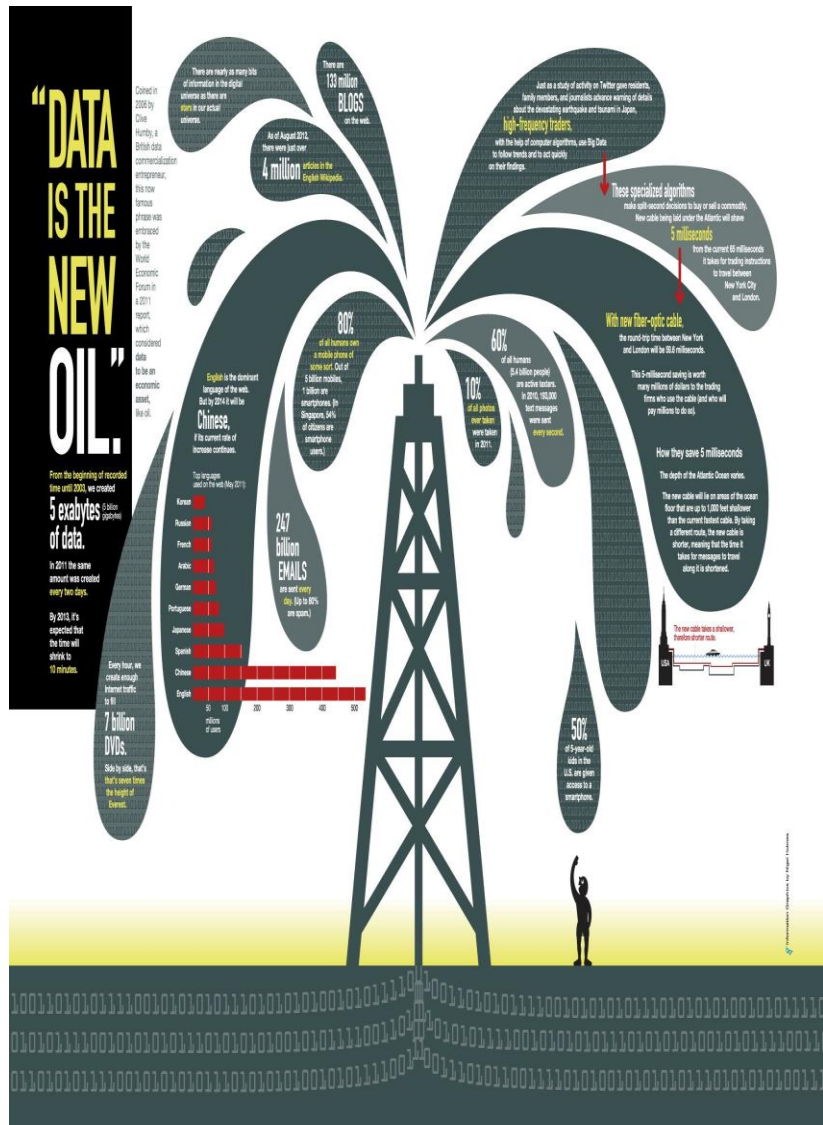


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# Why Machine Learning hype?

- Data is the new Oil!!!
- Enough Data but Scarce Knowledge

- 1 trillion web pages – Web mining
- One hour of video is uploaded to YouTube every second amounting to 10 years of content every
- 1M transactions per hour in Walmart
- Science – Bioinformatics, Astrophysics...  
Genomes 1000s of people, each of which has a length of  $3.8 \times 10^9$  base pairs sequenced by various labs;



# Why Machine Learning is inevitable ?

- Intellectually rich due to Mathematics and Algorithms
- Human design has limitations
  - NLP, Computation, , handwriting recognition,
- Dynamic Environment
  - Autonomous helicopter, self driving car
- New knowledge evolved and redesign is difficult
  - Self customizing programs
    - Amazon product recommender system.
  - DATA DOES THE TRICK!!!

