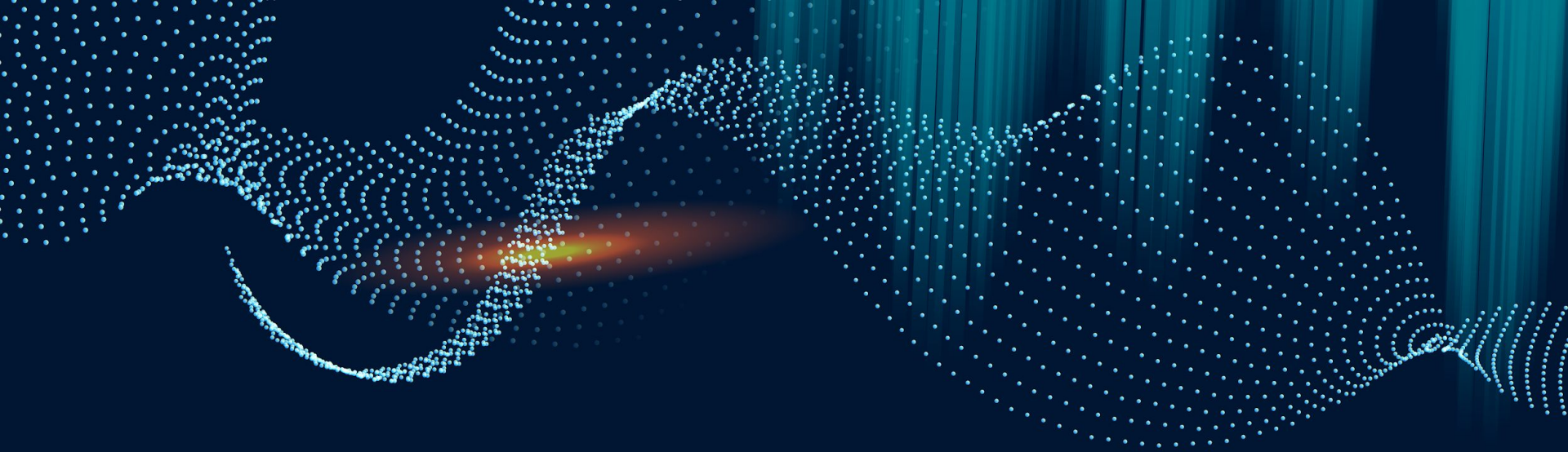
Traffic Violation Prediction

Violation of not wearing a helmet

Table of Content



01 Data

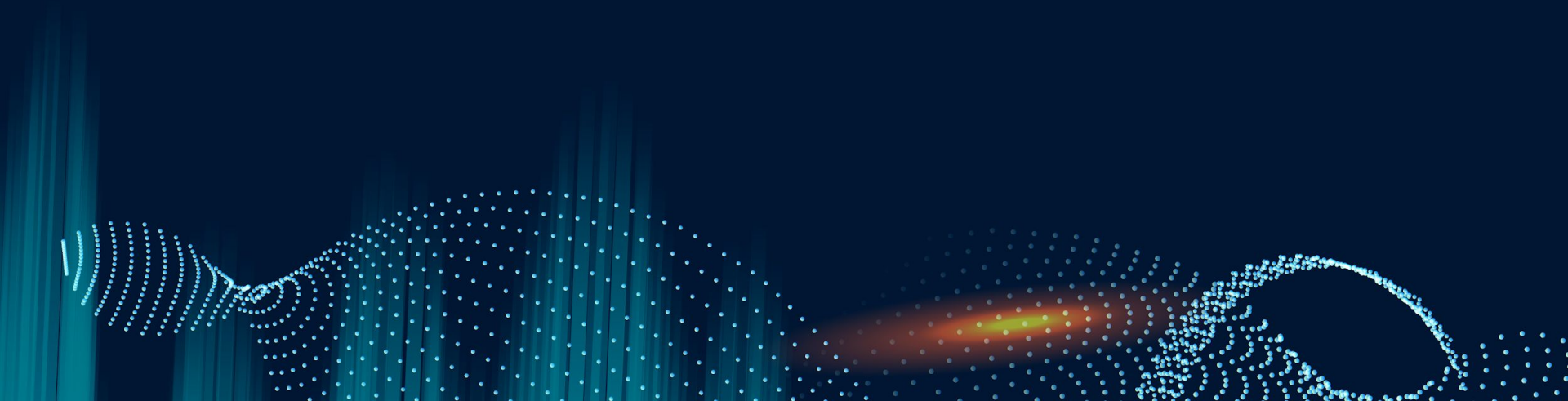
Data Loading & Preprocessing

01 | Data

Selected a Dataset from Kaggle....

Traffic Violation (Dataset)	Helmet	No Helmet
Training	600 img	600 img
Validation	600 img	600 img

