ApproxDet: Content and Contention-Aware Approximate Object Detection for Mobiles

ApproxDet is an advanced mobile-integrated video analytic system for object detection that provides higher accuracy and significantly reduced latency compared to existing solutions, ideal for applications like autonomous driving and manufacturing automation.

Researchers at Purdue University have developed an advanced video analytic system for content and contention-aware object detection that can be integrated via mobile devices, known as AppoxDet. ApproxDet has applications in solving problems pertaining to machine vision and object identification where compute resources are constrained. ApproxDet offers a multi-branch detection kernel that features a data-driven modeling approach based on real-time performance metrics along with a latency scheduler to allow changes to execution branches once objects are detected. Further, a content-aware feature extractor is integrated to determine the height and width of objects while a contention sensor determines resource levels and availability for user connectivity. Applications include autonomous driving, process or manufacturing automation, agriculture, and more.

Technology Validation: This technology has been validated by benchmarking the system against AdaScale and YOLOv3. ApproxDet offered 52% lower latency and 11.1% higher accuracy.

Advantages

-More accurate than existing solutions

-Reduced latency through scheduling and changeable execution branches

-Ideal for mobile applications

-Adaptive user interface

Applications

-Autonomous driving, vehicle and traffic management

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Category
Artificial Intelligence & Machine Learning/Computer Vision & Image Recognition
Robotics & Automation/Autonomous Systems & Perception AI

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View online

-Process/manufacturing automation

-Agriculture

-Medical

-Augmented Reality

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