

40 Years of History: Active Lighting Techniques and Advances in Computer Vision



Active Lighting and Its Application for Computer Vision: 40 Years of History of Active Lighting Techniques (Advances in Computer Vision and Pattern Recognition)

★★★★★ 5 out of 5

Language : English
File size : 74277 KB
Text-to-Speech : Enabled
Enhanced typesetting : Enabled
Print length : 536 pages
Screen Reader : Supported



Active lighting techniques have been used in computer vision for over 40 years. These techniques involve illuminating a scene with a controlled light source and capturing the resulting images. This information can then be used to reconstruct the 3D structure of the scene, identify objects, and track their motion.

The first active lighting techniques were developed in the early 1980s. These techniques used simple light sources, such as a single flashlight, to illuminate a scene. The resulting images were then processed to extract information about the scene's geometry.

In the late 1980s and early 1990s, more sophisticated active lighting techniques were developed. These techniques used multiple light sources

and more complex illumination patterns. This allowed for the reconstruction of more detailed 3D models and the identification of a wider range of objects.

In the past decade, active lighting techniques have been combined with machine learning techniques to further improve their performance. These techniques can now be used to recognise objects in complex scenes, track the motion of multiple objects, and even generate photorealistic images.

Applications of Active Lighting Techniques

Active lighting techniques have a wide range of applications in computer vision, including:

- 3D reconstruction
- Object recognition
- Motion tracking
- Image segmentation
- Photorealistic image generation

These applications are used in a variety of industries, including:

- Manufacturing
- Healthcare
- Robotics
- Automotive
- Entertainment

Active lighting techniques have come a long way in the past 40 years. These techniques are now used for a wide range of applications in computer vision. As machine learning techniques continue to improve, we can expect to see even more advances in the field of active lighting in the years to come.

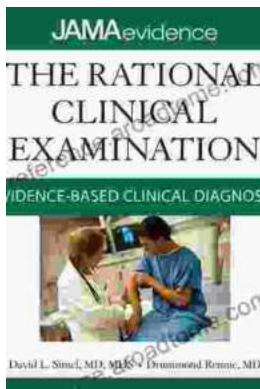
References

1. R.J. Woodham, "Photometric method for determining surface orientation from multiple images," *Optical Engineering*, vol. 19, no. 1, pp. 139-144, 1980.
2. B.K.P. Horn, "Shape from shading: A method for obtaining the shape of a smooth opaque object from one view," PhD thesis, Massachusetts Institute of Technology, 1970.
3. D.J. Kriegman and S. Belongie, "What Can Active Lighting Reveal About Object Shape?," *European Conference on Computer Vision*, vol. 2, pp. 569-582, 2002.
4. Y. Li, M. Ovsjanikov, and L. Guibas, "Multi-view Reconstruction of Shape and Detail from a Single Image," *ACM Transactions on Graphics*, vol. 31, no. 6, pp. 1-11, 2012.
5. T. Zhou, R. Wang, and P. Tan, "Deep Active Learning for Object Detection," *IEEE International Conference on Computer Vision*, pp. 2723-2732, 2017.

Active Lighting and Its Application for Computer Vision: 40 Years of History of Active Lighting Techniques (Advances in Computer Vision and Pattern Recognition)

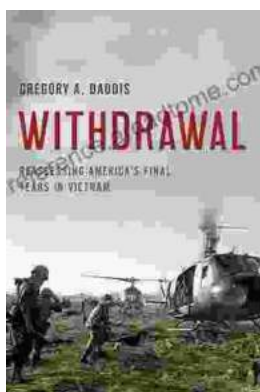


★★★★★ 5 out of 5
Language : English
File size : 74277 KB
Text-to-Speech : Enabled
Enhanced typesetting : Enabled
Print length : 536 pages
Screen Reader : Supported



Unlock the Secrets of Accurate Clinical Diagnosis: Discover Evidence-Based Insights from JAMA Archives Journals

Harnessing the Power of Scientific Evidence In the ever-evolving landscape of healthcare, accurate clinical diagnosis stands as the cornerstone of...



Withdrawal: Reassessing America's Final Years in Vietnam

The Controversial Withdrawal The withdrawal of American forces from Vietnam was one of the most controversial events in American history. The war...