



## A System Engineering Approach to Imaging (SPIE Press Monograph Vol. PM38)

By Norman S. Kopeika

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This textbook addresses imaging from the system engineering point of view, examining advantages and disadvantages of imaging in various spectral regions. Focuses on imaging principles and system concepts, rather than devices. Intended as a senior-year undergraduate or graduate level engineering textbook. A solution manual is included.

#### *Contents:*

- Electromagnetic Waves and Rays
- Imaging
- Radiometry and Photometry
- Sources of Optical Radiation
- Noise
- Detector Concepts and Fundamentals
- Diffraction
- Diffraction-Limited Imaging
- Modulation Contrast Function
- Contrast-Limited Resolution and Target Acquisition
- Noise-Limited Imaging and Target Acquisition
- Human Visual System MTF and Threshold Contrast
- Imaging Devices
- Optical Transfer Functions for Image Motion and Vibration
- Optical Properties of the Atmosphere
- Turbulence MTF
- Aerosol MTF
- Image Restoration
- Effects of Atmospheric Blur and Image Restoration on Target Acquisition

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