Contents

1 Creating Day and Night: Past, Present, and Future 1
Mary K. Kaiser

2 Development of a DVI-Compatible VGA Projector Engine Based on Flexible Reflective Analog Modulators 13
Francis Picard, François Duchesne, Michel Jacob, Carl Larouche, Carl Vachon, and Keith K. Niall

3 Brightness and Contrast of Images with Laser-Based Video Projectors 27
Michel Doucet, Mélanie Leclerc, Francis Picard, and Keith K. Niall

4 Physics Based Simulation of Light Sources 49
Jeff Clark, Brad Colbert, Karl Mathia, and Brett Chladny

5 Integration of a Deployable CIGI-Based Image Generator in an Existing Simulation 61
Robert Wolfe and Tony Ghoman

6 Advances in Scalable Generic Image Generator Technology for the Advanced Deployable Day/Night Simulation Project 75
Ray M. Obidowski and Rajesh Jha

7 Detection Threshold of Visual Displacement in a Networked Flight Simulator 87
Christine M. Covas, James P. Gaska, George A. Geri, Megan E. Shamp, and Byron J. Pierce

8 Evaluation of the Spatial and Temporal Resolution of Digital Projectors for use in Full-Field Flight Simulation 97
James P. Gaska, George A. Geri, Marc D. Winterbottom, and Byron J. Pierce

9 A Spatial Cognition Paradigm to Assess the Impact of Night Vision Goggles on Way-Finding Performance 111
Michelle Gauthier and Avi Parush

10 Psychophysics of Night Vision Device Halos 123
Robert S. Allison, Tracey Brandwood, Margarita Vinnikov, James E. Zacher, Sion Jennings, Todd Macuda, Paul Thomas, and Stephen A. Palmisano

11 Effects of Screen Resolution and Training Variation on a Simulated Flight Control Task 141
Don C. Donderi, Keith K. Niall, Karyn Fish, and Benjamin Goldstein

12 Video-to-Reference Image Indexing 163
Vitaly Zholudev and Richard Wildes

13 AVS LIDAR for Detecting Obstacles Inside Aerosol 177
Xiang Zhu, Philip Church, and M. Labrie

Author Biographies 189

Glossary 193

References 203

Index 209



http://www.springer.com/978-1-4419-1722-5

Vision and Displays for Military and Security Applications
The Advanced Deployable Day/Night Simulation Project
Niall, K.K. (Ed.)
2010, X, 212 p., Hardcover
ISBN: 978-1-4419-1722-5