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Computer vision for night-time imagery

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Conventional camera models are based on processing of light and its dispersion into different colors, providing a considerable ease to capture abundant color beauty of daytime scenery. However, the limitation of light creates a natural obstacle for night vision in visible spectrum especially in outdoor environment. Therefore, acquisition, processing and classification of night-time imagery are more challenging and beneficial for around the clock vision. It is equally important to fulfill our dream to achieve smart cities, IoTs, mobile agents and improved AI vision. The purpose of this study is to describe the challenges faced to process night-time imagery and getting meaningful outcomes to solve real-world problems. Few discussion challenges are for image acquisition to operational requirement of information fusion, video stabilization to colorization, tracking to activity recognition at night-time. The breakthrough of deep learning technology has changed the perspective of computer vision and machine learning opening up new doors for vision-enabled devices. We will discuss the new research trends, contributions and future directions in night-vision research.

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