# Machine Learning Applications

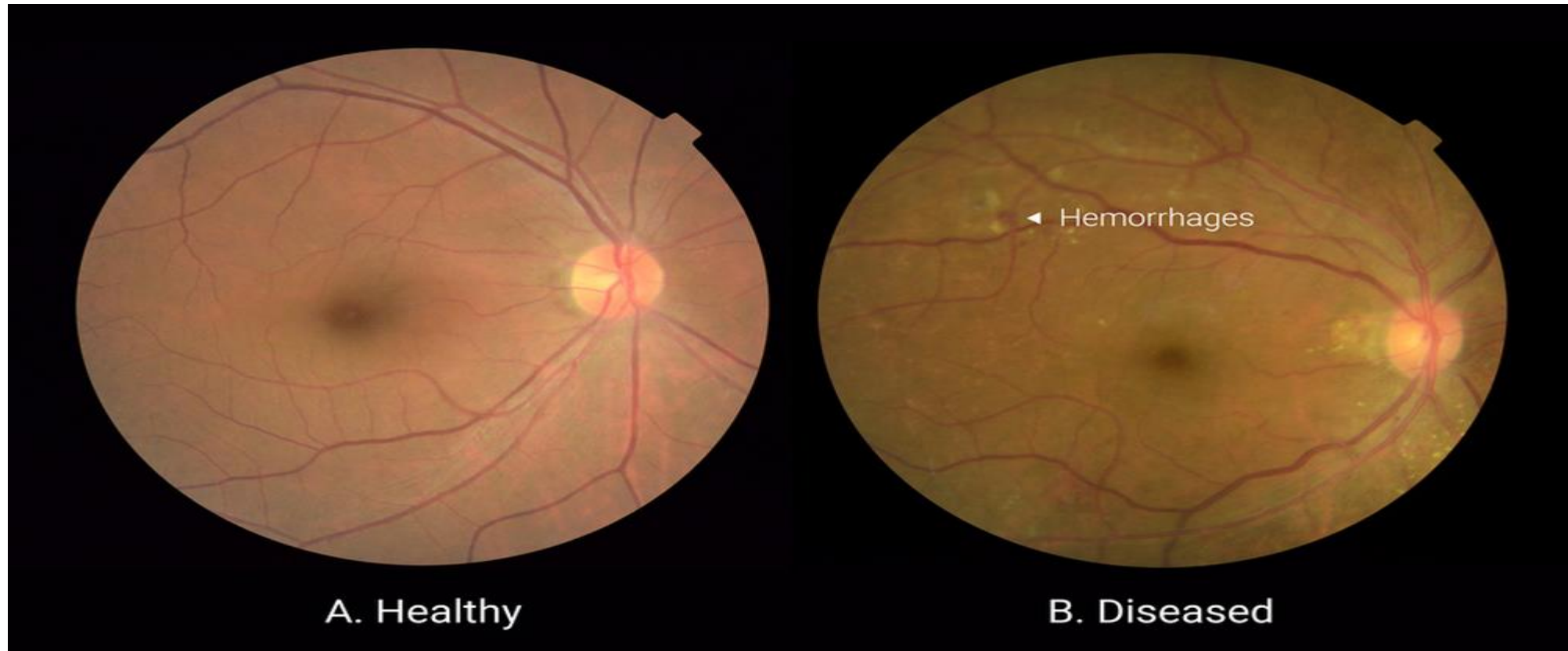
## Applications

- Disease Diagnostics
- Recommendation
- Image Tagging
- Advertising
- Speech Processing
- Self-driving car
- Share Trading

## Stakeholders

- Doctors
- Netflix, Amazon
- Social media like Facebook
- Web service providers
- Google assistant, Amazon Alexa
- Tesla
- Financiers

# Disease Diagnostics (Computer Vision)



Diagnose Diabetic Retinopathy

Source : <https://blog.google/technology/ai/detecting-diabetic-eye-disease-machine-learning/>

# T, E, P for Diabetic Retinopathy

- Task : Specific work

Diagnose if the patient has Diabetic Retinopathy or not  
(Classification)

- Experience : Data available

Eye images of various DR/non-DR patients

- Performance : Accurately perform work

Correctly diagnosed DR patients

# Recommendation Systems







# Share Trading

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# T, E, P for Share Trading

- Task : Specific work

What will be the share price of HDFC after a week  
(Regression)

- Experience : Data available

For each date, the opening price, closing, high, low buying etc. since 5 years

- Performance : Accurately perform work

How closer was the predicted price to the actual price.



**Data Analysis/Analytics**

**Machine Learning**

**Methods and Algorithms**

**Big Data**

**Big Data Analytics**

**Data Mining**

**Software Tools**

2015  
Dahl Winters

Experimental	Theoretical
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