



TOP VOICES 2018

Data Science and Analytics

Forbes

Contributing Editor
"AI in Business & Society"

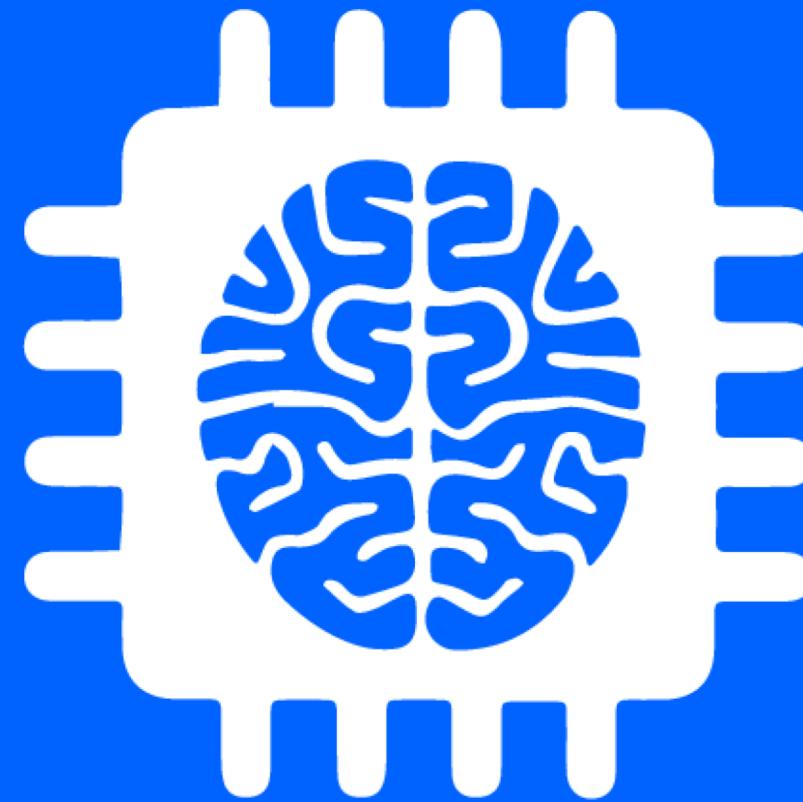


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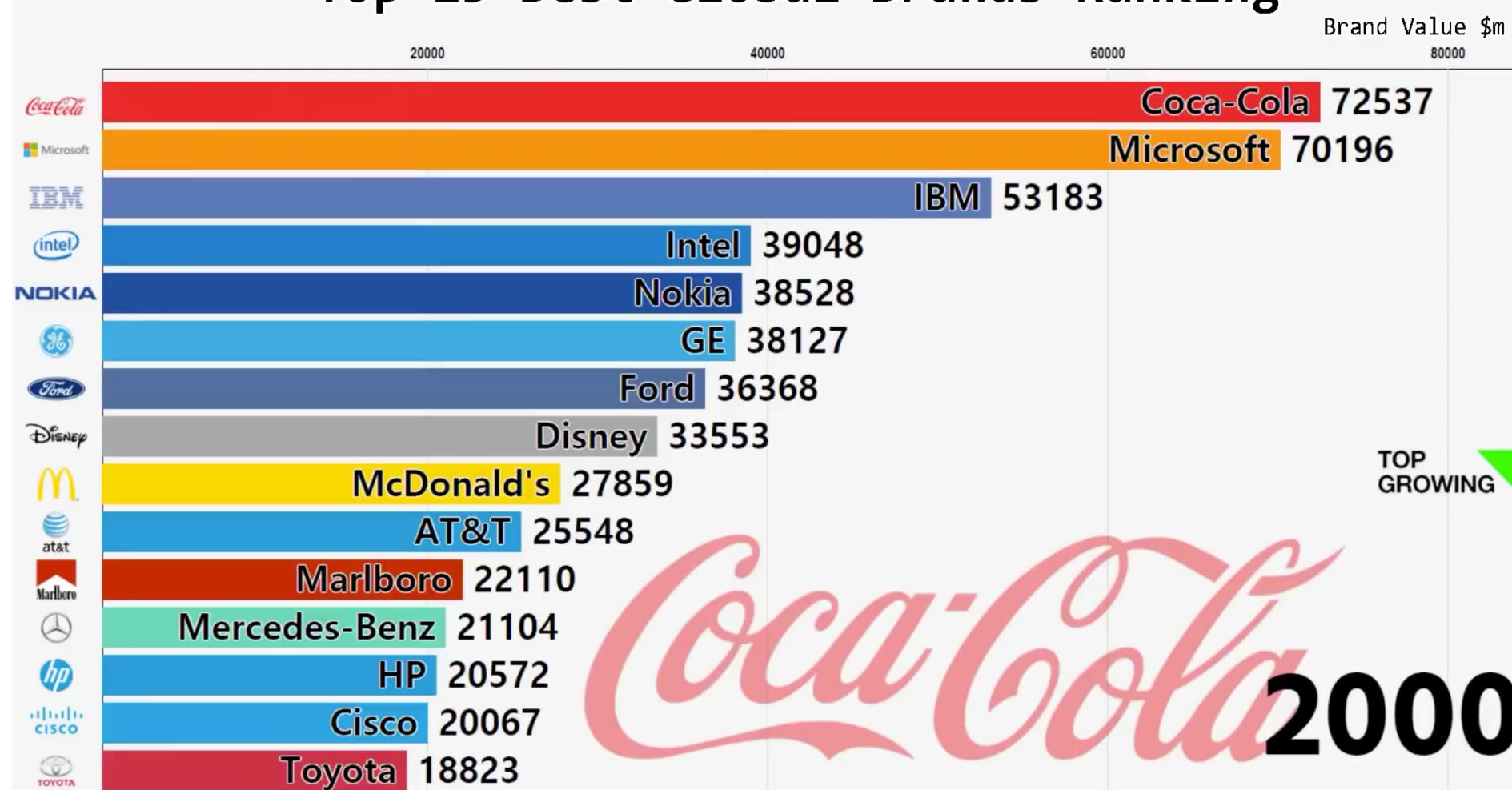
What is AI

A quick overview



Where will your company be in 2025 in AI Economy?

