



Making AI Real

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#Road2AI

Artificial Intelligence

is the science of training systems to emulate human tasks through Learning and Automation



Understand
Context

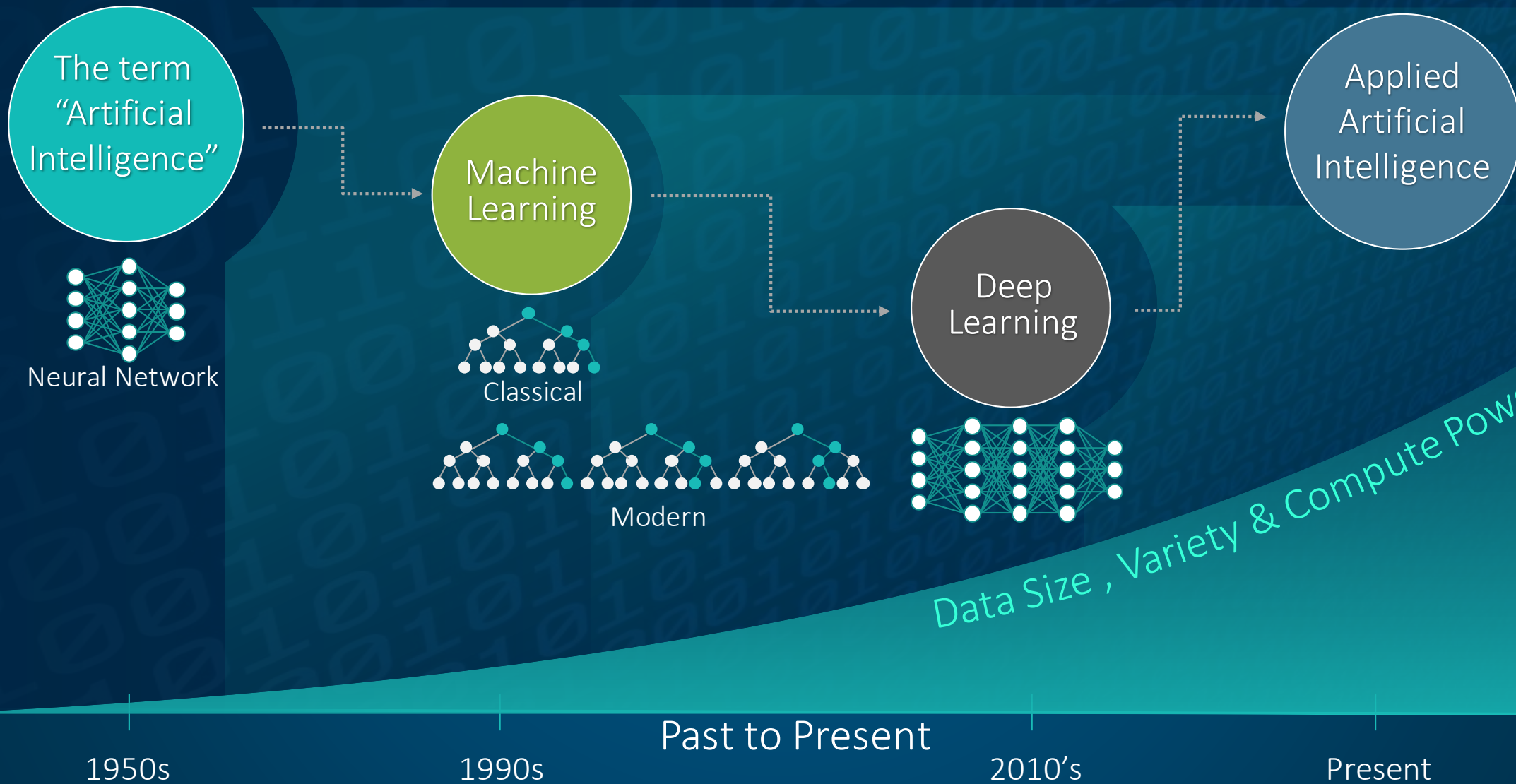


Learn
Patterns



Recognize
Objects

Evolution





LEARNING & AUTOMATION

Artificial
Intelligence



Human
Capability



Today, AI is seen as both Threat and Opportunity

THREAT

IRRATIONAL

Massive Job Loss
Robots Replace Humans

RATIONAL

Lose Competitive Edge
Bias and Discrimination
Lose Autonomy and Control

OPPORTUNITY

Gain Competitive Edge
Find Growth Trends
Customer Centricity
New Capabilities
Efficiency in Process
Process Elimination
Workforce Transformation
Reduced Time to Value
Reduced Cost
Improved Margin



61%

of organizations picked Machine Learning and AI as the most significant data initiative for next year

Source: Machine Learning and AI survey, O'Reilly Media and MemSQL, 2018

AI impacts your industry

“ *Only 8%*

*of companies effectively scale
their analytic initiatives.* ”

McKinsey 2018

WHY IS IT SO DIFFICULT?



CHALLENGES

How does **artificial intelligence** fit into our current business paradigm?

We can't get our models into production in a **timely manner**.

