

Tech World '18

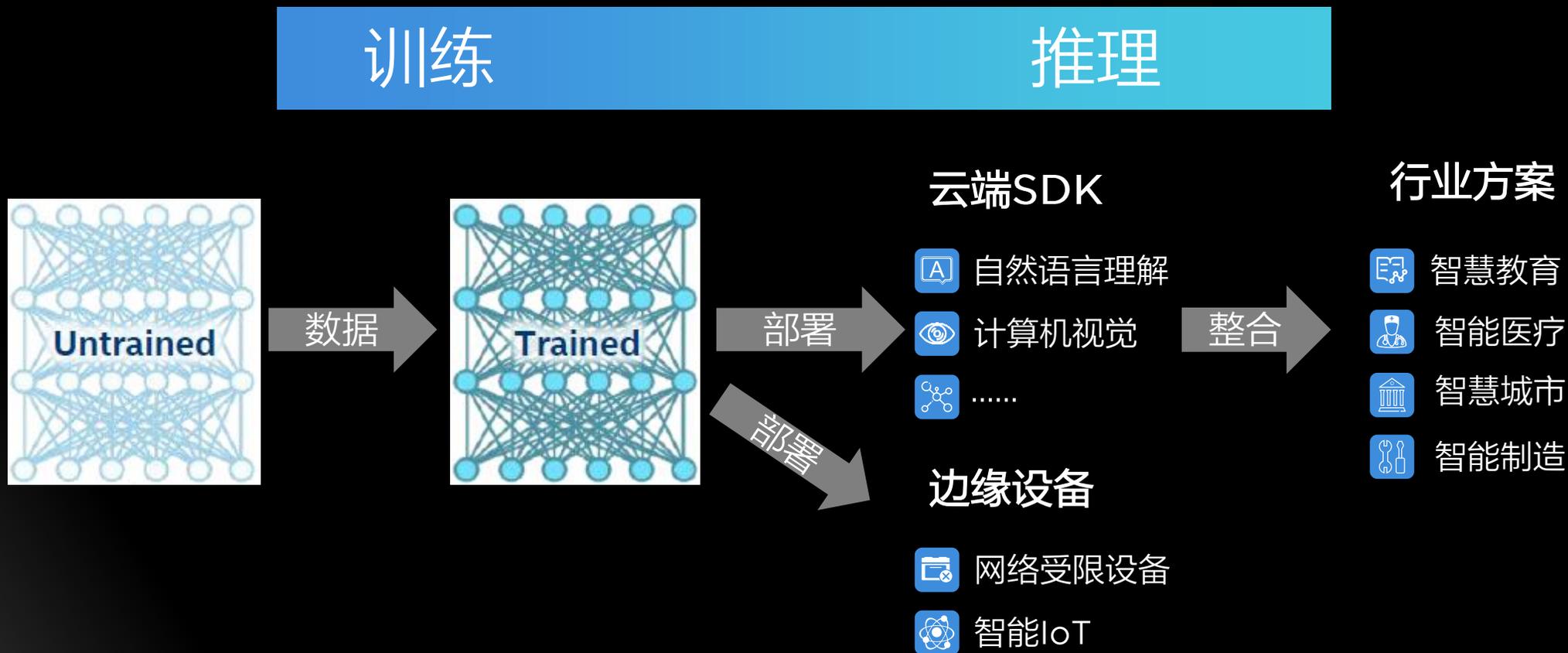
炼AI大师

王奇刚 | 2018.09.26

联想

Lenovo

模型训练是AI的基础



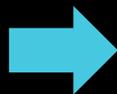
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- 软硬件一体化的多用户AI训练解决方案



