

## The Role of Synthetic Data in Aerial Object Detection

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**Abstract :** The purpose of this study is to explore the characteristics of developing a machine learning application using synthetic data. The study is structured to develop the application for the purpose of deploying the computer vision model. The findings discuss the realities of attempting to develop a computer vision model for practical purpose, and detail the processes, tools, and techniques that were used to meet accuracy requirements. The research reveals that synthetic data represents another variable that can be adjusted to improve the performance of a computer vision model. Further, a suite of tools and tuning recommendations are provided.

**Keywords :** computer vision, machine learning, synthetic data, YOLOv4

**Conference Title :** ICMATLT 2021 : International Conference on Marine, Aviation, Transport, Logistics and Trade

**Conference Location :** Amsterdam, Netherlands

**Conference Dates :** September 16-17, 2021