Top 15 Best Global Brands Ranking



<https://www.linkedin.com/feed/update/urn:li:activity:6503922757032509440>



AI

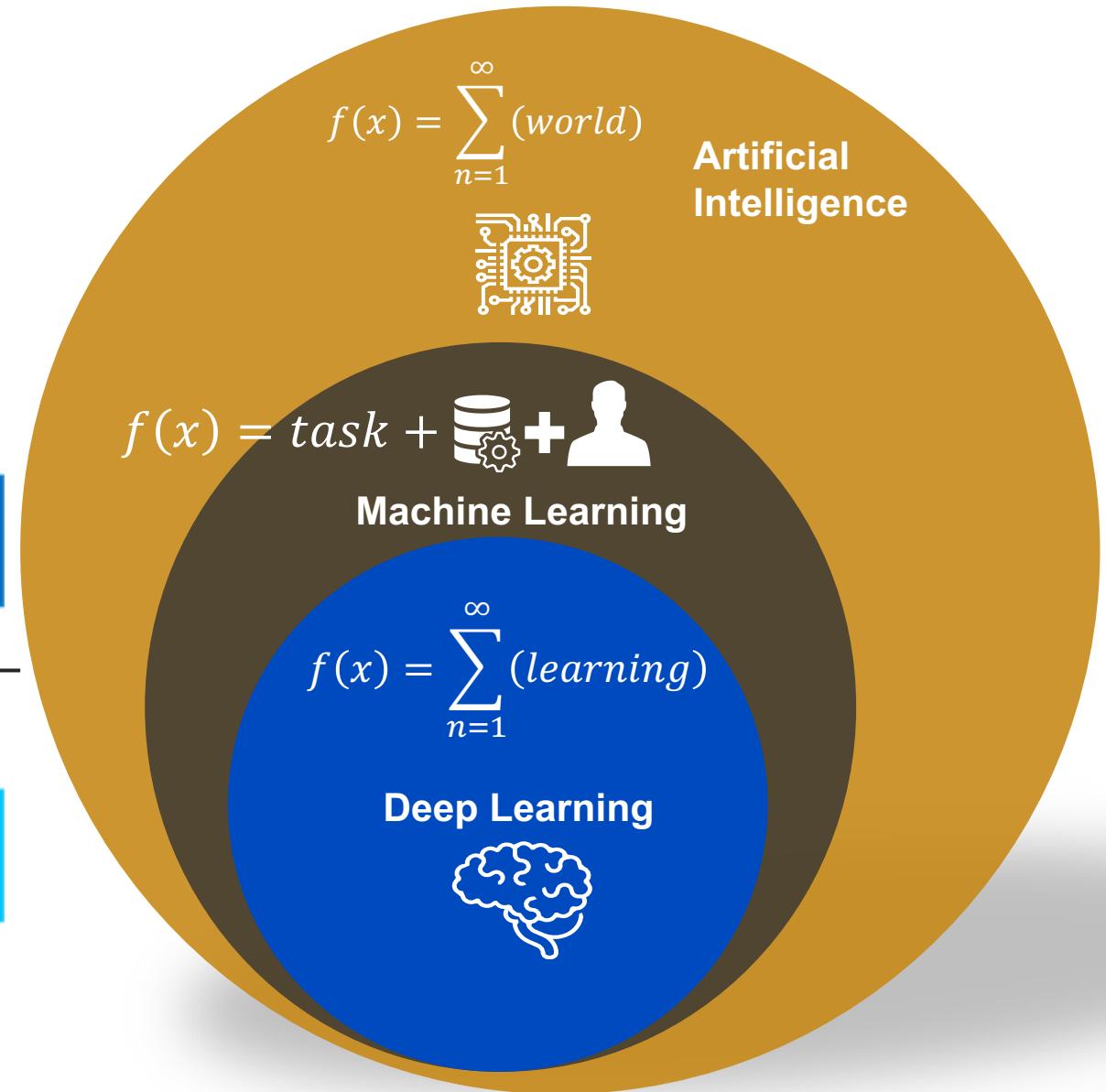
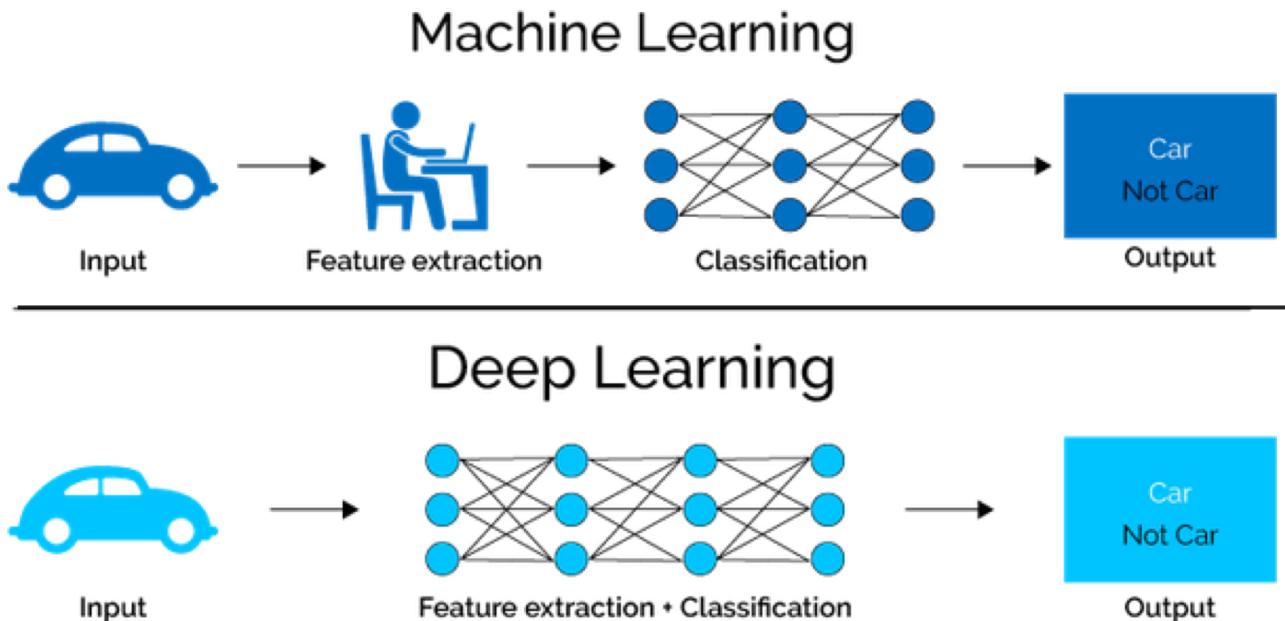
A brief history Today

Events that
transformed AI for
enterprise adoption

#2 Geoffrey Hinton –
Godfather of AI & Deep
Learning – according to me 😊



But what is AI?





