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Computer vision and edge computation

Athira M
Docker Vision, India

Computer vision is an application of machine learning and artificial intelligence that uses information from digital images and videos to make meaningful decisions. Computer vision, like most machine learning systems, requires a large amount of data to train algorithms to interpret this data. Visual information is required for computer vision systems to learn and function. To make decisions, it will combine machine learning approaches with hardware such as cameras, optical sensors, and so on.

Deployment of computer vision application can be cloud based, which is very expensive in terms of cost, latency and also poses security risk. The other solution is to deploy it on edge devices. Edge devices are small, lightweight, devices on which a computer vision application can be deployed and run. Many edge devices today even have a Graphical Processing Unit (GPU), or Visual Processing Unit (VPU), which enable usage of a greater range of models and application complexity. All the processing takes place on the edge device itself creating a fast and secure application.

For catastrophic tasks like autonomous vehicles where decisions have to be taken in real-time, edge devices is really a boom. Multi camera based applications require additional processing like synchronization between streams which will be costly if processed on cloud. Hence edge computation has many advantages compared to cloud computation.

Edge computation comes with its own disadvantages as well. When it comes to scalability, it relies on the power of edge device. To make the edge computation more scalable, different methodologies like containerization has to be adopted which will make CV applications easier to develop and deploy, as well as scalable for production.

Biography

Athira M is the Chief Technology Officer of Docker Vision, an AI based technology company focusing on Rail and Port automation. She is a Data Scientist by profession with 6+ years of experience in the industry. She holds a master's degree in Computational Linguistics. She has also a received UGC-NET and GATE. She is passionate about Data Science. She has hands on experience on working in many real-time projects like Autonomous Checkout for stores, Autonomous vehicles and so on.

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Page 3