为什么需要分布式训练？

单节点训练
数月/数周



分布式训练
几天/几小时

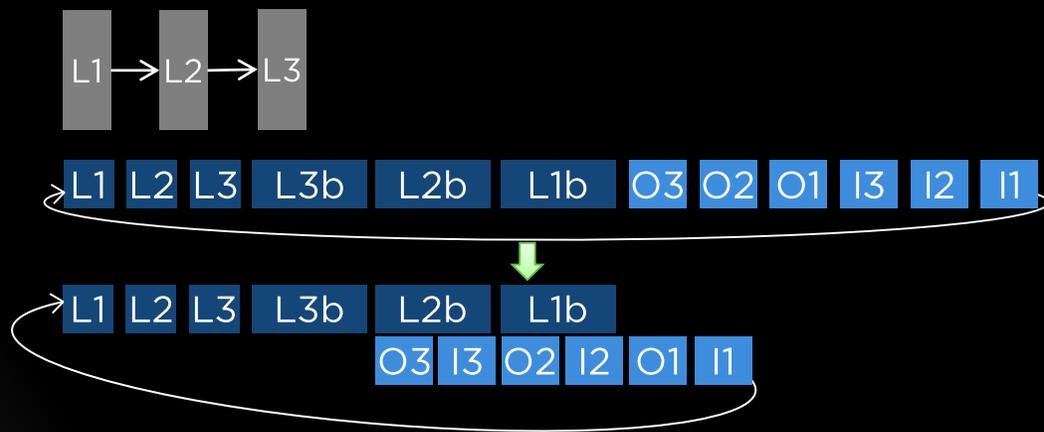


一些例子：

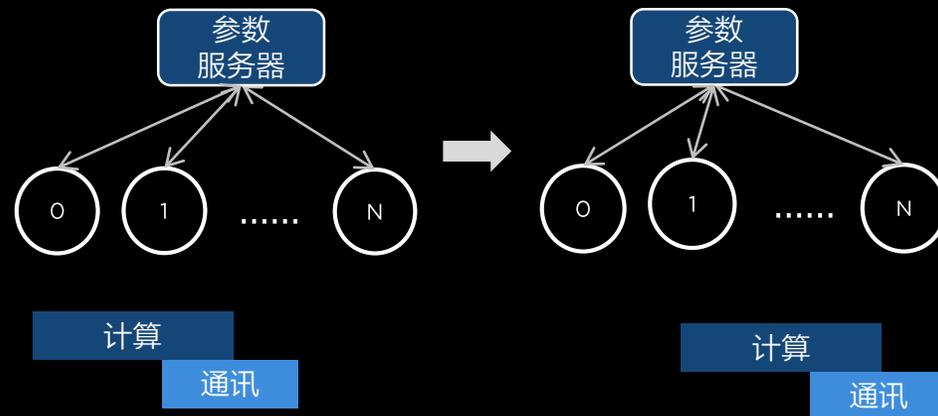
- Google - 用96块GPU训练翻译模型（一周）
- Facebook - 用256块GPU训练Resnet-50模型和imagenet-1K（一小时）
- IBM - 用256块GPU训练Resnet-50模型和imagenet-1K（50分钟）

联想分布式训练技术

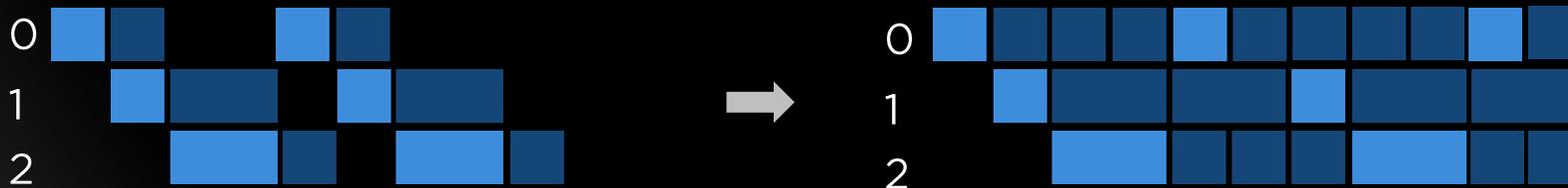
• 免等待后向计算

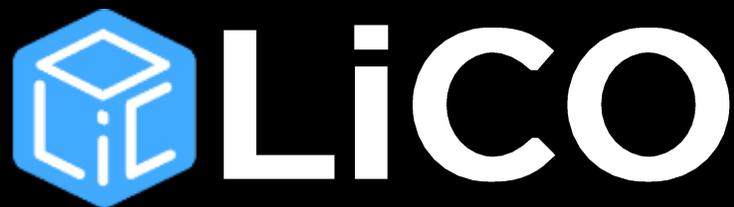


• 梯度压缩



• 动态延迟循环梯度更新





Lenovo intelligent Computing Orchestration

为HPC/AI提供强大算力



联想加速AI

标准AI

HPC

General

JJ

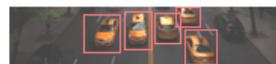


Image Classification

Image classification analyzes the numerical properties of various image features and organizes data into categories.

