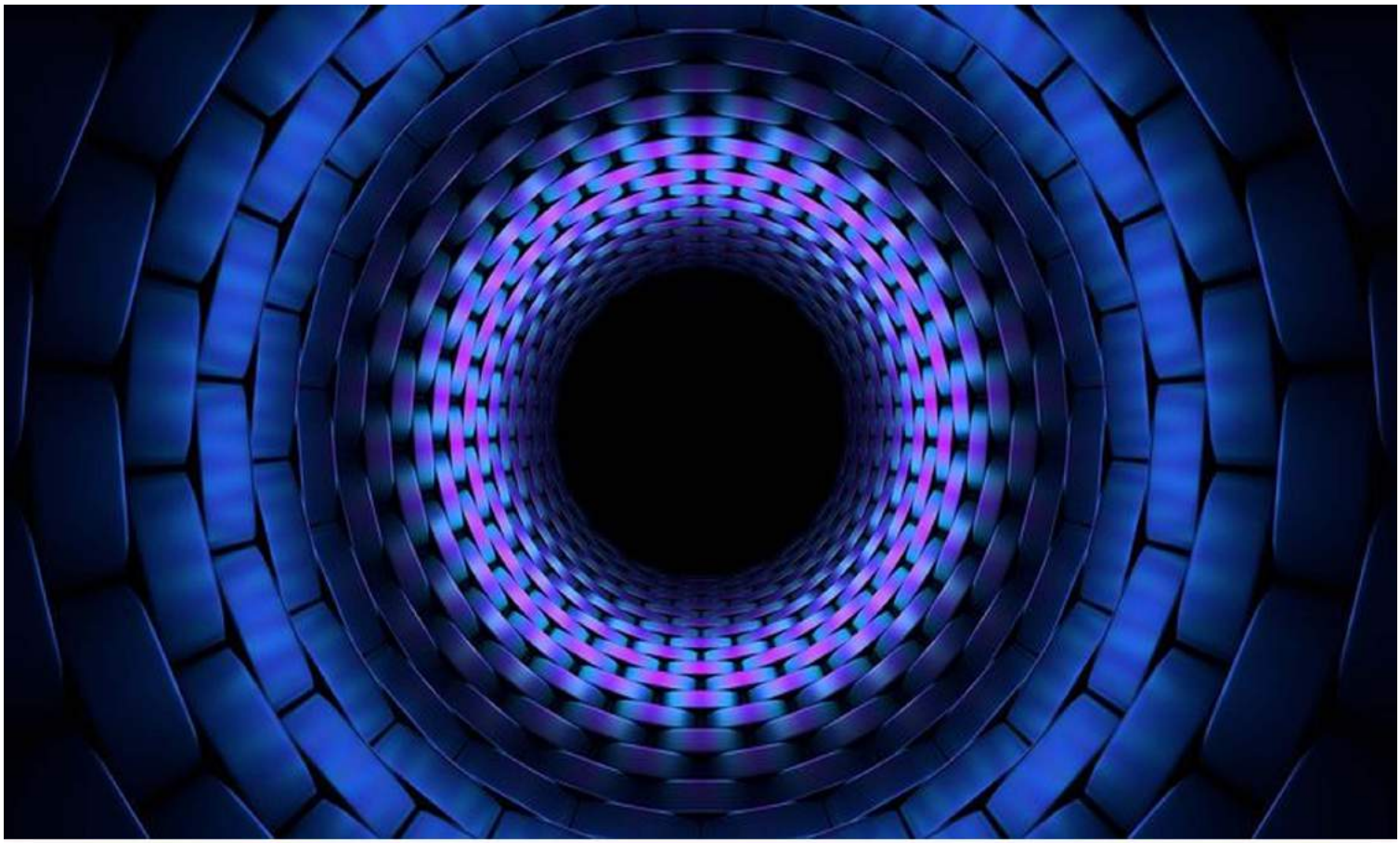

CNN Models

Robust Techniques for Target Detection

Dr. Sudhir Kumar Chaturvedi

CNN Models: Robust Techniques for Target Detection

First Edition

Author

Dr. Sudhir Kumar Chaturvedi

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Abstract

Object detection is a crucial task for drones, as it enables them to identify and track targets in real-time. However, detecting objects from drones is challenging due to instability, low resolution, and other factors. This project aimed to develop machine learning algorithms to enhance the object detection capabilities of drones.

The project used a raw dataset of images of drones and birds from Kaggle to train the machine learning algorithm. The images were labeled to prepare the dataset, and the algorithm was trained to detect the presence of birds and drones in the images. The final model achieved an accuracy of 85% and could identify targets in real-time, along with bounding boxes, machine learning model developed in this project has significant implications for the drone industry. By improving the object detection capabilities of drones, it can help both commercial and defense industries to identify different objects like people, cars, weapons, birds, and enemy drones.

The implementation of machine learning for object detection in drones can make them more multifunctional, fast, and efficient. This can help in various applications, such as surveillance, agriculture, and wildlife monitoring.

This project demonstrates the potential of machine learning for enhancing the object detection capabilities of drones. By developing more accurate and effective models, drones can quickly and efficiently identify targets, which can have significant benefits in various industries.

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"In the end, I would like to acknowledge Lord Shri Krsna, my parents, my wife and my daughters. Without their support, this work would not have been possible"

Dr. Sudhir Kumar Chaturvedi

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ABOUT THE AUTHOR

Sudhir Kumar Chaturvedi is an academician and researcher in Aerospace & Avionics domain at UPES Dehradun, India. His area of research is in Aeronautical Technologies, Avionics, Defence systems studies, Radars for target detection and its modelling in coherent and noncoherent media. His expertise also lies in deep space communication and navigational technologies. Dr. Chaturvedi had a great involvement in many activities correlated to students' engagements and enrichments which directly impacted on the benefits to the society. Dr. Chaturvedi published more than 45+ Scopus/SCI/WoS papers in various journals and conferences of National and International reputes. Conducted and delivered many Industrial/ academics lectures for the students for their benefits and engagements. Dr. Chaturvedi was also involved in various administrative activities specially the outreach and academic administrations. Dr Chaturvedi is SMIEEE, LMISRS, LM AeSI and is the BoS of many Universities in India for the padagogy developments and deliverances of the quality aerospace education in India. Dr. Chaturvedi is enlisted in top 2 % scientists in the world for year 2023, as the list released by Stanford University, USA.

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