Areas where **deep learning** is making advances

“Learning” was key part of this revolution



“Learning to drive”
Sebastian Thrun, Udacity

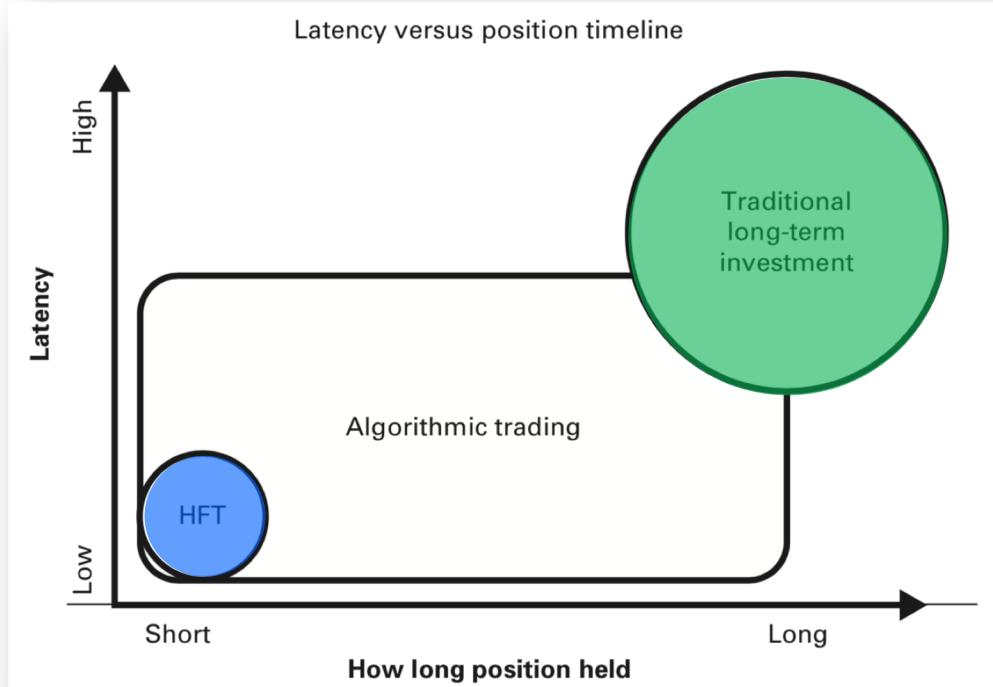


“Learning” to diagnose

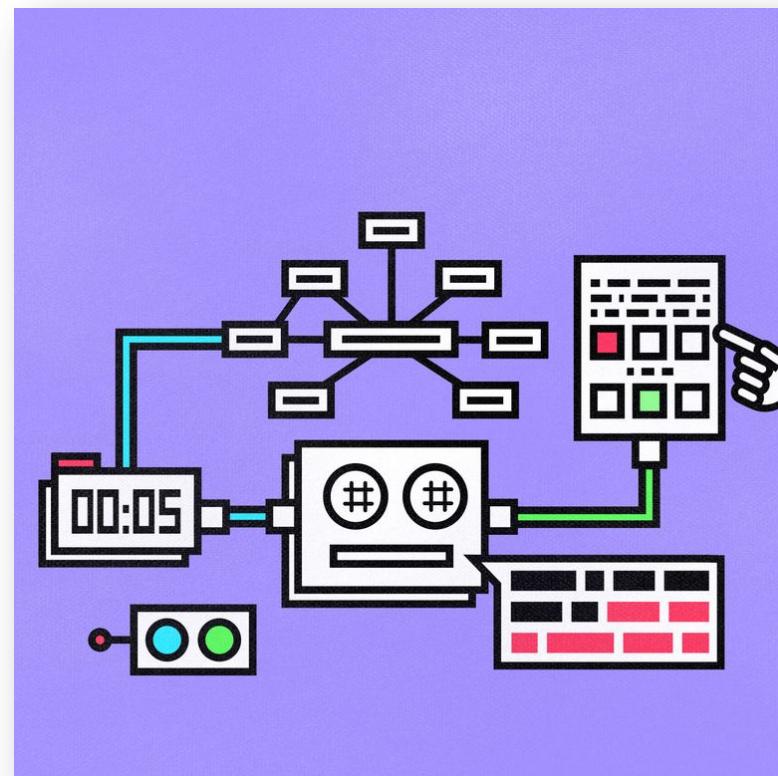


Areas where **deep learning** is making advances

“Learning” was key part of this revolution



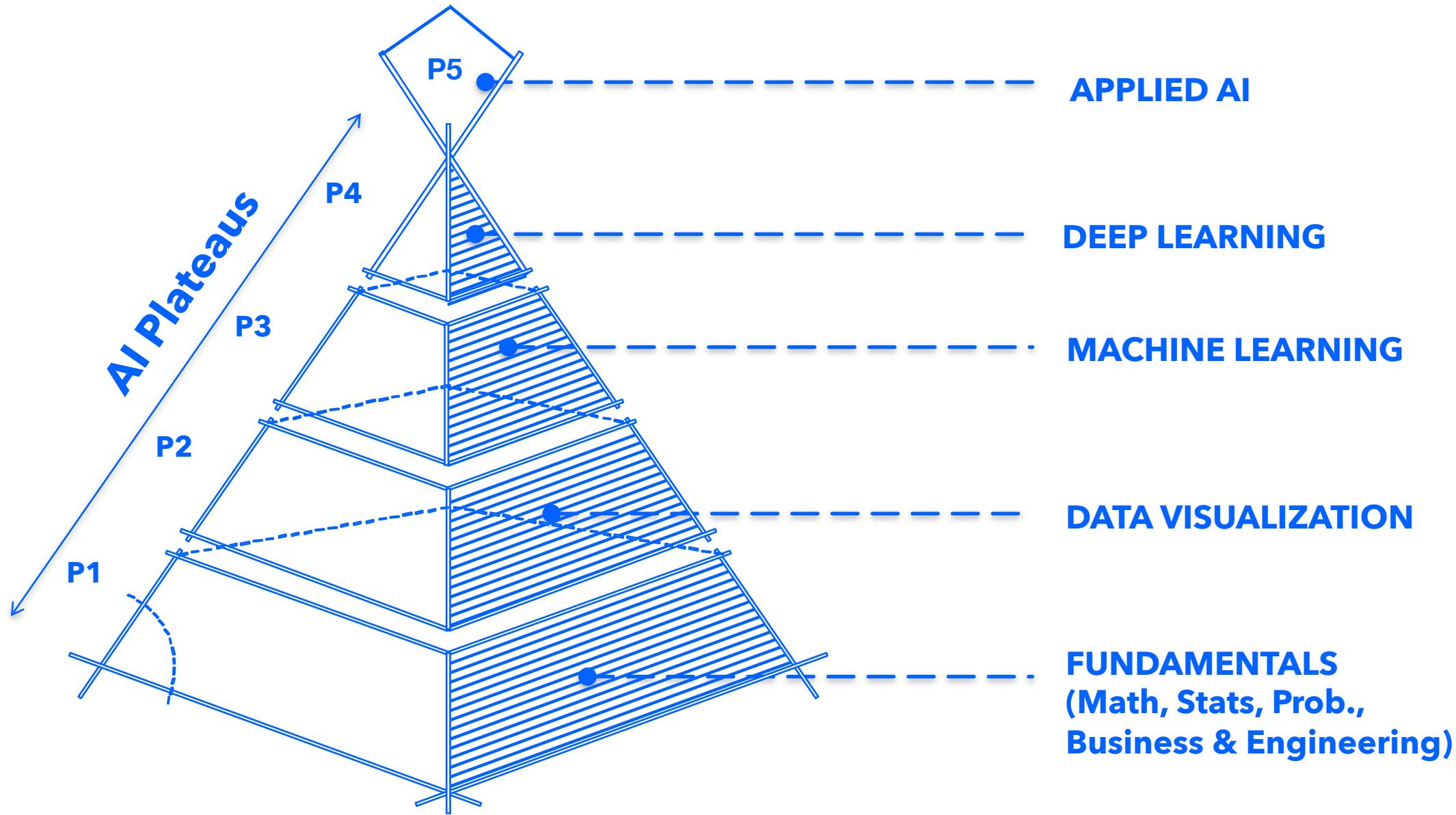
“Learning” to make money



“Learning” to translate

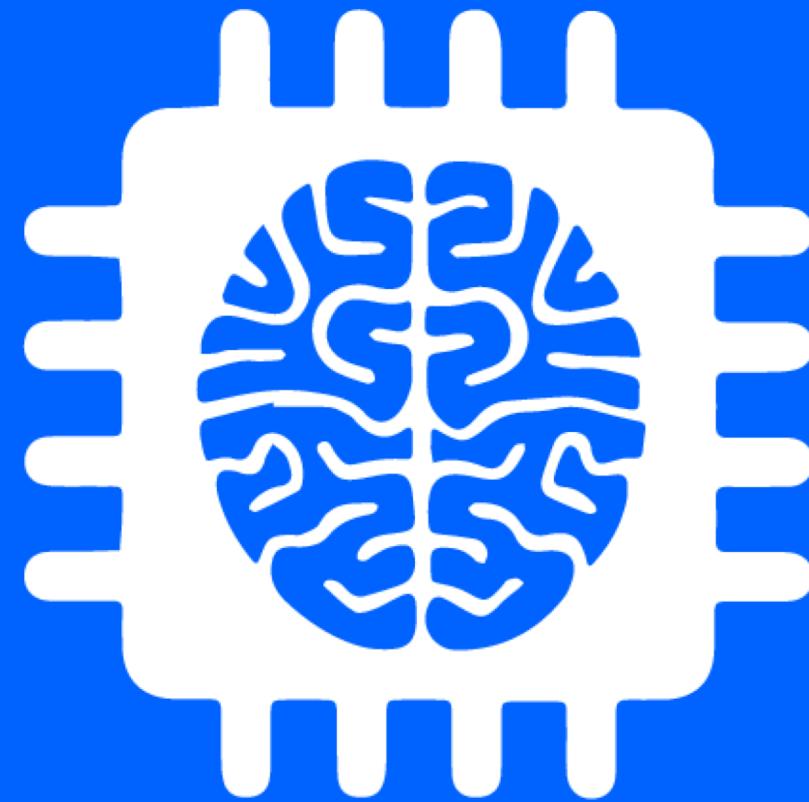


What companies need to do to become an AI Company



Borderless AI

**Why the world
needs it?**

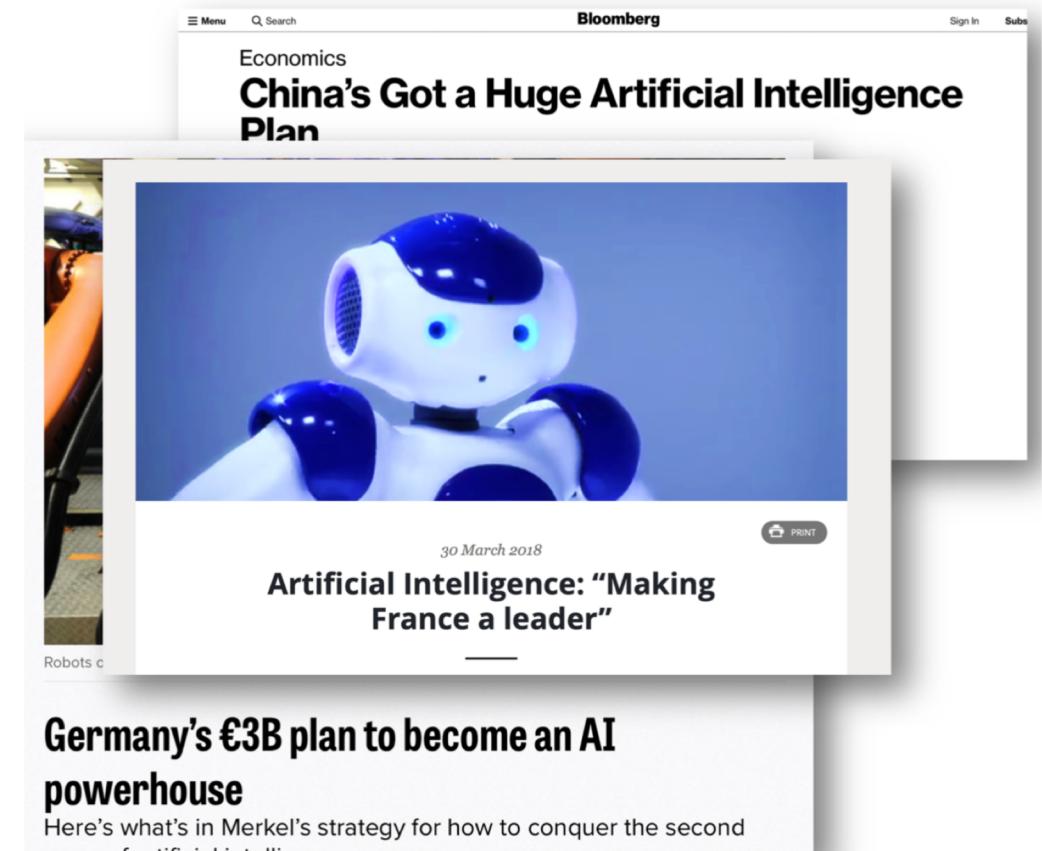


Hype – AI Arms Race

Race is on for AI Leadership

- It appears that AI is now a new tool countries are using to fuel an (aggressive) wave of competition
- Some nation states (mostly European and now US in some states) are self imposing laws to outlaw surveillance completely.
