

**DYNAMIC VISUAL PERFORMANCE CHARACTERISTICS OF ELDERLY
DRIVERS**

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**Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of**

Master of Science

In

Industrial and Systems Engineering

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August, 2005

Blacksburg, Virginia

Keywords: vision, information processing, elderly drivers, design parameters

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ABSTRACT

The objective of the present study was to understand how the visual and mental processes work in tandem to affect the overall information processing capability of the individual, especially the older population, in a dynamic visual task such as driving. More specifically, our aim was to understand how the different parameters related to display of visual information in an in-vehicle display system and the age of the subject affect the information processing performance. The effects of stimulus distance, target size, display time, bits of information and the age group of the subject (young versus old) on the reading performance (information processing ability) under photopic and scotopic viewing conditions were thoroughly investigated in this study. Fifty-six individuals (28 young, 28 elderly) from the Montgomery County region were tested in the study in a mixed factorial repeated measures design with age as between subjects and the other independent variables as within subjects. The dependent variable was the reading score, i.e., the number of letters correctly identified. Results obtained from this study revealed that all of the independent variables had significant effects on the reading performance of the participants, except ambient illumination. Specifically, age has an important influence on the specific values of the design parameters. Also, these parameters interact among themselves so that one can be used to compensate for the other. These results can be used for developing the most relevant and optimal in-vehicle visual displays for the older population.