训练

推理



Object Detection

Object detection is the process of finding instances of real-world objects such as faces, bicycles, and buildings in images or videos.

训练

推理



Instance Segmentation

Instance segmentation is the problem of detecting and delineating each distinct object of interest appearing in an image.

训练

推理



Medical Image

Using semantic segmentation (a type of image classification) associated with each pixel. The labels are the regions, which correspond to the scene or "stuff".

训练

推理



Seq2Seq

Seq2Seq model uses a multilayered Long Short-Term Memory (LSTM) to map the input sequence to a vector of a fixed dimensionality, and then another deep LSTM to decode the target sequence from the vector. Seq2Seq is a popular way to solve translation problem.

训练

推理



Memory Network

Most tasks in NLP can be cast into question answering (QA) problems over language input. Memory network is a neural network architecture which processes input sequences and questions, forms episodic memories, and generates relevant answers.

训练

推理



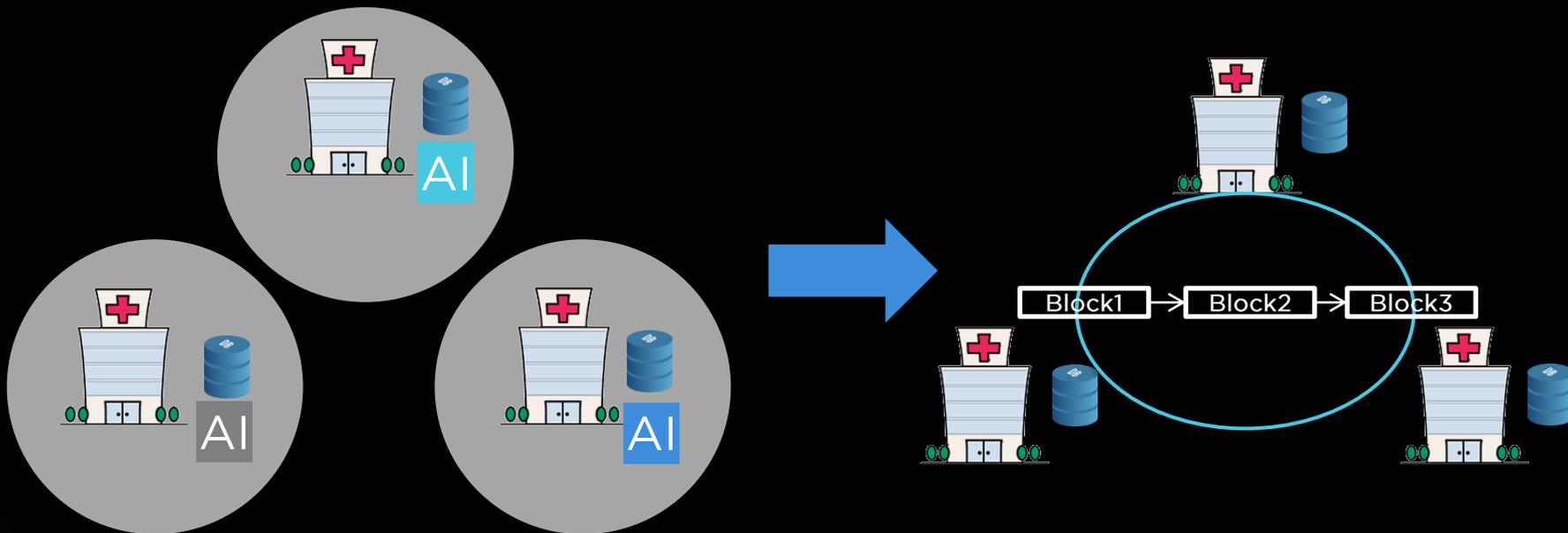
Image GAN

Deep Convolutional Generative Adversarial Networks(DCGAN) are a class of CNN and one of the first approaches that made GANs stable and usable for learning features from images in unsupervised learning.

训练

推理

基于区块链的分布式训练



- 数据隐私
- 缺乏动力

- 共享知识而非数据
- 挖矿→模型训练

thanks.

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