- Some nations (China) and even corporations (Amazon) are being brandished as being using unrestricted surveillance to monitor its citizens and employees.
- The argument is that some countries and corporations may get ahead in technological prowess using unrestricted AI while self-imposed AI regulated countries and firms will lose the AI arms race.

Countries aggressively investing

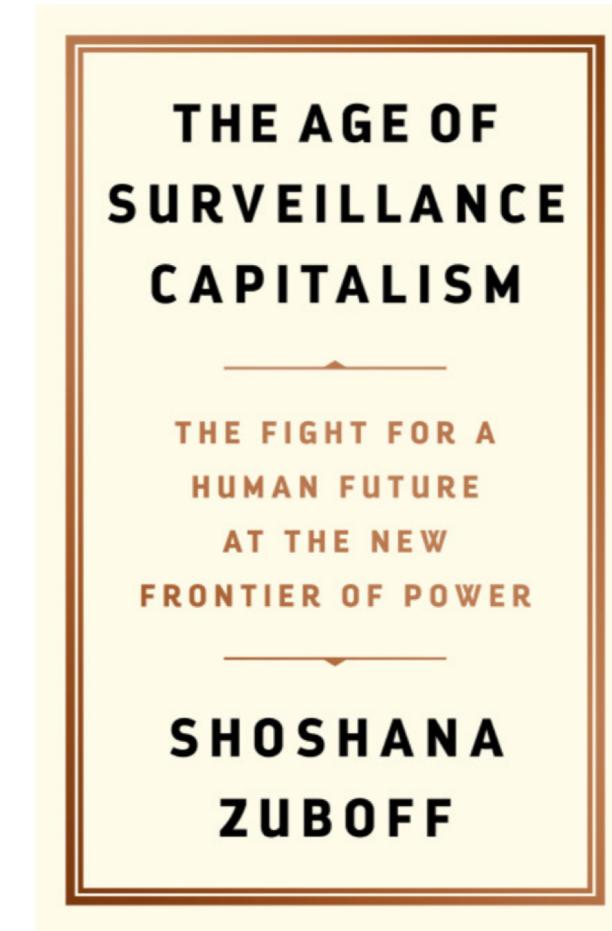


From Big Brother to Big “Other”

What may happen

- What emerged from Silicon Valley has not advanced into every economic sector.
- Since the dawn of internet vast amount of wealth and power has been accumulated in ominous new “emerging or future markets”
- Our past behavior and modification of future behavior essentially made most internet companies trillion dollar companies today.
- Seduction is very lethal and most of us believe we are in control while it is our behavior that is modified deeply that needs a healthy discussion.

