



The study of optimized photography technology and application for UAV

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An unmanned aerial vehicle (UAV), commonly known as a drone. Originating mostly from military applications, used to replace human doing some mission that too dangerous or difficult to reach the local. But now it is rapidly expanding to commercial, agricultural, and scientific applications. However, many modern scientific experiments have begun to use UAV as a tool to collect required data. Their flexibility and simple availability now allow scientist do not need to cost a lot to complete these studies.

The main purpose of this study is to find the most important factors needed to shoot structures using an UAV. It's divided into five factors: fly height, angle, overlap rate, light, and object shape. And set these five factors separately (Fly height is divided into 30cms, 60cms, and 90cms. Cms indicates that the height of the box is 4inches(10cm). Angle is divided into 30°, 60°, 90°. Overlap rate is divided into 40%, 60%, and 80%. Light is divided into 280 lux and 30 lux. Object shape is divided into cube, cylinder and sphere.)

Then, the study use the Bentley system—contextcapture to build 3D models from UAV photos, then take the point cloud, compare orientation, and quantitative for 3D model respectively. The results shows the best conditions of each factor: fly height -60cms, angle -30°, overlap rate -80%, light - 280 lux, shape - cylinder.

Keywords: optimized photography technology, UAV, 3D models