SCYFER

General Data Protection Regulation

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UNIVERSITEIT VAN AMSTERDAM

The deep learning company

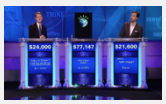
An intelligent revolution

Live speech translation (Skype 2015)

Self-Driving Cars (Multiple Manufacturers)

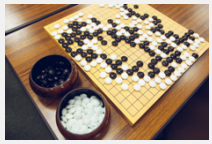
Winning Jeopardy (IBM 2013)

Professional Go (Google 2016)



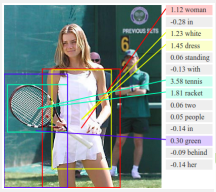
Smarter AI

Deep Blue
Chess
(IBM 1997)



AlphaGo
(Google 2016)

Deep Learning revolution



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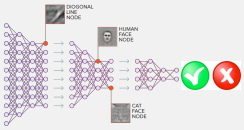
Deep Learning

- **Programming**
  - `If` *this* `then` *that*
  - `Lookup` *blabla*
  - `1 + 1 = 2`

Learning

- Give examples (data)
- 
- Super human results

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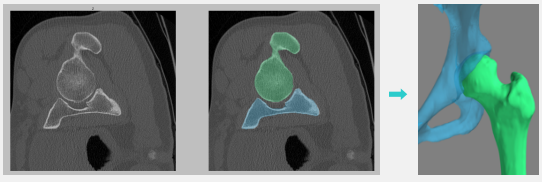
Problem: accurate segmentation

FICHe



INPUT OUTPUT

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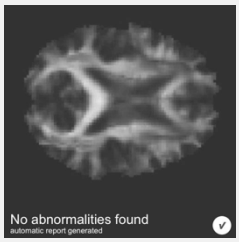
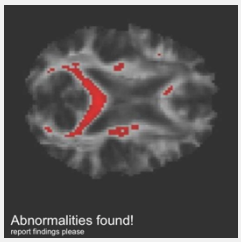
Degenerative brain disease





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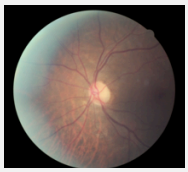
Retinopathy scans



Input

Output:
highlight areas of interest

+ Classification:

35,8% chance stage 0
54,8% chance stage 1
9,40% chance stage 2
< 1% change stage 3
< 1% change stage 4

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When Scyfer helps ……

- Inspection passport per cm²
- Root cause analysis
- …..

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Imagine you're a planner

7% error

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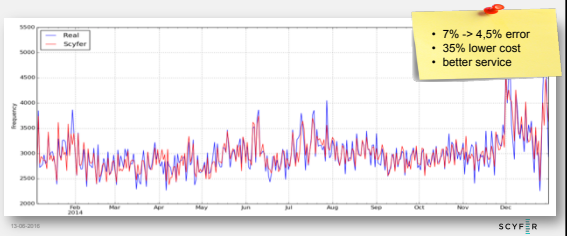
When Scyfer helps….



- 7% -> 4,5% error
- 35% lower cost
- better service

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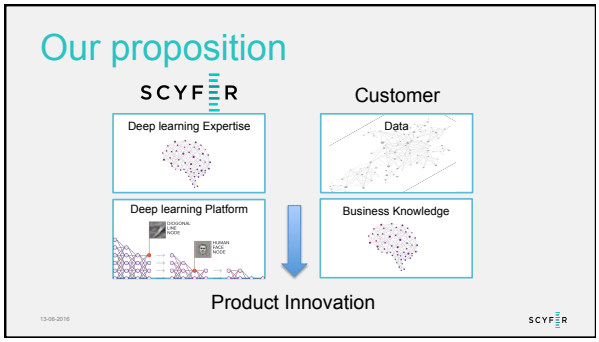
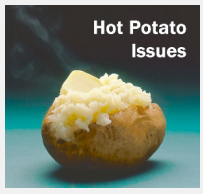
Our proposition



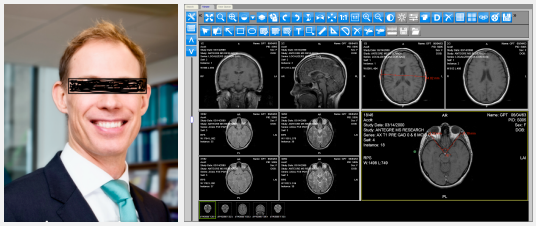
Case 1 The usage of medical data



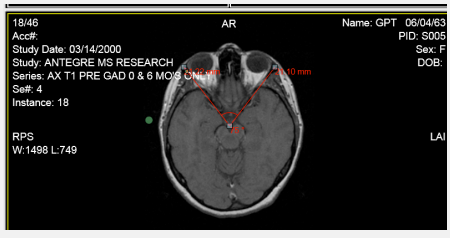
Privacy approach principles

- NO Data!
- Anonymized data
- Encrypted data
- Data deletion

Anonymized data

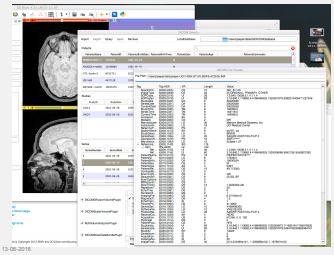


DICOM: be carefull!