Surveillance Capitalism

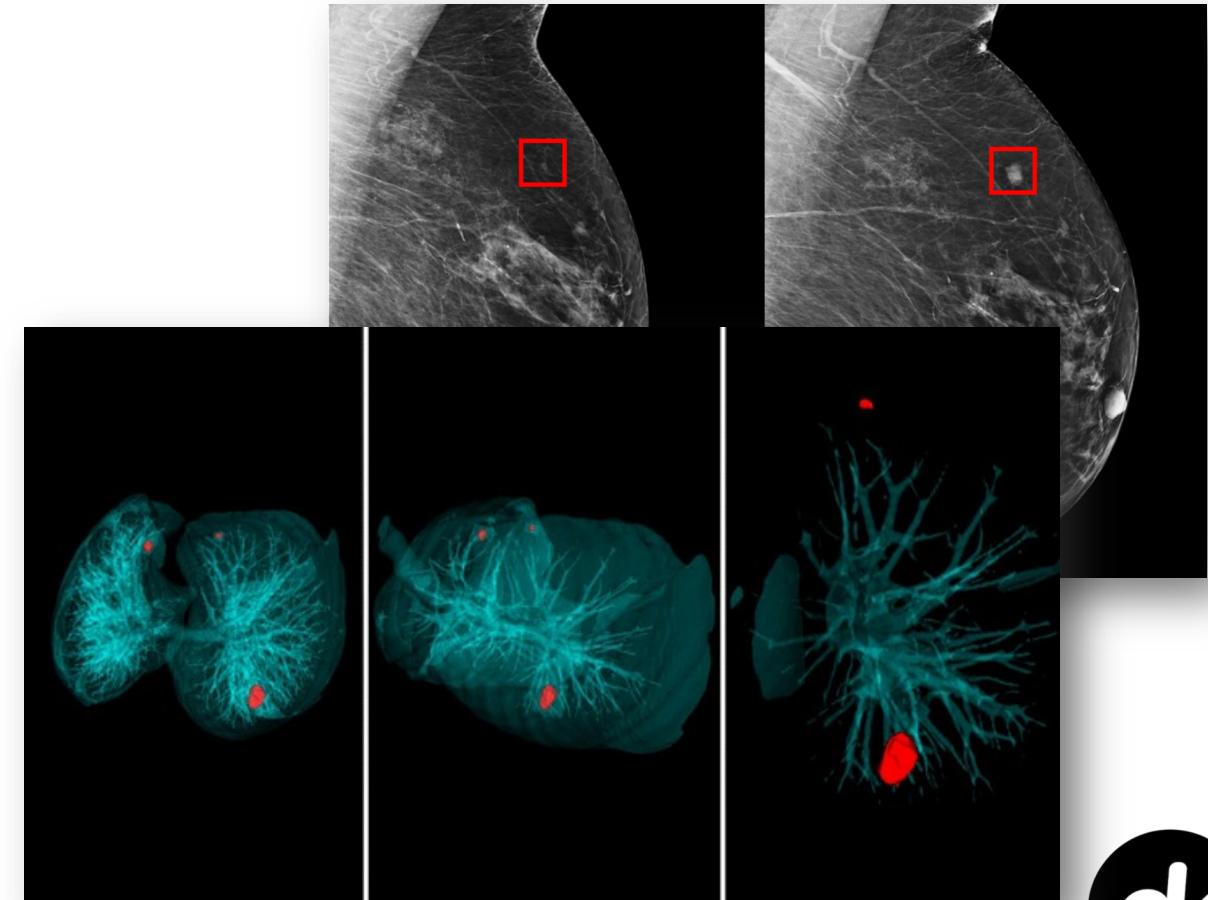


So what is Reality then?

HyperAutomation Wave of AI

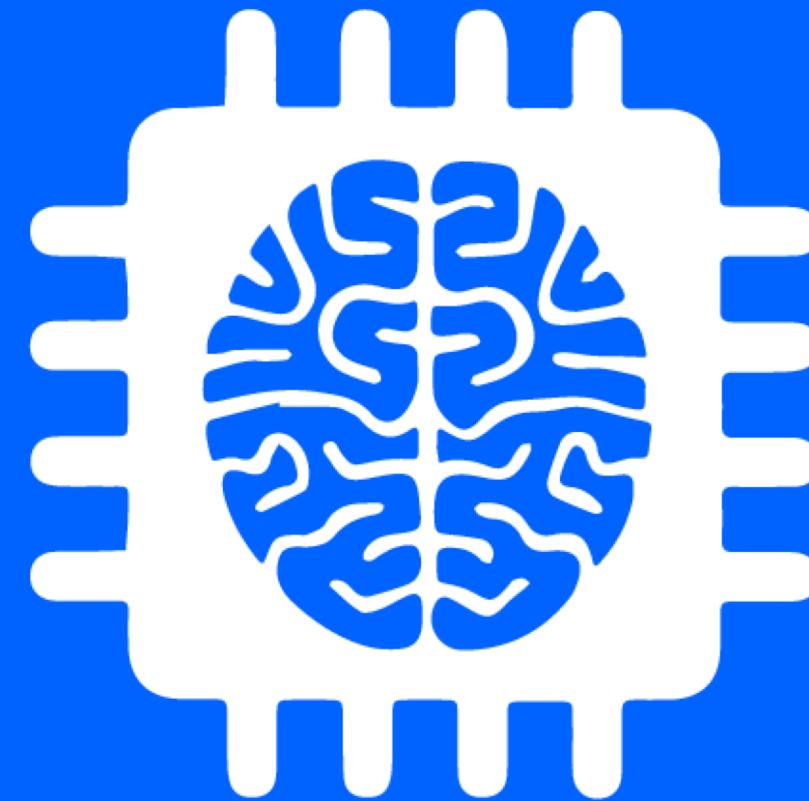
- **AI IS solving problems at scale already:**
For instance, AI is solving most forms of diagnostic aspects in medicine – a great boon to medical professionals that can bring solutions to masses instantly!
- **AI is NOT like the Manhattan or Space Program:** AI is not same as big science projects like the Manhattan Project which may mistakenly liken it to.
- **No massive government funded needed:**
Any researcher in the world can pick up open source tools and work with a global community together to solve a world problem.
- AI will thrive better in open and democratic societies (in the longer run)

Medicine. Self Driving. Everywhere!



**One of our AI
Med Story**

**AI is do-
‘able!**



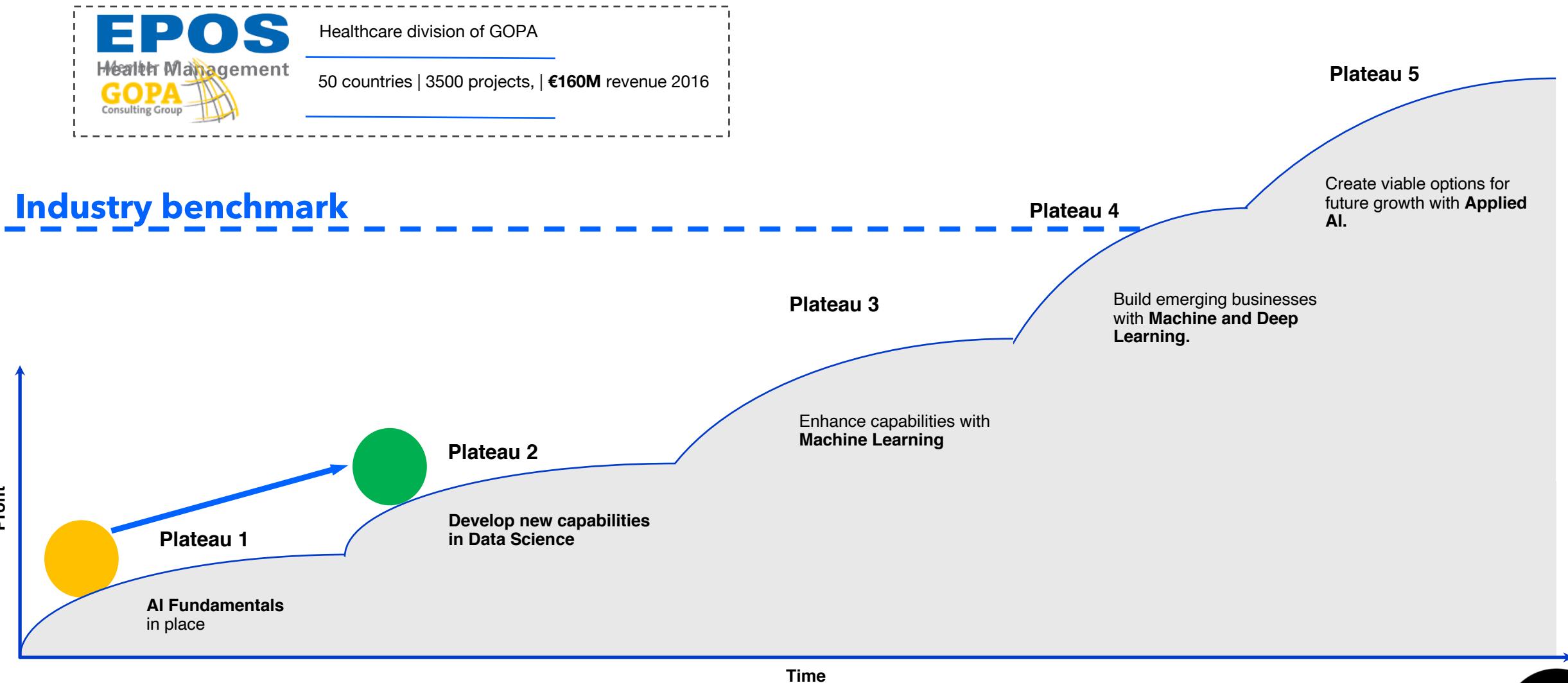
Story #1: Healthcare Client fights breast cancer with AI