We need **flexibility** in our software deployment patterns.

We can't find, **hire & retain** enough high-level talent.

We are struggling to adopt the **data-driven decision making** within our **corporate culture**.



CHOICE
& AUTOMATION



OPENNESS
& INTEGRATION



LEARNING
& EXPLAINING



FAST
DEPLOYMENT



ANALYTICS
ORCHESTRATION

What customers are doing with SAS AI



WildTrack

Data for Good

90%

accuracy for ID of
wildlife using tracks⁵



Rogers

Telecom

53%

fewer customer
complaints¹



VUmc

Healthcare

Improved

tumor diagnosis
with AI & analytics



Daiwa

Financial

2.7x

increase in client
purchase rates⁴



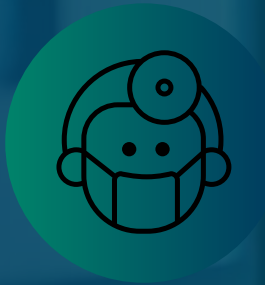
Honda

Manufacturing

Continuous learning
and Insight from
clients to improve
design & quality³

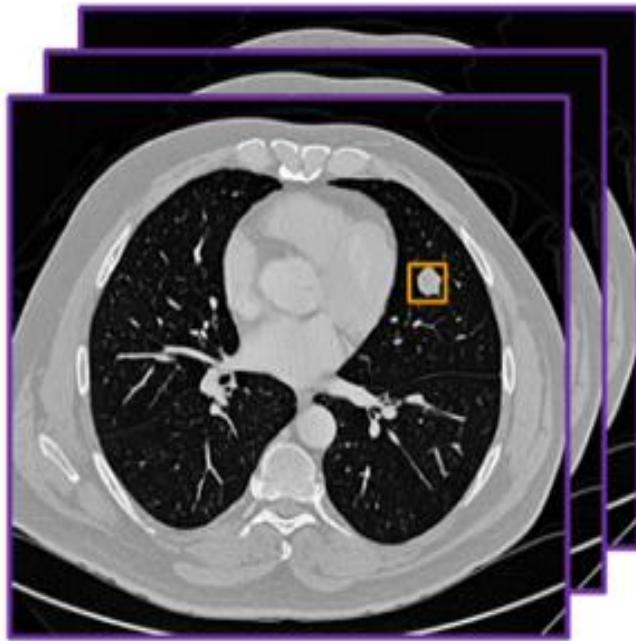


Force a breakthrough by
developing innovative treatments
for cancer.

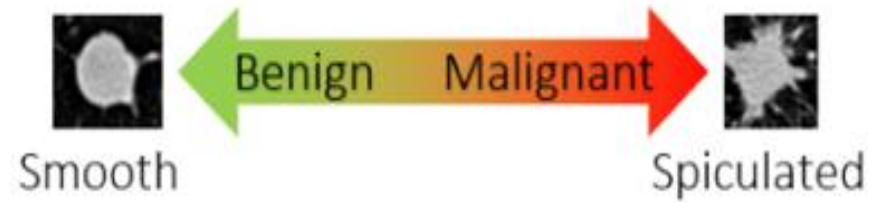


Needed to provide physicians a better way
to diagnose liver and brain cancer.

Lung Nodule Classification



3D Lung CT



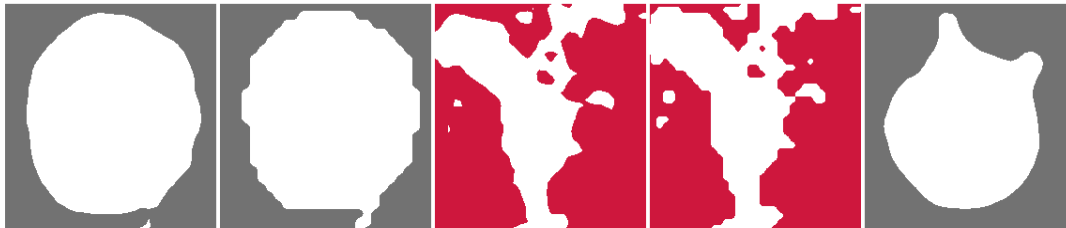
Nodule Diagnosis

Diagnosis Chart

- Data
- Objects
- Outline

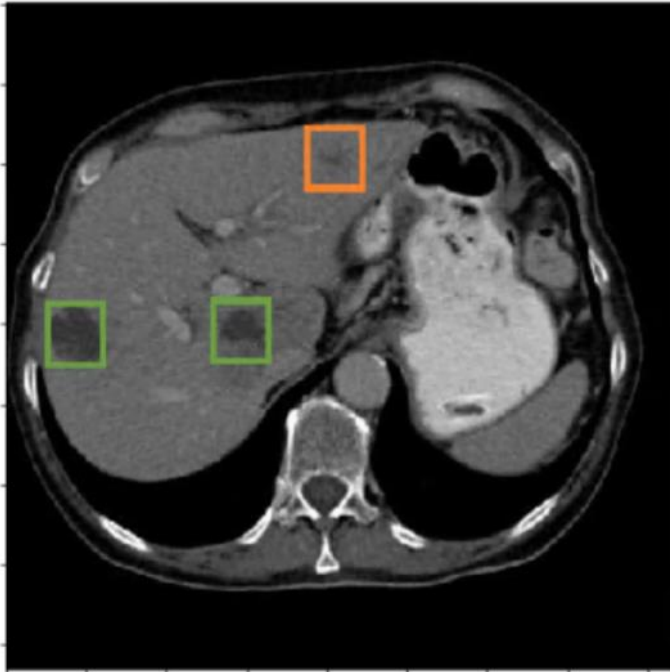
- Options
- Roles
- Actions
- Rules
- Filters
- Ranks

