

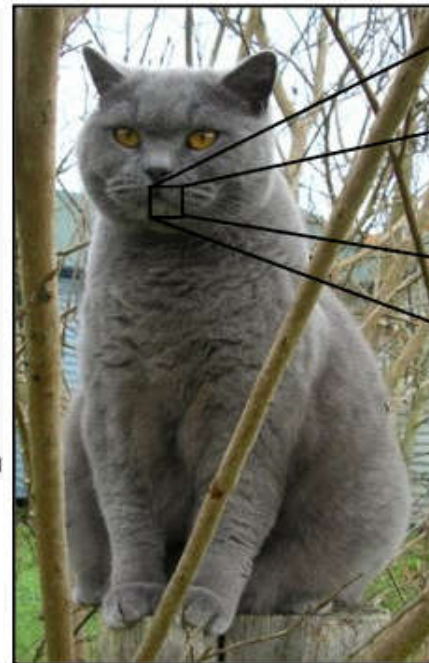
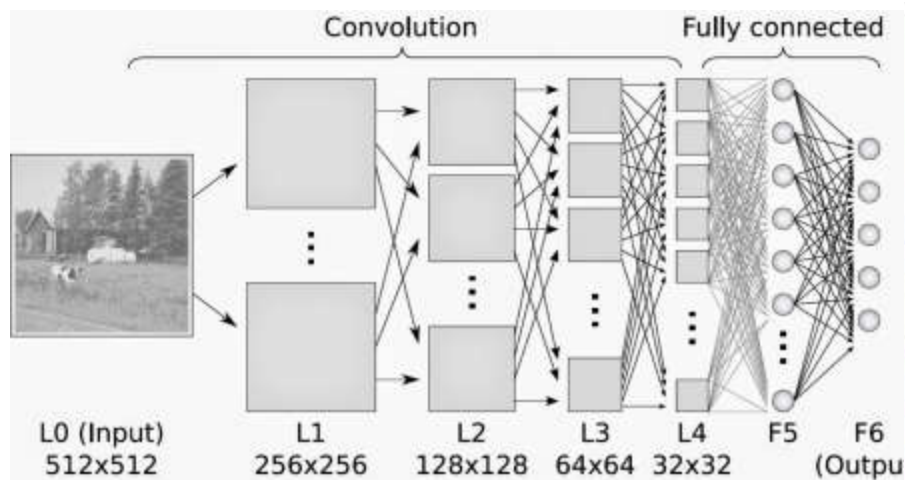


Novas Perspectivas e Tecnologias Disruptivas em Processamento de Sinais

Ricardo L. de Queiroz
Universidade de Brasília



Redes neurais convolutivas (deep learning)



What the computer sees

ImageNet Dataset

IMAGENET

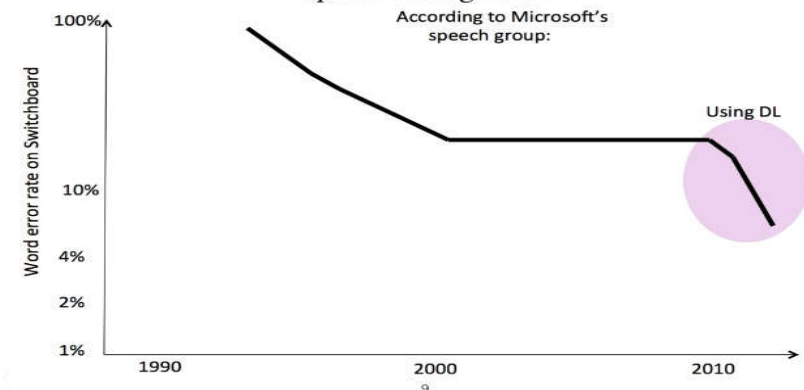


Russakovsky, O., Deng, J., Su, H., Krause, J., Satheesh, S., Ma, S., ... & Fei-Fei, L. (2015). [Imagenet large scale visual recognition challenge](#). *arXiv preprint arXiv:1409.0575*. [\[web\]](#)