Healthcare division of GOPA

50 countries | 3500 projects, | €160M revenue 2016

Industry benchmark



Fighting breast cancer with AI

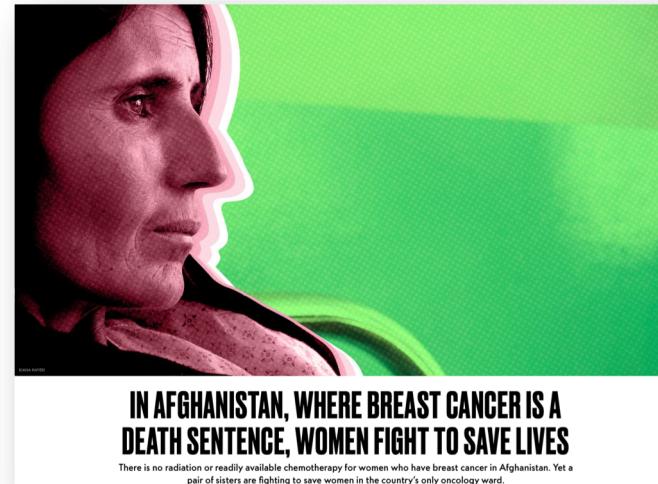
Increasing number of women at risk due to late stage breast cancer detection

Situation

- 10's of Thousands of women are suffering from breast cancer in Afghanistan.
- Surgeons, Pathologists and Oncologists in Less Developed Nations are in short supply.
- Doctors who do stay back often use outdated diagnostics tools to detect early stage cancers.
- Yet, western world is seeing dramatic increase in use of AI (deep learning) to diagnose breast cancer.



<https://camelyon17.grand-challenge.org>



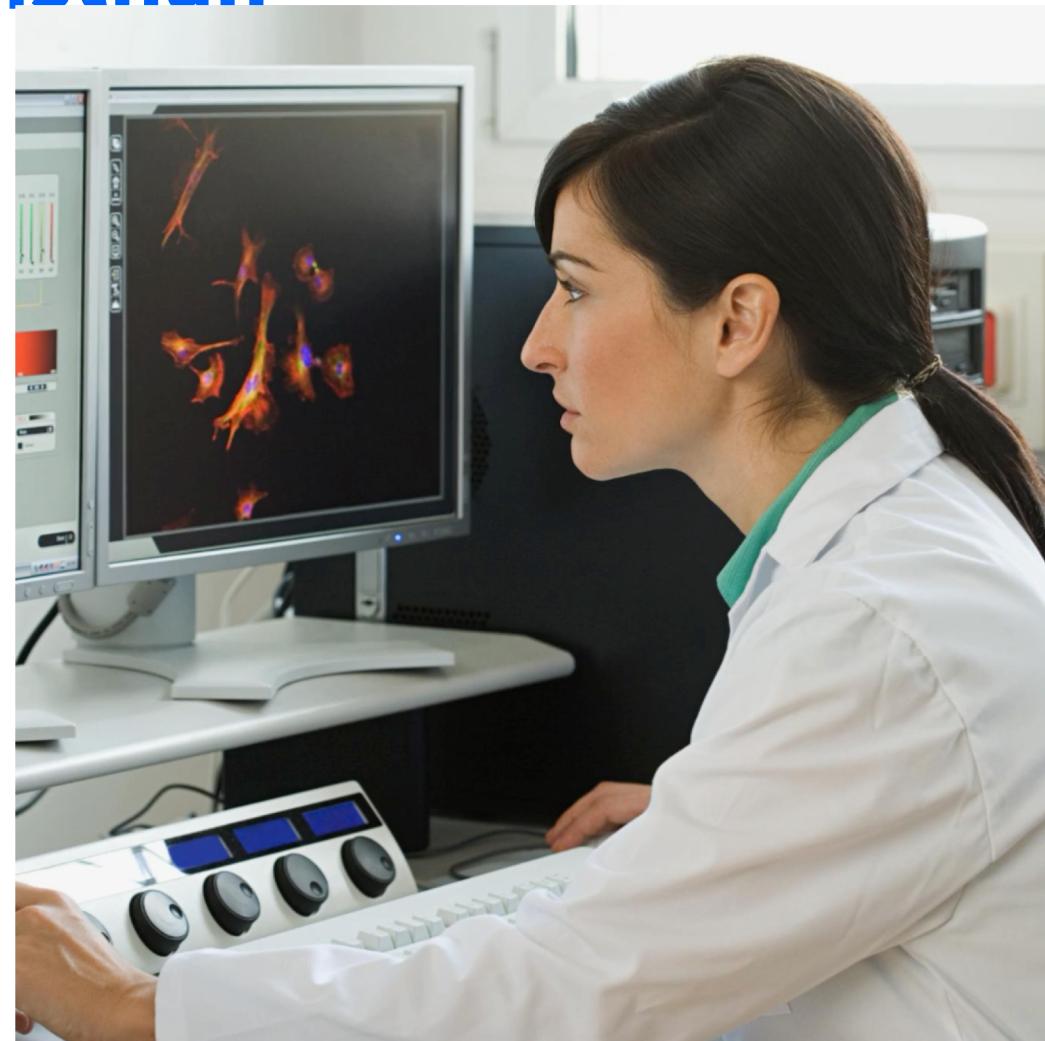
<https://www.elle.com/uk/life-and-culture/a25088317/afghanistan-breast-cancer-women/>



Meet Dr. Sohaila Niazi. First Ever Oncologist in Afghanistan

She was featured in the Elle Magazine for her heroic effort!

- Quit her prosperous life and went back to the war torn area where young women were dying.
- Started pulling money out of her pocket to help women travel to hospitals.
- Guiding women to come out and participate in more diagnostics.



<https://www.elle.com/uk/life-and-culture/a25088317/afghanistan-breast-cancer-women/>

