when testing the standard deviation of a sample of measurements than when testing the sample means. These results suggest that, with further testing, a connection between EFVS use and the variance of measurements of pilot performance could potentially be discovered.

KEYWORDS

Aviation, EFVS, Human Performance, Sensing