

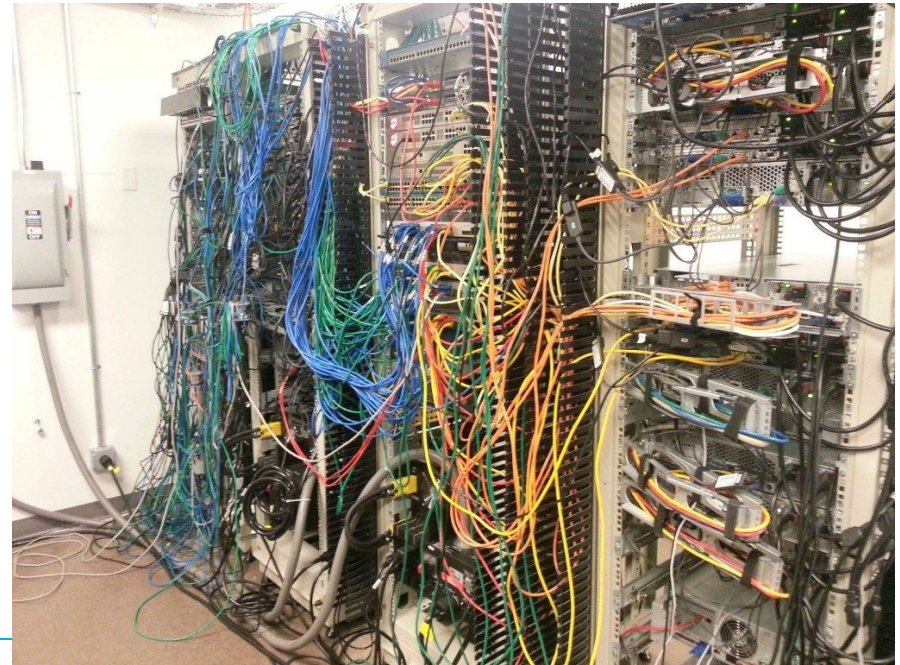
(G@F +=ID GC@JKL  
! GE HM9LAF9D 9L@GD? Q%JGMH  
" A?FGKLA 'E 9?= F9DKK%JGMH  
, AE =?=F 2@, =L@JDF<K

□□(M<sup>2</sup> □□□

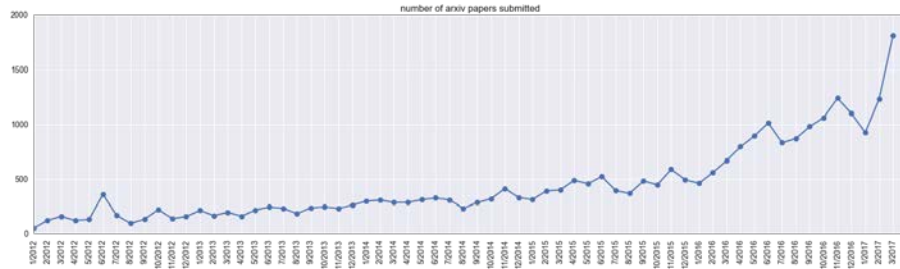
---

5 @QGMK@GMB ; GFNAF; = QGM : GKKGAFN=KL  
□□□ □□□ P AF L@=K=E 9; @F=K

- Or should you?
- And even what are those machines?

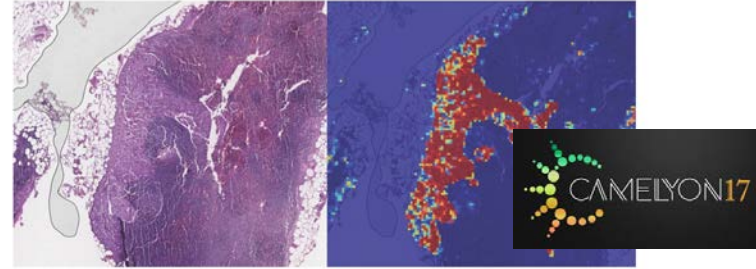


# Rise of deep learning



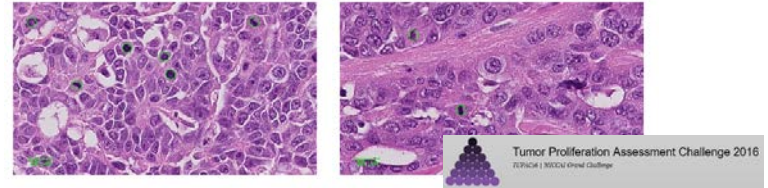
## Diagnostic Assessment of Deep Learning Algorithms for Detection of Lymph Node Metastases in Women With Breast Cancer

Babak Ehteshami Bejnordi, MS, Mitko Veta, PhD, Paul Johannes van Dieet, MD, PhD, Bram van Ginneken, PhD, Nico Karssemeijer, PhD, Geert Litjens, PhD, Jeroen A. W. M. van der Laak, PhD, and the CAMELYON16 Consortium