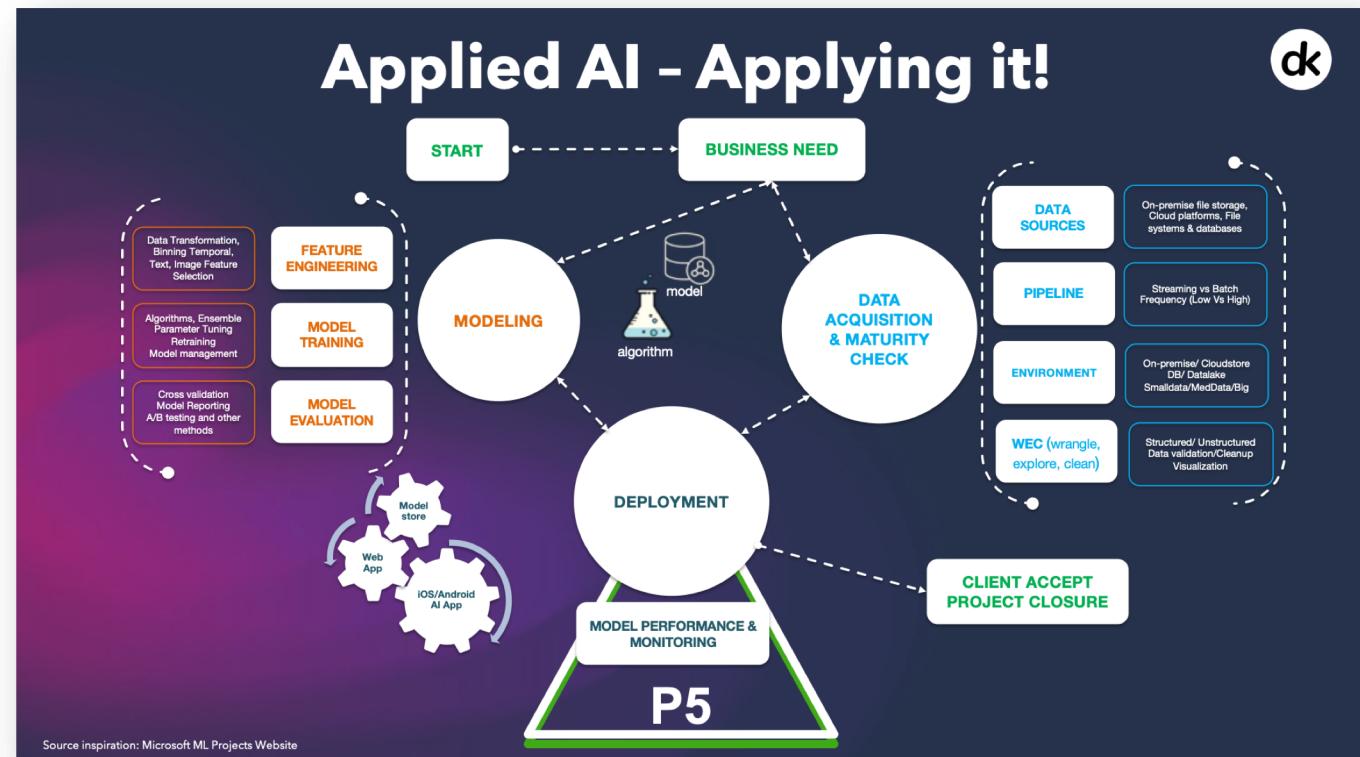


Fighting breast cancer with AI

The Challenge

- Images are uploaded to the Client portal but data is poorly organized.
- Annotations are done by experienced German pathologists but information is not ripe for AI.
- Finally, No Machine Learning or Deep Learning Expertise in House regarding

Collect, Explore, Process for adequate AI Model



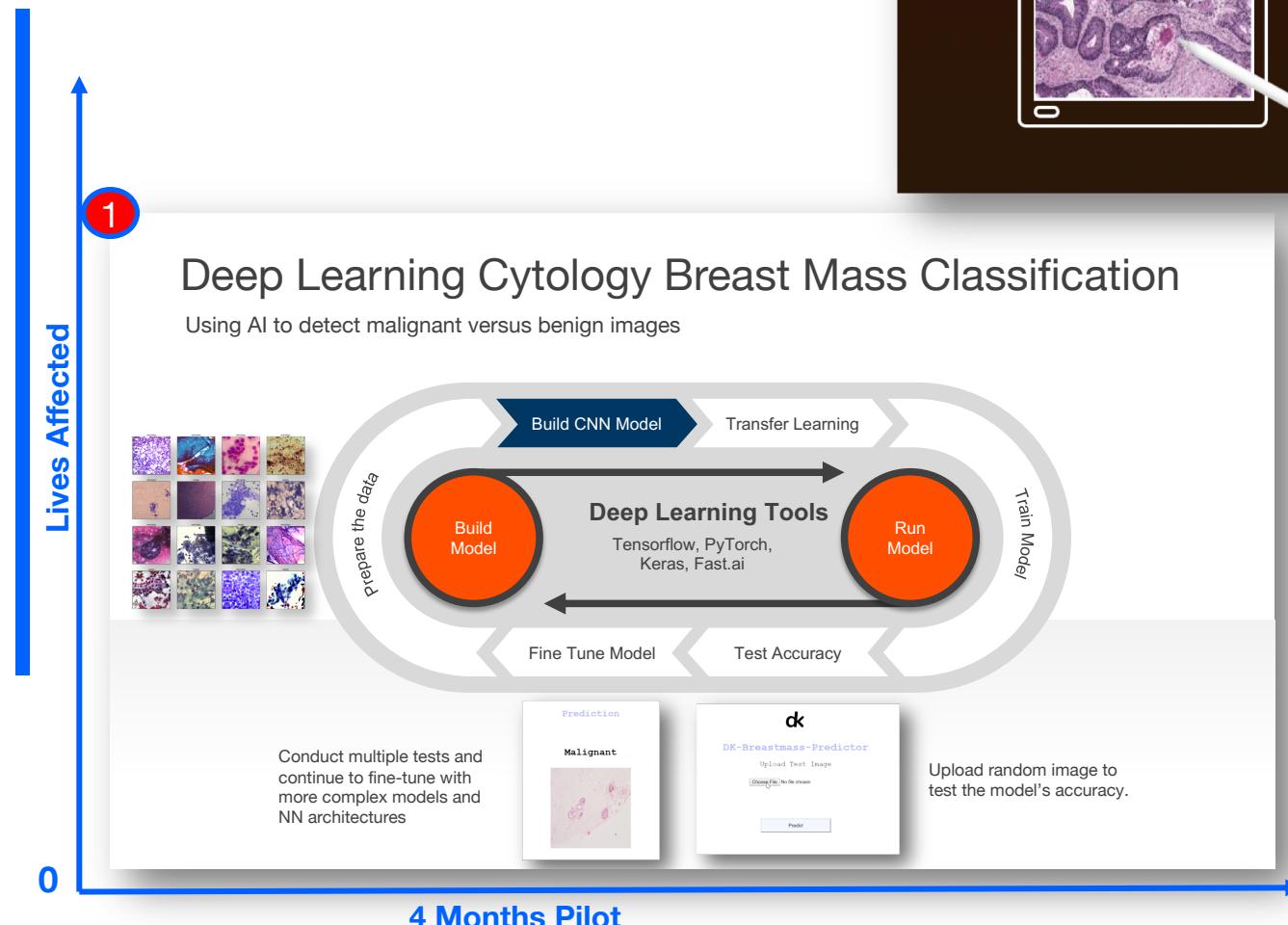
Fighting breast cancer with AI

Impacted thousands
women already with
telemedicine

The Transformation

- ① We organized the data and did thorough pre-processing to make it ready for AI system.
- ① We developed and trained the model using various niche deep learning tools and techniques.
- ② We developed a working prototype that scored already ~82% accuracy for a very small dataset. (Have already achieved 98.5% last month!)

Outcome and success



Story #2: Diabetic Retinopathy in China

In China 1 in 10 persons is diabetic

- Diabetes can cause complications such as diabetic retinopathy (referred to as sugar net), which is one of the important culprits of visual loss in middle-aged and elderly people.
- Early diagnosis and early treatment is the only way to prevent blindness in sugar nets.
- China (also developing parts of the world) is screaming at the shortage of Ophthalmologists.
- So what can one do???



