

KLEF Deemed to be University

DEPARTMENT OF ECE

REPORT ON SIL EVENT CONDUCTED BY TEACH A MACHINE CLUB

OPEN CV_Series 1: OBJECT DETECTION

Date-04/01/24

Venue- R204



(DEEMED TO BE UNIVERSITY)

FACULTY IN-CHARGES

Dr.E.KIRAN KUMAR

Dr.P.V.V.KISHORE

STUDENT CO-ORDINATORS

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OPEN CV SERIES 1: OBJECT DETECTION

BY
TEACH A MACHINE CLUB



JOIN THE GROUP



FACULTY IN-CHARGES
DR. E. KIRAN KUMAR
DR. P.V.V. KISHORE

- <https://t.me/+kLJs3S6h2FNIMjFI>

DATE: 04th JAN
TIME: 5:20PM
VENUE : R204

STUDENT CO-ORDINATORS
P.ABBAS ALI (7674861974)
G.SUBHANG (7780156322)
T.PRASHANTH (7702245679)

Objective of OpenCV Object Detection Workshop:

The objective of the OpenCV Object Detection Workshop is to provide participants with a comprehensive understanding of object detection techniques using the OpenCV library. Throughout the workshop, participants will learn the following key objectives:

Fundamental Concepts: Gain a solid understanding of the fundamental concepts of object detection in computer vision, including image representation, feature extraction, classification, and bounding box localization.

OpenCV Library: Learn how to leverage the OpenCV library, a powerful open-source computer vision and machine learning software library, for implementing object detection algorithms.

Detection Algorithms: Explore different object detection algorithms such as Haar cascades, Histogram of Oriented Gradients (HOG), and deep learning-based approaches like Single Shot MultiBox Detector (SSD) and You Only Look Once (YOLO).

Training Custom Models: Understand the process of training custom object detection models using labeled datasets and popular deep learning frameworks like TensorFlow and PyTorch.

Performance Evaluation: Learn techniques for evaluating the performance of object detection models, including metrics such as precision, recall, and mean Average Precision (mAP).

Real-World Applications: Explore real-world applications of object detection across various domains, including autonomous vehicles, surveillance systems, robotics, retail analytics, and augmented reality.

Hands-on Experience: Engage in hands-on coding exercises and projects to implement object detection algorithms, fine-tune pre-trained models, and deploy object detection systems in practical scenarios.

Optimization and Deployment: Learn techniques for optimizing object detection models for real-time performance and deploy them on edge devices or cloud platforms.

Best Practices: Understand best practices in object detection, including data preprocessing, model selection, hyperparameter tuning, and post-processing techniques for improving detection accuracy.

Collaboration and Networking: Foster collaboration and networking among participants, providing opportunities to share insights, discuss challenges, and explore innovative solutions in the field of object detection.

Description of OpenCV Object Detection Workshop:

Introduction to Object Detection: The workshop begins with an introduction to object detection, explaining its significance in computer vision applications such as autonomous driving, surveillance, and image analysis.

Basic Concepts and Algorithms: Participants delve into fundamental concepts like image representation, feature extraction, and classification algorithms used in object detection. They also learn about popular algorithms like Haar cascades, Histogram of Oriented Gradients (HOG), and deep learning-based models.

Hands-on Coding Sessions: Practical sessions are an integral part of the workshop, where participants get hands-on experience implementing object detection algorithms using OpenCV. They learn to detect and localize objects in images and videos, understanding the code structure and parameter tuning.

Custom Model Training: A significant focus is placed on training custom object detection models. Participants learn how to collect and label datasets, preprocess data, train models using TensorFlow or PyTorch, and evaluate model performance.

Performance Evaluation: The workshop covers techniques for evaluating the performance of object detection models, including metrics like precision, recall, and mAP. Participants learn how to analyze model results and optimize them for better accuracy.

Real-world Applications: Practical use cases of object detection are discussed, showcasing how it's used in industries such as automotive, retail, healthcare, and security. Participants explore case studies and understand the impact of object detection technology.

Optimization and Deployment: Strategies for optimizing object detection models for real-time performance and deploying them on different platforms are explored. Participants learn about model compression, quantization, and deployment on edge devices or cloud infrastructure.