(Image random collected from the internet)

DICOM: be carefull!



Requirement:
Check if all privacy data is removed!

Compliancy: day to day business

In case of a project where there might be personal data we perform:

- Privacy Impact Analyis (PIA)
- Business Impact Analysis (BIA)
- IT Risk Assessment (ITRA)
- Implement controls to reduce risks

How to be compliant?

ISO 9001

ISO 27018

NEN 7510

ISO 27001

ISAE 3402

State of the art technology and security

What is state of the art?

Data collector vs processor

- We usually act as data processor
- We sign “data processing agreement”
- User consent → responsibility data collector

Transparency

AUTORITEIT PERSOONSGEGEVENS

Gedetailleerde informatie

Scyfer BV	
Meldingnummer	1599731
Naam verwerking	Personeelsadministratie Scyfer BV
Verantwoordelijke(n)	Naam Scyfer BV Bezoekadres Science Park 402 1098XH AMSTERDAM NEDERLAND
Doel(en) van verwerking	Normale personeelsadministraties: salarisadministratie, beheer arbeidscontracten, aangiften loonbelasting en premies voor medewerkers, fiscale jaaropgaven en maandelijkse salarisstroken

Betrokkene(n)	
Werknemers en bestuurders	Persoonsgegevens Omschrijving NAWT en email-gegevens Verzameldoel Versturen van salarisstroken en tenaamstelling contracten Omschrijving Loon-gegevens Verzameldoel Voor het bijhouden van salarisadministratie en fiscale verplichtingen Omschrijving Dienstverband-gegevens Verzameldoel Als basis voor loonadministratie en bijhouden contractduur Omschrijving NAT partner gegevens Verzameldoel Om partner te kunnen bereiken in geval van calamiteit met de medewerker Omschrijving Gegevens mbt loonbelasting Verzameldoel Om aan de verplichtingen richting fiscus te voldoen

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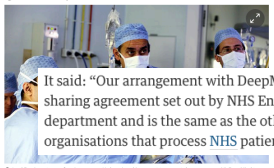
User consent?

Google given access to healthcare data of up to 1.6 million patients

Artificial intelligence firm DeepMind provided with patient information as part of agreement with Royal Free NHS trust



It said: "Our arrangement with DeepMind is the standard NHS information-sharing agreement set out by NHS England's corporate information governance department and is the same as the other 1,500 agreements with third-party organisations that process NHS patient data.

Lord Darzi, centre, performing surgery. He has given his support to a smartphone app run with DeepMind to [illegible] patients at risk of kidney failure. Photograph: Martin Godwin for the Guardian

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Dilemma

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Legal

Wat houdt de Meldplicht datalekken in?

Organisaties moeten datalekken melden bij de toezichthouder en bij betrokkenen. Boetes voor het zonder legitiem doel, op onzorgvuldige wijze of zonder adequate beveiliging verwerken van gegevens kunnen oplopen tot € 820.000. De Meldplicht raakt zowel allerlei procedures als de techniek. En dan hebben we de menselijke kant nog niet genoemd.

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Challenges

- Responsibilities (role separation)
- Legal support
- Compliancy
- IT security
- Operational security

Total cost of complicancy!

Case 2: Traffic & Internet of Things

Collect detailed traffic data:

- CCTV camera's
- Public transport data
- Bikes
- 6 countries
- 3 cities
- Universities + private companies

Example

Dear all,
we have received the ethical review for our project. As expected they are rather concerned about privacy issues and therefore they are asking to take a number of steps in order to clarify recruitment strategy of users, informed consent, privacy strategy, permissions from committees etc.

This is - I am afraid - a lot of work and I would like to ask you to give this maximum attention because … the project.

Also please note that actions are requested at country level for Italy, the UK, Spain and Netherlands. We have to contact national and local bodies. ***and double check with them if a formal prior notification should be lodged.***

Opportunities for Scyfer

- Chance to differentiate from competitors
- Anonymization of medical data by deep learning!

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THANK YOU

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