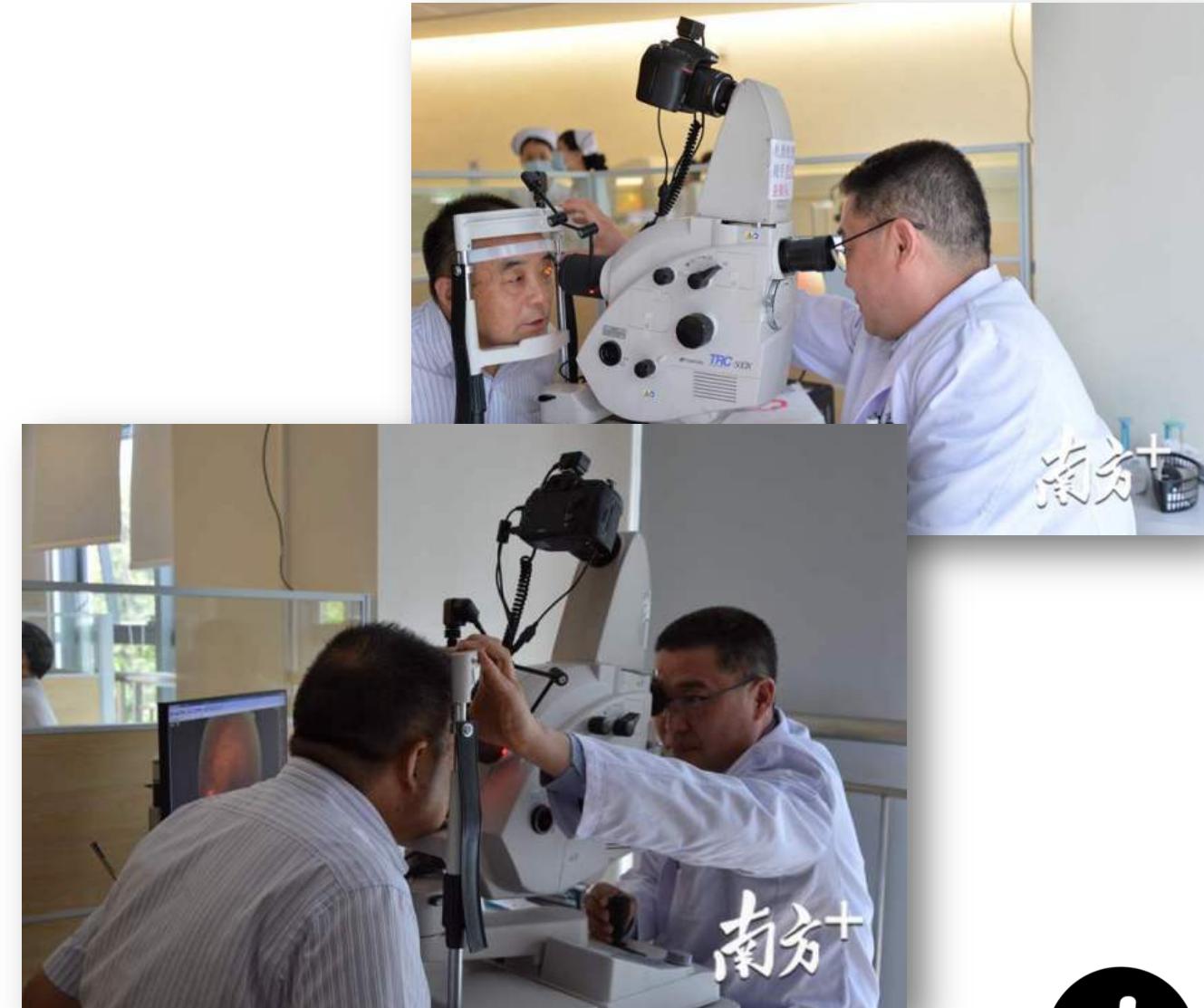
Image of [fundus](#) showing scatter [laser surgery](#) for diabetic retinopathy , link: https://en.wikipedia.org/wiki/Diabetic_retinopathy



Story #2: Diabetic Retinopathy in China

Zhongda Ophthalmology, this AI system fundus examination is fully self-help, with 95% accuracy

- Embarked jointly on CapsNET Experimental research.
- Went on to develop a product quickly working with researchers from Australia and Singapore with best-in-class CNN (computer vision) model.
- The team cooperated to standardize the classification of 70,000 fundus color photographs based on the British diabetes screening system to construct an intelligent grading system for diabetic retinopathy.



Story #2: But hey, where's the app?

App Ready & SFDA Approved

- Embarked jointly on CapsNET Experimental research.
- Went on to develop a product quickly working with researchers from Australia and Singapore with best-in-class CNN (computer vision) model.
- This solution not only realizes the full automation of fundus photography and artificial intelligence interpretation, but also instantly recognizes image quality and gives report grading results. It takes only a few minutes for patients to get an artificial intelligence diagnosis report.
- Has already SFDA approval
- Going to resources-deprived regions such as Tibet and elsewhere!



It got us so excited that we are launching our AI Med Startup



AIMED PORTAL

Skin Cancer Detection

Inference Time:-

- | 0%
- | 0%
- | 0%
- | 0%
- | 0%
- | 0%
- | 0%

Melanoma
Benign keratosis
Nevi (begin)
Basal cell
Dermatofibroma
Actinic keratoses
Vascular lesion

or

UPLOAD IMAGE

Skin Cancer Detection

Inference Time: 179.0 ms

Melanocytic nevi | 99%

Vascular lesions | 0%

Melanoma | 0%

Benign keratosis-like lesions | 0%

Dermatofibroma | 0%

Actinic keratoses | 0%

Basal cell carcinoma | 0%

Nevi (begin)

UPLOAD IMAGE

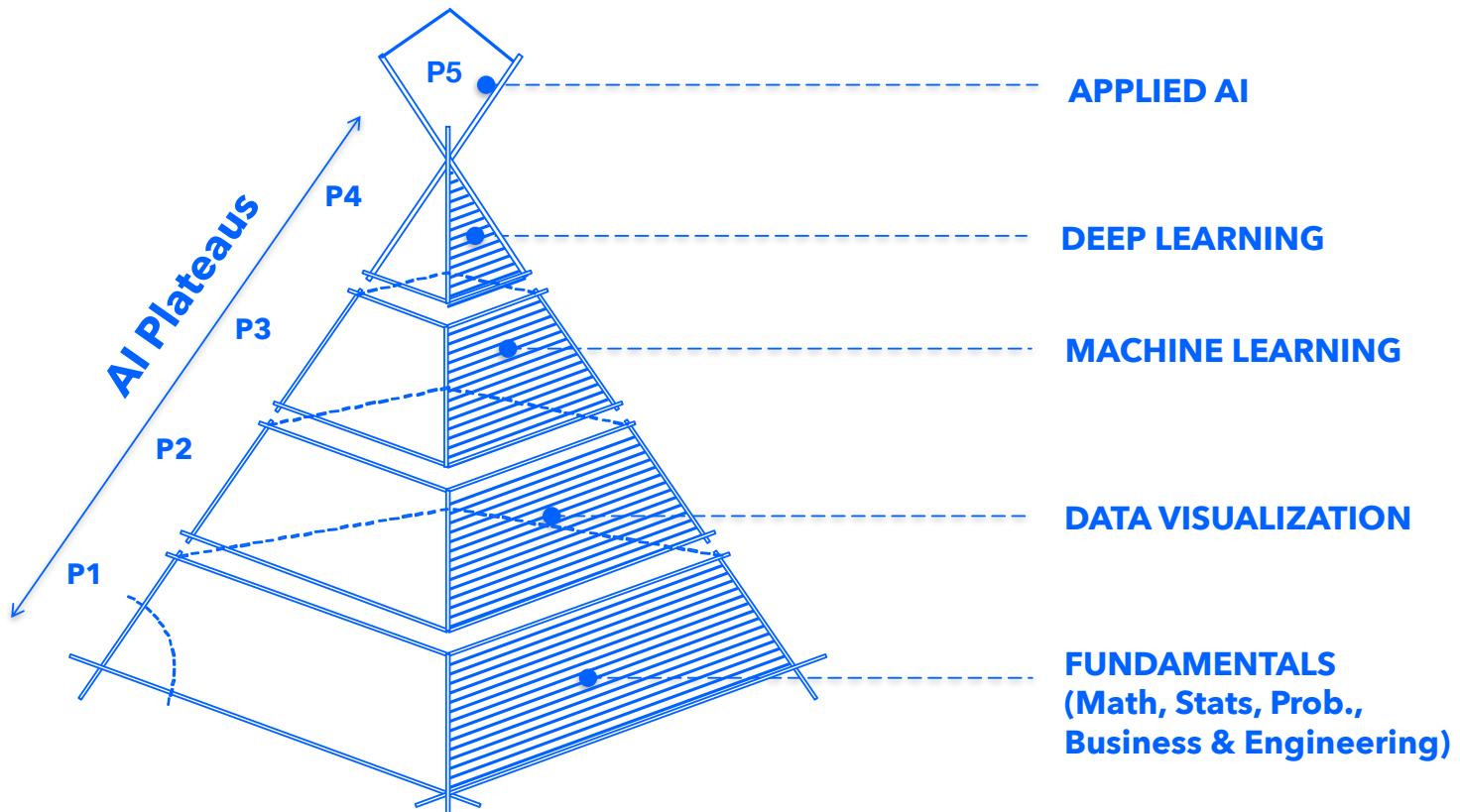


In Summary

- **AI is capable of solving global problems at scale**
- **It's accessible for anyone who wants to take a shot at it**
- **What's your goal?**



Thank you





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