Best Practices and Challenges: The workshop addresses best practices in object detection, including data augmentation, model selection, hyperparameter tuning, and dealing with challenges like occlusions, scale variations, and complex backgrounds.

Outcome of the OpenCV Object Detection Workshop:

1. **Comprehensive Understanding:** Participants gain a comprehensive understanding of object detection techniques, algorithms, and methodologies used in computer vision applications.
2. **Practical Skills:** By engaging in hands-on coding sessions, participants develop practical skills in implementing object detection algorithms using the OpenCV library.
3. **Custom Model Development:** Participants learn how to collect, label, preprocess data, and train custom object detection models, enabling them to tackle specific use cases effectively.
4. **Performance Evaluation:** Participants acquire skills in evaluating model performance using metrics such as precision, recall, and mean Average Precision (mAP), allowing them to assess and improve the accuracy of their object detection systems.
5. **Real-world Applications:** Understanding real-world applications of object detection across various domains helps participants envision and apply their knowledge in solving practical problems.
6. **Optimization Techniques:** Participants learn optimization techniques to enhance the speed and efficiency of object detection models, making them suitable for real-time applications and resource-constrained environments.
7. **Deployment Strategies:** The workshop equips participants with strategies for deploying object detection models on edge devices or cloud platforms, ensuring their models can be integrated into production systems.
8. **Collaborative Learning:** Through interactive sessions and networking opportunities, participants engage in collaborative learning, sharing insights, discussing challenges, and exploring innovative solutions with peers and instructors.
9. **Certificate of Achievement:** Upon successful completion of the workshop, participants receive a certificate of achievement, recognizing their expertise in OpenCV-based object detection.
10. **Empowered Skills:** Overall, the outcome of the workshop empowers participants with the knowledge, skills, and confidence to develop, evaluate, optimize, and deploy robust object detection systems using OpenCV, contributing to their professional growth in the field of computer vision and machine learning.

GEO Tagged Photos




No of students attended the Event - 77

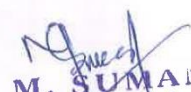
Students Attended

04.01.2024

S.NO	Student ID	Full Name	Signature
1	2200030013	VUTLA DHANUSH	Dhanush
2	2200030058	MYLA LAKSHMI NARAYANA	Narayana
3	2200030075	GOLLA KRISHNA KARTHIK	Karthik
4	2200030342	DAMARLA LOKESH SAI ANJANI PRASAD	Sai Anjan
5	2200030541	KOPPURAVURI DURGA HARSHINI	Harshini
6	2200030640	JUPALLI TEJENDRA VINAY KUMAR	Vinay Kumar
7	2200030652	LINGAREDDY RUSHMITHA	Rushmitha
8	2200030701	RACHUMALLU NAGA PRAVALIKA	Pravalika
9	2200030994	KANTIPUDI DATTA SIVA SUDARSHAN CHOWDARY	Sudarshan Chowdary
10	2200031026	VEGESNA KUMAR DURGA ABHIRAMA RAJU	Abhiram Raju
11	2200031037	APPASANI BHASKAR	Bhaskar
12	2200031078	ACHANTA BHARGAV SRI ABHIRAM	Abhiram
13	2200031082	GANGUMALLA SATYA PRASANNA	Satya Prasanna
14	2200031144	GURRAM HEMA PREETHI	Preeti
15	2200031146	NADIMPALLI GEETHIKA SAI SWETHA	Sai Swetha
16	2200031196	GANNENA GEETHA SAMEERA	Sameera
17	2200031201	KUNAM NIHARIKA	Niharika
18	2200031208	BOPANA DEVI AKSHAYA	Akshaya
19	2200031269	MUDUNURI SAI KRISHNA RAJU	Krishna Raju
20	2200031298	BANDARU MANI HARIKA	Mani Harika
21	2200031320	KANKIPATI ABHIRAM VARMA	Abhiram Varma
22	2200031416	MUDUNURI MANOJ VARMA	Manoj Varma
23	2200031441	MUKKAPATI JHANSI	Jhansi
24	2200031460	VADAPALLI ASRITH VARDHAN	Vardhan
25	2200031463	LANKIPALLI KANTHIKIRAN	Kanthikiran
26	2200031568	INGUVA ADITYA KARTHIKEYA	Aditya
27	2200031580	KATTA HARSHITH	Harshith
28	2200031614	YALAVARTHI PRAVALLIKA	Pravalika
29	2200031830	PAVANI SATHWIK	Sathwik
30	2200031850	SRUNGARAKAVI SIDDARTHA	Siddhartha
31	2200031853	MENDALA DHANUSHA	Dhanusha
32	2200031882	MATCHA SAI SUJAN	Sai Sujan
33	2200031969	CHEPURU MOHAN KRISHNA	Mohan Krishna
34	2200031988	AAKULA VENKATA VISHNU VARDHAN	Vardhan
35	2200031993	UPPALAPATI CHARITH KUMAR	Charith Kumar
36	2200031997	PINJALA GEETHA SREE	Geetha Sree
37	2200032032	SONTIREDDY MAHITHA	Mahitha
38	2200032115	KUPPALA AKASH	Akash
39	2200032116	MANDAVA TARUNI	Taruni
40	2200032124	MUDUNURI PRASHANTH	Prashanth
41	2200032221	BATTU BHARATH KUMAR	Bharath Kumar
42	2200032235	MARNI TARUN SANDEEP	Sandeep
43	2200032462	NELLURI PRAJITH	Prajith
44	2200032504	TARUN KUMAR GARLAPATI	Tarun Kumar