image classification → 82% cat
15% dog
2% hat
1% mug

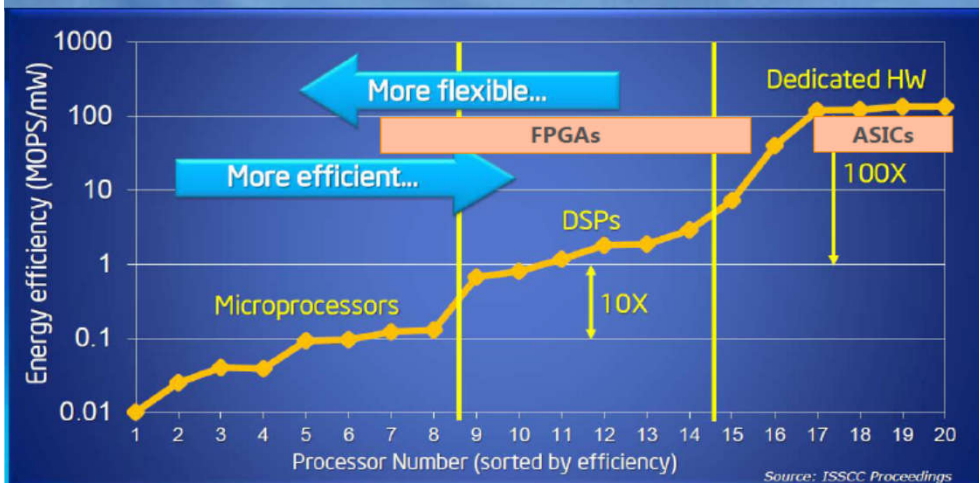
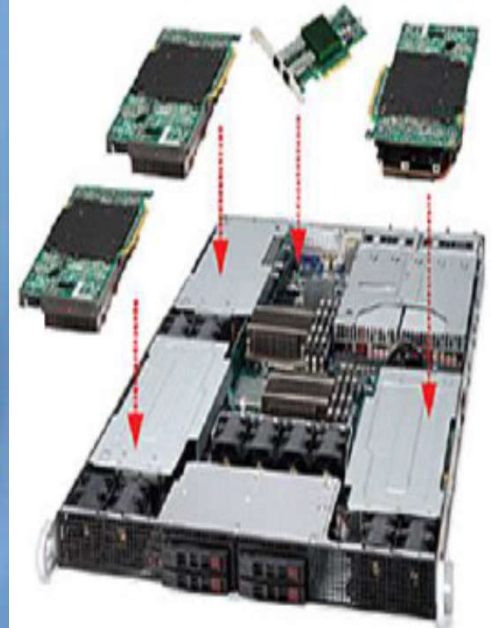
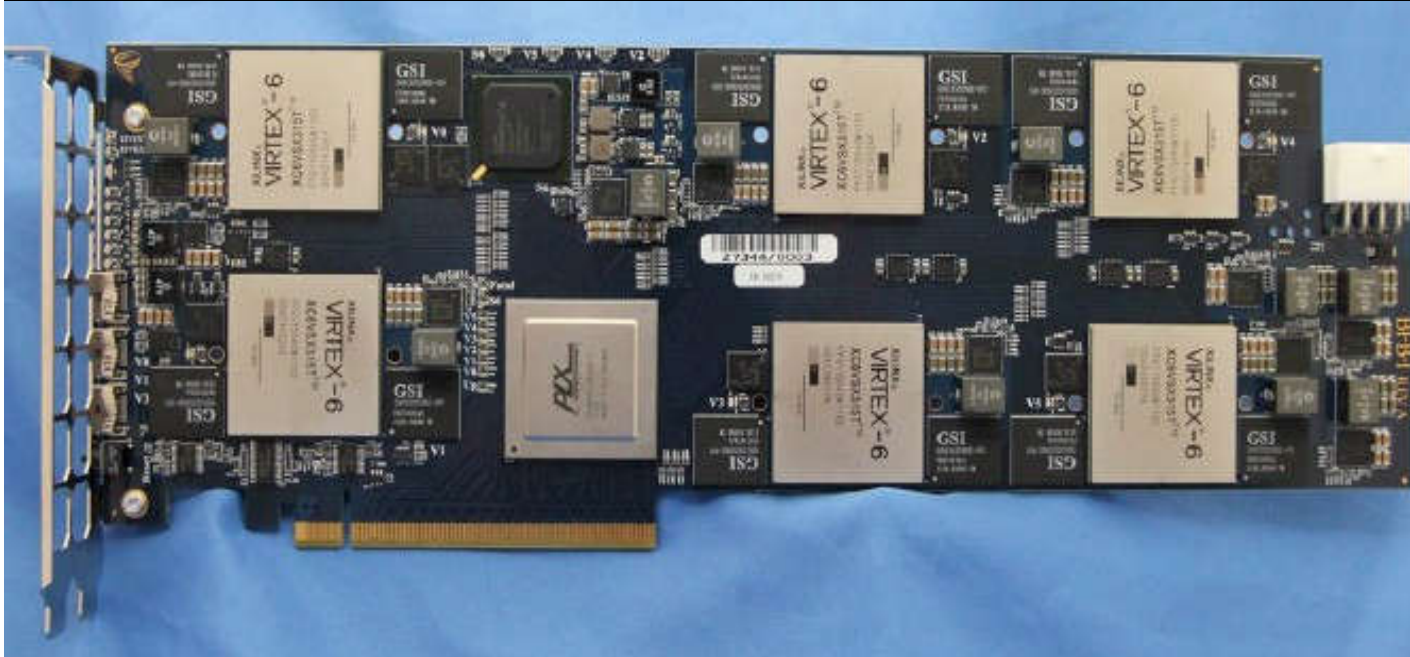
DL: Impact

