
Strategies for optimizing computational efficiency in industrial computer vision

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Résumé

While professional GPUs now offer vastly increased memory capacity, computational power, and energy usage-sometimes reaching up to 1000W-not all applications demand such robust specifications. For tasks such as segmentation of small images, solutions like virtual GPU partitioning are available; for example, Nvidia's Multi-Instance GPU (MIG) technology enables a single GPU to be split into several smaller instances. Simultaneously, the advancement of foundation models has resulted in solutions so sophisticated that, in certain scenarios, they can be deployed without additional fine-tuning. For instance, leveraging DinoV3 for computer vision embeddings, in combination with lightweight downstream tasks, can eliminate the need for resource-intensive pre-training routines.

Biographie:

Lionel Boillot serves as an AI scientific advisor specializing in High Performance Computing. His expertise encompasses Computer Vision and Scientific Machine Learning. He obtained his PhD in applied mathematics from Inria, France, in 2014. Since 2017, Lionel has been employed at TotalEnergies Company as a computer science engineer and innovation leader.

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