45	2200032547	UPPADA GIRIDHAR	U. Giridhar
46	2200032633	PEELA VASUNDARA	P Vasundara
47	2200032679	KADAMBALA GUNASHREE	K Gunashree
48	2200032847	GRANDHE YASASHWI	Yasashwi
49	2200032943	DEVARAJUGATTU SHRI RAM NAGA SAI VIGNESH	Clayton
50	2200032948	MANASANI CHARAN SAI	Charan Sai
51	2200032951	SODANAPALLI SAI LOHITH REDDY	harshith
52	2200032952	KATAKAM HARSHITH GUPTA	Harshith Gupta
53	2200033092	ANANYA SINHA	Sinha
54	2200033099	BANDARU GANESH ATCHYUTH	hemavathi
55	2200033204	BOJJA HEMANVITH	B. hemanvith
56	2200033231	MANCHURI PURUSHOTHAM	Purushotham
57	2200033238	GOGIKARU SAI DHANUSH	Dhanush
58	2200033283	R PAVANI	R Pavani
59	2200039011	GUDAPATI DEVARSHI	Devarshi
60	2200040052	VEGESNA BHAGAVAN MANIKANTA VARMA	Varma
61	2200040053	VEGESNA INDRA VENKATA DURGA VARMA	Durga Varma
62	2200040089	MANE NAGA SREE SAI CHARAN	Sai Charan
63	2200040326	TENTU SAI CHARAN	Sai Charan
64	2200040331	KUSUMANCHI VENKATA SAI AKHIL	Sai Akhil
65	2200049055	CHITUMADUGULA RAJA SRIMANTH	Srimanth
66	2200080016	VARRE ROOPA BHANU	Roopa Bhanu
67	2200080022	MUDUNURI NAGA KALI PRANEETH VARMA	Praneeth
68	2200080051	KOTA RAMYA MADHURI	Madhura
69	2200080052	VISHNUMOLAKALA RAJPUNITH KRISHNA	Rajpunith Krishna
70	2200080081	GANDAM NAGA PAVANA JHASHKETHAN	Jhashkethan
71	2200080112	SURI PRANEETH KUMAR	Praneeth Kumar
72	2200080129	SAGINALA SRAVANTHI	Sravanthi
73	2200080197	BIJJA NAGAPHANENDRA	Phanendra
74	2200080199	MUNNANGI DEEPAKA SAI REDDY	Sai Reddy
75	2200080202	MANDLA RUSHIKETHAN	Rushikethan
76	2200080210	MOPADA SAYE DEKSSHITH	Deekshith
77	2210080017	MUNGAMURU VENKATA ABHISHEK	Abhishek


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In charge


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