



CMOS/CCD sensors and camera systems /

Holst, Gerald C.,
author

JCD Publishing ;
SPIE Press,
[2011]
JCD Publishing ;
SPIE Press,
[2011]

Monografía

The fully updated edition of this bestseller addresses CMOS/CCD differences, similarities, and applications, including architecture concepts and operation, such as full-frame, interline transfer, progressive scan, color filter arrays, rolling shutters, 3T, 4T, 5T, and 6T. The authors discuss novel designs, illustrate sampling theory and aliasing with numerous examples, and describe the advantages and limitations of small pixels

<https://rebiunoda.pro.baratznet.cloud:28443/OpacDiscovery/public/catalog/detail/b2FpOmNlbGVicmF0aW9uOmVzLmJhcmF0ei5yZW4vMzA3NjUyOTc>

Título: CMOS/CCD sensors and camera systems Gerald C. Holst, Terrence S. Lomheim

Edición: 2nd ed

Editorial: Winter Park, FL JCD Publishing Bellingham, Washington, USA SPIE Press [2011] 2011

Descripción física: 1 online resource (xx, 388 pages) illustrations

Mención de serie: SPIE Press monograph PM208

Bibliografía: Includes bibliographical references and index

Contenido: 1. Introduction: 1.1. Solid-state detectors; 1.2. Imaging system applications; 1.3. Configurations; 1.4. Image quality; 1.5. Pixels, datels, disels, and resells; 1.6. References -- 2. Radiometry and photometry: 2.1. Radiative transfer; 2.2. Planck's blackbody law; 2.3. Photometry; 2.4. Sources; 2.5. Point sources and extended sources; 2.6. Camera formula; 2.7. Normalization; 2.8. Normalization issues; 2.9. References -- 3. CCD fundamentals: 3.1. Photodetection; 3.2. CCD array operation; 3.3. CCD array architecture; 3.4. Charge conversion (output structure); 3.5. Correlated double sampling; 3.6. Overflow drain; 3.7. Low light level devices; 3.8. Charge injection device (CID); 3.9. Well capacity; 3.10. References -- 4. CMOS fundamentals: 4.1. CCD and CMOS arrays: key differences; 4.2. CMOS arrays: predictions and reality; 4.3. Pixel electronics; 4.4. CMOS architectures; 4.5. CMOS future; 4.6. References -- 5. Array parameters: 5.1. Number of detectors; 5.2. Optical format; 5.3. Dark pixels; 5.4. Microlenses; 5.5. Quantum efficiency; 5.6. Creating color; 5.7. Defects; 5.8. References -- 6. Sensitivity: 6.1. Responsivity; 6.2. Dark current; 6.3. Maximum signal; 6.4. Noise; 6.5. Dynamic range; 6.6. Photon

transfer and mean-variance; 6.7. Signal-to-noise ratio; 6.8. Noise equivalent inputs; 6.9. Lux transfer; 6.10. Speed - ISO rating; 6.11. References -- 7. Camera design: 7.1. Camera operation; 7.2. Optical design; 7.3. Analog-to-digital converters; 7.4. Image processing; 7.5. Video formats; 7.6. CRT overview; 7.7. Flat panel displays; 7.8. Computer interface; 7.9. References -- 8. Linear system theory: 8.1. Linear system theory; 8.2. Electronic imaging system; 8.3. MTF and PTF interpretation; 8.4. Superposition applied to optical systems -- 9. Sampling: 9.1. Sampling theorem; 9.2. Aliasing; 9.3. Image distortion; 9.4. Array Nyquist frequency; 9.5. CFA Nyquist frequency; 9.6. Reconstruction; 9.7. Multiple samplers; 9.8. References -- 10. MTF: 10.1. Frequency domains; 10.2. Optics; 10.3. Detectors; 10.4. Diffusion; 10.5. Optical crosstalk; 10.6. "Color" MTF; 10.7. Sampling "MTF"; 10.8. Charge transfer efficiency; 10.9. TDI; 10.10. Motion; 10.11. Digital filters; 10.12. Reconstruction; 10.13. Boost; 10.14. CRT display; 10.15. Flat panel displays; 10.16. Printer MTF; 10.17. The observer; 10.18. Intensified CCD; 10.19. References -- 11. Image quality: 11.1. Resolution metrics; 11.2. Optical resolution; 11.3. Detector resolution; 11.4. Electrical resolution metric; 11.5. MTF-based resolution; 11.6. Display resolution; 11.7. Spurious response; 11.8. Observer-based resolution; 11.9. Viewing distance; 11.10. Image reconstruction; 11.11. References -- 12. Range performance: 12.1. Atmospheric transmittance; 12.2. Target contrast; 12.3. Contrast transmittance; 12.4. Range predictions; 12.5. References -- Appendix: f-number -- Index

Formato físico adicional: Also available in print version

ISBN: 1-5106-2711-1

Autores: Lomheim, Terrence S., author

Entidades: Society of Photo-optical Instrumentation Engineers publisher

Punto acceso adicional serie-Título: SPIE Press monograph PM208

Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es