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Display Technologies and Applications for Defense, Security, and Avionics II

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Editors

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Introduction

The 2008 Display Technologies and Applications for Defense, Security and Avionics II conference addressed recent developments and a wide range of technologies surrounding direct view displays. The focus, reflected in these proceedings, is firmly in the military sector for applications with a variety of themes that highlights many current requirements and issues.

With recent battle requirements from Iraq in mind, surveillance is a topic of heightened interest for our audience. In addition to information from the field, there are papers on recent thrusts concerning surveillance vehicles and information handling from Canada and on image processing aimed at assisting operators in threat/target detection and tracking requirements.

The session on human/display interaction includes new information on issues such as crew overload and use of tactile senses to overcome visual and aural overload. This session also addresses human factors and perception problems in helicopter training as well as development of human interfaces for robotic controlling vehicles.

A session on night vision system compatibility delivers information on automated measurement of image intensifiers as well as information on new polymeric filter materials specifically designed to address the need for low-cost application to already fielded displays that employ resistive touch screens. In addition, the issues surrounding deployment of short-wave infrared imagers in cockpits, is discussed in some detail, focusing around specification of radiance limits.

3D displays have been demonstrated over a period of many decades, but recent materials developments have made 3D a practical choice for several demanding applications. An invited paper from Planar Systems addresses both technology options for 3D direct-view displays and compatible applications in a wide-ranging look at the topic. Those interested in 3D displays will particularly appreciate the guidance on image quality and processing requirements. Other presenters address developments such as 3D for vehicle driving and for robotic control as well as the difficult topic of developing metrics for assessment of 3D displays.

Following the theme of display hardware, a session on 2D displays includes a paper from E3 Displays that addresses difficult issues surrounding the ruggedisation of COTS display components for military applications, offering important insight into ruggedisation needs and methods. Rockwell Collins provides design insight and performance data for an impressive 15" cockpit display with a very low reflectance resistive touch panel. Optical Filters USA

provides valuable insight into how to specify display filters and critically, what not to do.

Maintaining the theme on 2D LCDs, the session dedicated to LCD backlighting includes useful design details on both RGB- and white LED-based systems developed by Korry and E3 Displays, respectively. These sessions share technical information intended to advance the state of the art in an established technical area that is vital to most LCD-based equipments.

The final session is dedicated to OLED, a new display technology that is yet to see widespread application in military systems. General Dynamics Canada presents two papers describing both the general theme of OLED application to military display needs and a description of a specific project aimed at exploring the unknowns and risks associated with fielding a new display technology. This latter paper addresses work done to build and test a small OLED display to be field tested on a 155mm howitzer.

The 2008 Display Technologies and Applications conference sought to provide insight into both current developments and technology aspects related to displays and display applications. The 26 papers presented at the 2008 conference contribute to many of the most interesting facets of display technology, providing useful information to designers, developers, and users.

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