Speech Recognition
According to Microsoft's
speech group:





Computação customizada



GPUs on Google Cloud



AMD FirePro S9300 x2



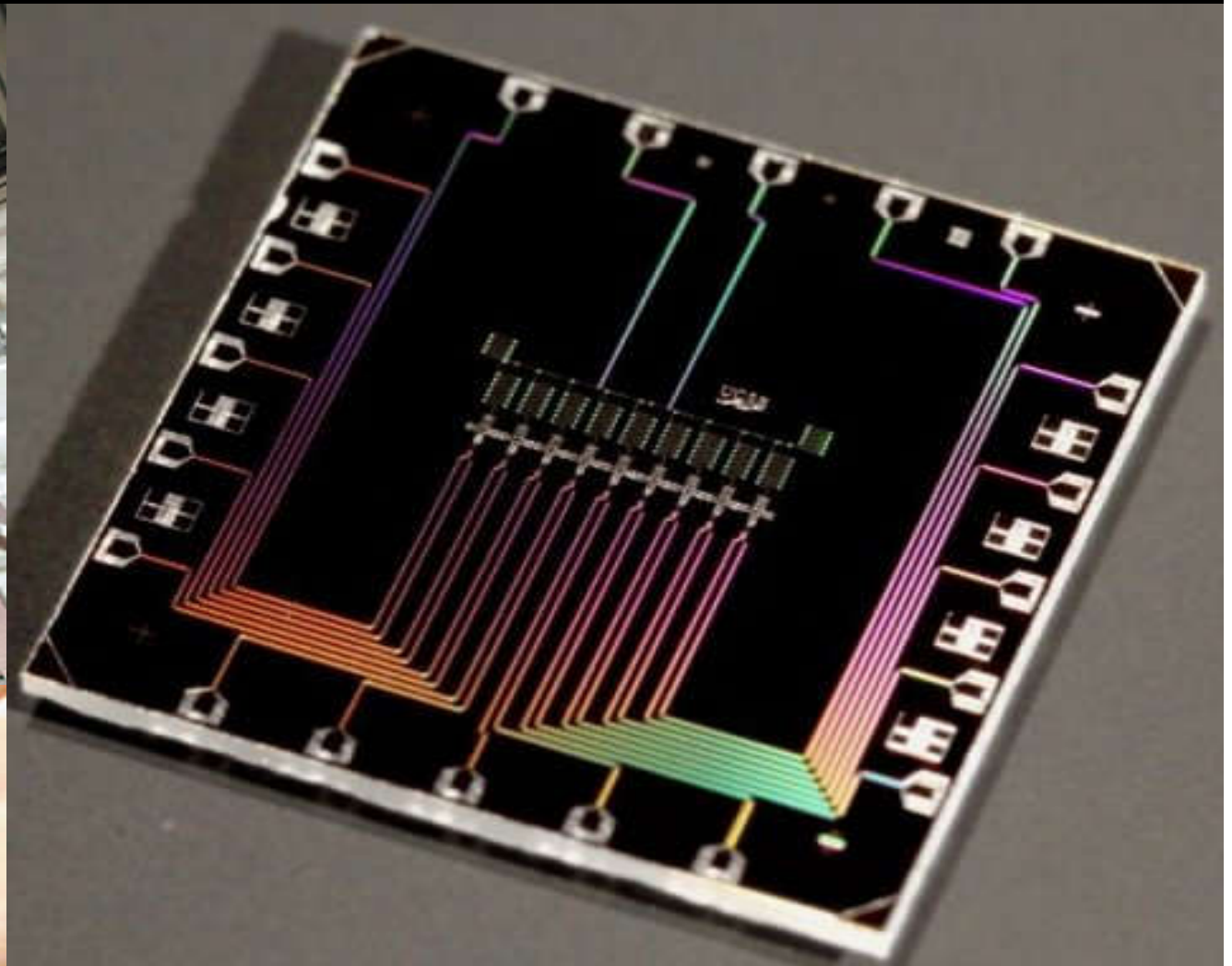
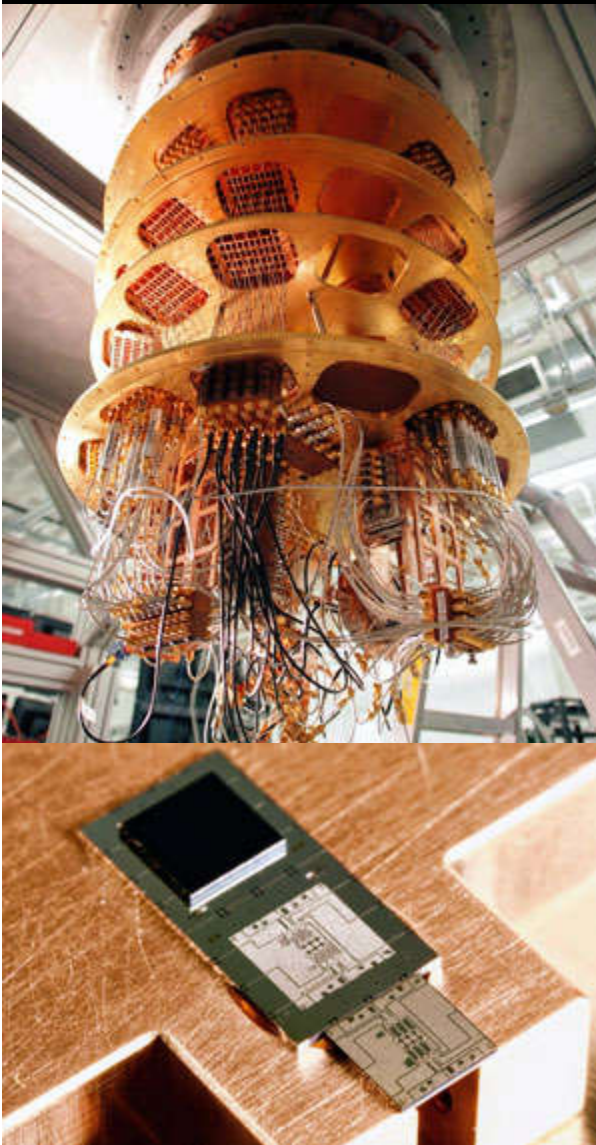
NVIDIA Tesla P100



NVIDIA Tesla K80s



Superioridade quântica?



Google desenvolvendo chip com 49 (7×7) qubits



Realidade Aumentada/Virtual

holoportation

<http://research.microsoft.com/holoportation>

Interactive 3D Technologies

<http://research.microsoft.com/groups/i3d>

Microsoft Research