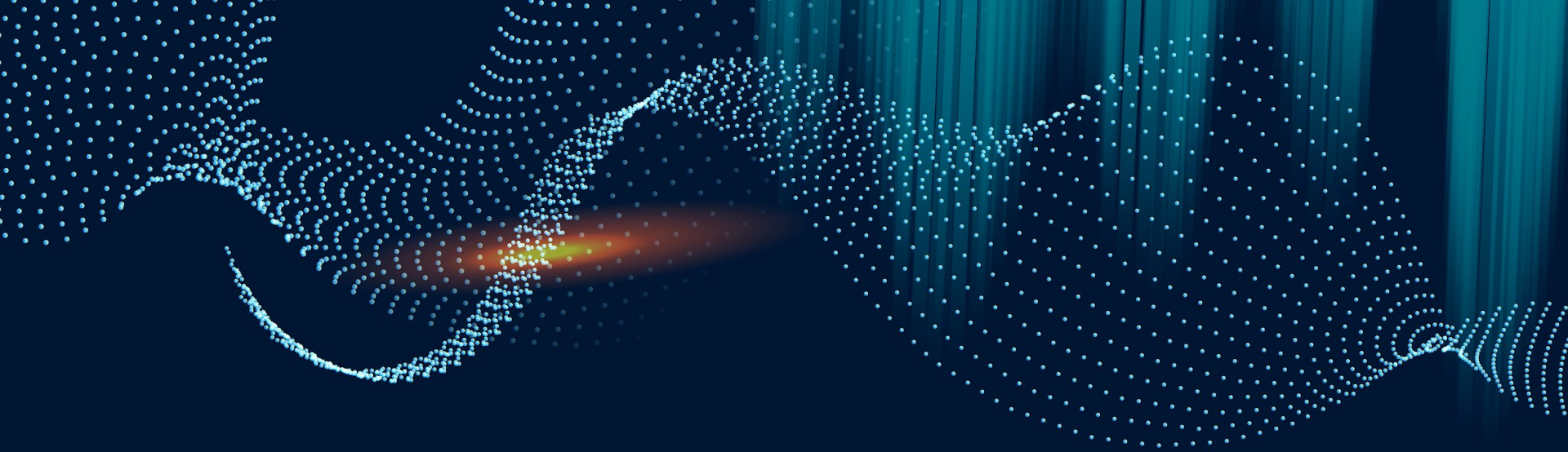
We used class_mode='binary' because we have classification dataset



Data Augmentation

Used ImageDataGenerator

To Rescale and Preprocessing



02 Model

Design and implement CNNs

Why CNNs Model ?

Widely used in image processing

Extract features from images

Recognizing patterns

Object detection

Tools we used

Tensorflow

End-to-end open source machine learning platform

Keras

It’s a gas giant and the biggest planet in the Solar System

Google Colab

Colab is a hosted Jupyter Notebook service

Building the model

- Keras Sequential API
- Input Layer: 32x32 pixels with 3 color channels (RGB)
- Three Convolutional Layers using ReLU activation function
- Pooling Layers comes after each convolutional layer
- Flatten layer used to convert the 2D output of the convolutional layers into a 1D feature vector
- A Dense layer with ReLU activation is added
- A Dropout layer with a dropout rate of 0.2 is included for regularization
- Final Dense layer with a single unit and a sigmoid activation function

03 Regularization

Prevent Overfitting

Challenge !

We faced an overfitting

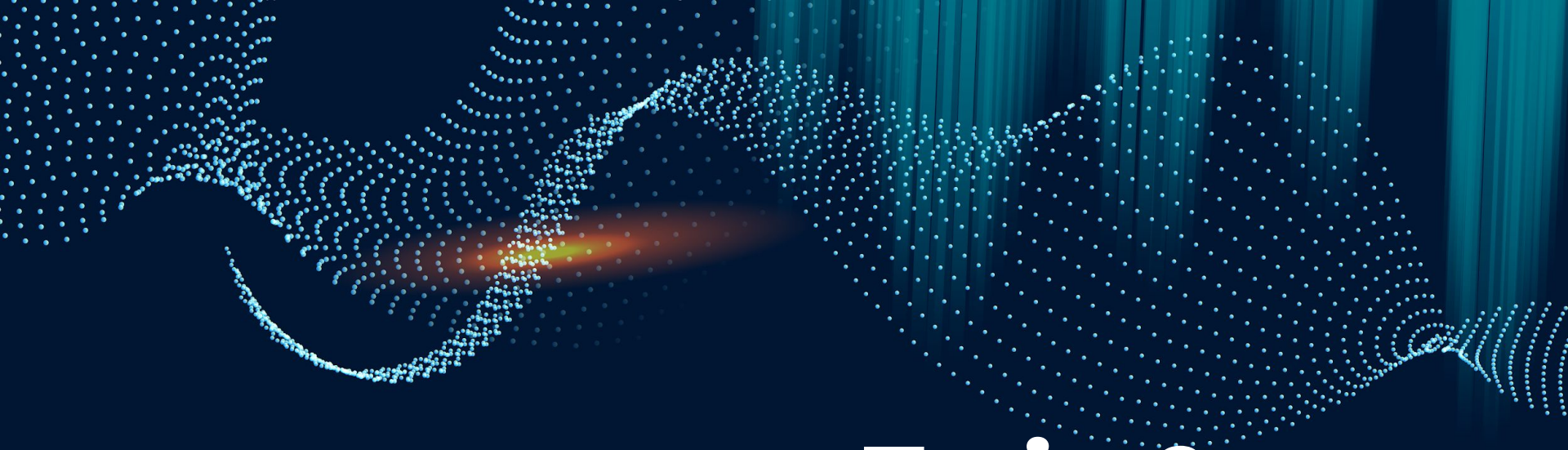
Training Accuracy = 1

Validation Accuracy = 0.67

- Regularization by

  Early Stopping

- DropOut



04

Train & Evaluate

Monitoring & Evaluate accuracy and loss

Train & Evaluate The Model

Accuracy Metrics

Accuracy is typically used for classification tasks to monitor how well the model is performing in terms of correct classifications.

Train & Evaluate The Model

Number of code runs	Accuracy	Loss
First	0.75	0.72
Second	0.85	0.41
Third	0.92	0.36
Fourth	0.82	0.44
Fifth	0.82	0.49
Accuracy Average	0.832	
Loss Average	0.484	

Thank you for listening!

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