### Google AI better than doctors at detecting breast cancer

Google's deep learning AI called LYNA able to correctly identify tumorous regions in lymph nodes 99 per cent of the time

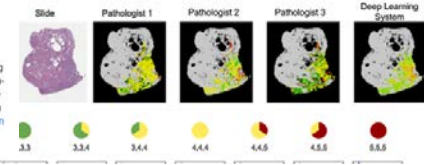


### Improved Grading of Prostate Cancer Using Deep Learning

Friday, November 16, 2018

Posted by Martin Stumpe, Technical Lead and Craig Mermel, Product Manager, Healthcare, Google AI

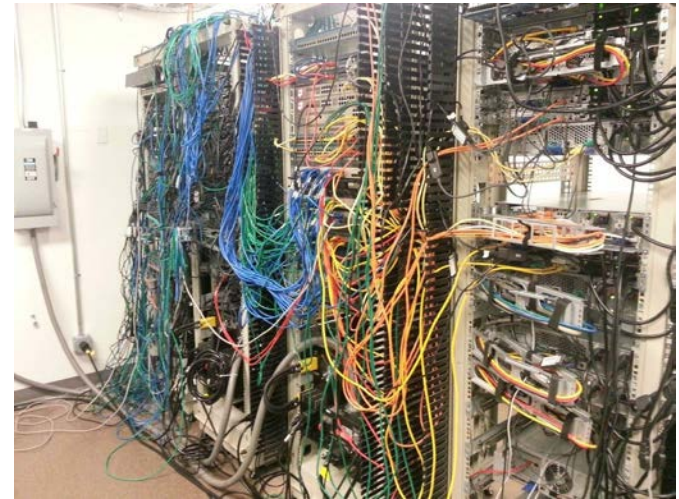
Approximately 1 in 9 men in the United States will develop prostate cancer in their lifetime, making it the most common cancer in males. Despite being common, prostate cancers are frequently non-aggressive, making it challenging to determine if the cancer poses a significant enough risk to the patient to warrant treatment such as surgical removal of the prostate (prostatectomy) or radiation therapy. A key factor that helps in the "risk stratification" of prostate cancer patients is the Gleason grade, which classifies the cancer cells based on how closely they resemble normal prostate glands when viewed on a slide under a microscope.



---

1 @GMB QGM; GFNAF; = QGM : GKKGAFN=KL  
□□□ □□□ P AF ; GE HML9LAGF9DJ=KGM; =K

1. Should you build your own high performance cluster, or should you rent computational from big companies like AWS, Google, Microsoft?
2. How can reproducibility be guaranteed?



# Computational resources

- 1 @GMB QGM: MB QGM GOF @A@H-J>GIE 9F; =; DMK=J GJ K@GMB QGMJ=FL; GE HM9LAF9D>GE : A ; GE H9FAKDC= 5 1 %GG?D + AJKGO



[https://forschungsinfrastruktur.bmbwf.gv.at/uploads/cache/1464334488/RLS3%gRic\\_full.jpg](https://forschungsinfrastruktur.bmbwf.gv.at/uploads/cache/1464334488/RLS3%gRic_full.jpg)

\*G 9DI=KGM; =K



<https://www.techspot.com/news/76900-wikileaks-dumps-amazon-data-center-locations-all-see.html>

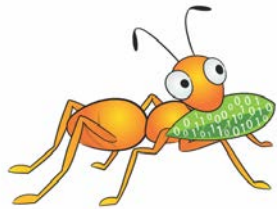
- FDK=J-KM; =K

- ! GKIK
- 0=I MA< CFGOD<?=
- 0=I MA=E =FIKG>L@ @J<O9J=
- . JA9; Q K; MAQ

# Computational resources

- 1 @GMB QGM: MB QGM GOF @A@HJ>GJE 9F;=; DMK=J GJ K@GMB QGMJ=FL; GE HM9LGF9DJGE : A ; GE H9FAKDC= 5 1 GJ %GG?B
- &GO ; 9F J=HJG<M A AQ: =?MJ9FL=<

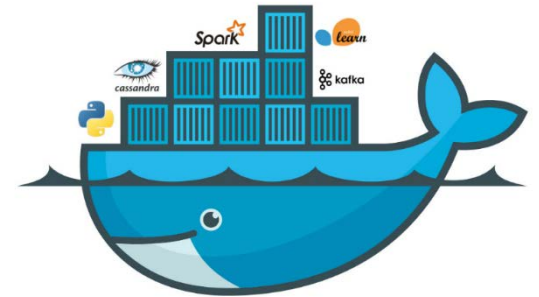
1IGJ9?=  
!



! G<=  
!



Dependencies / packages



---

# Thank you