Patient Nodule Diagnoses

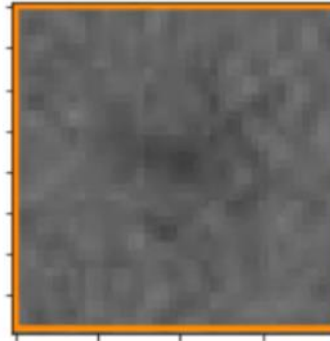


PatientID	X Pos	Y Pos	Z Pos	Nodule Width	Nodule Height	Nodule Computed Area	Feature Engineering	Deep Learning	Diagnosis
LUNGx-CT024	97	274	197	20	20	400	1	0	benign
LUNGx-CT019	114	345	131	36	36	1.3K	0	1	malignant
LUNGx-CT009	165	200	164	19	19	361	0	0	benign
LUNGx-CT003	359	359	146	31	31	961	1	1	malignant
LUNGx-CT002	311	328	205	37	37	1.4K	0	0	benign
CT-Training-LC009	129	279	63	39	43	1.7K	1	0	malignant
CT-Training-LC003	365	314	70	19	19	361	1	1	malignant
CT-Training-LC002	132	352	70	14	14	196	0	1	malignant
CT-Training-BE007	371	190	194	29	32	928	0	0	benign
CT-Training-BE001	396	288	169	12	12	144	0	0	benign

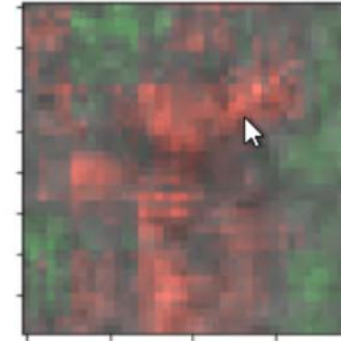
Report



Potential Lesion



Explanations



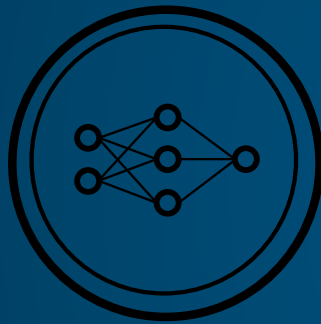
The model has found two lesions with high probabilities (green boxes) and one potential lesion (orange box) from the scan. The potential lesion area and the explanations are shown above. The red pixels in the explanations highlight the area that contributes to the lesion prediction according to the model. The green pixels highlight the area that the model finds unlikely to contain a lesion.

Image
Data (3-D)



X-Rays
MRIs
CT-Scan

Object
Detection



Deep Neural Networks
for detecting
Nodules and
Lesions

Unstructured &
Structured data



Medications
Family history
Diet
Lifestyle

Learning &
Automation



Monitoring the
changes
Treatment possibilities
and options

Reports to
Physicians/Surgeons



A person with short brown hair, seen from the back, wearing a blue shirt. They are looking at a large screen displaying medical scan results, including a chest X-ray. The screen is partially obscured by a dark green horizontal bar.

Results

“ An in-depth scan has a lot of data and the outcomes can be improved with the use of advanced analytics on patients’ health data and history. ”

Geert Kazemier
Cancer Center Amsterdam

Fraud Detection in Finance

Unsupervised Machine Learning

CHALLENGES



High rate of false positives



Manual, labor intensive process



Data Silos

ENABLERS



Advanced Machine Learning for Anomaly detection



Network Analysis



\$32m

Worth of value from uncovered fraud and
investigation process automation (from
10 days to 2 hours)

CHALLENGES



Minimal understanding of customer complaints



Reduced loyalty by 17%- 34%



Increased Customer Churn

ENABLERS



Natural Language Processing algorithms



Lapse propensity models

Voice of the Customer

Natural Language Processing

Results



£5m p.a.

Savings from identifying likelihood to leave with 90% accuracy at FNOC

ATM Forecasting

Machine Learning &
Forecasting

CHALLENGES



High
replenishment
cost



Low customer
satisfaction



Takes too long
to update
forecasts

ENABLERS



Advanced ML
Forecasting



What if / Scenario
analysis



33%

improvement in daily *cash brought back*. 20% reduction in daily *cash out* events. 10% reduction in *replenishment* trips.

Results



Deep Learning

Automate the detection of hazard risk on the utility lines and optimize maintenance









AI in Action

Artificial
Intelligence



Human
Capability



Thank you for your attention!

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