

KÖNIGSWEG



DATA LITERACY FOR MANAGERS

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PyConDE & PyData, MongoDB Master, Emeritus EuroPython

— Speaker Europa & USA MongoDB World New York / San José,
PyCon Italy, CEBIT Developer World, BI Forum, IT-Tage FFM, PyData,
PyParis,... here!



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We do digital excellence.

STRATEGY & INNOVATION

DATA & ARTIFICIAL INTELLIGENCE

BUSINESS TRANSFORMATION &
OPERATIONS

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HOW DID THIS TALK COME ABOUT?





WHERE DO WE STAND? – SOME PERSPECTIVES.





DATA SCIENTISTS' PERSPECTIVES

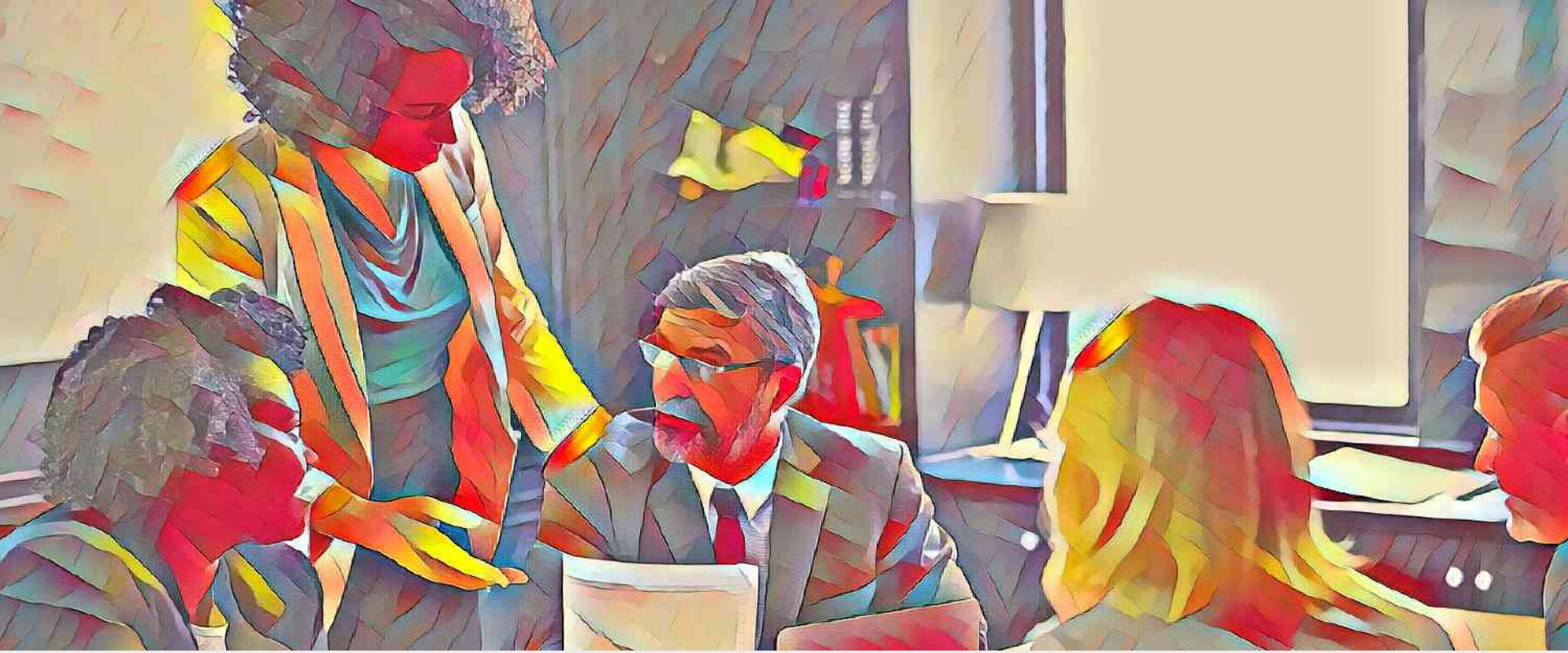




I'm a Data Scientists but my work is just analytics...



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MANAGERS' PERSPECTIVES

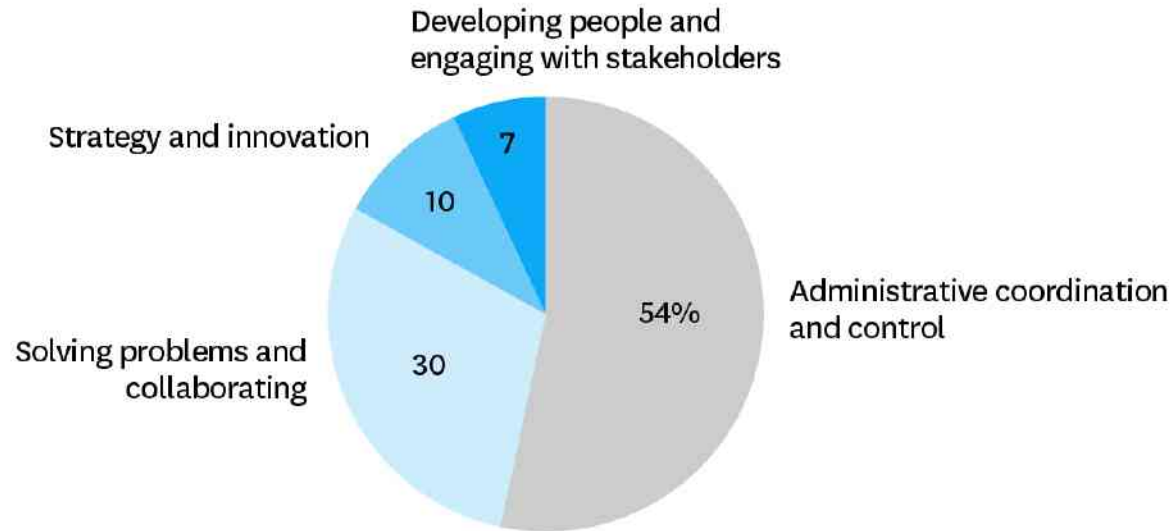


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How Managers Spend Their Time

The bulk of it is spent on administrative tasks.

PERCENTAGE OF TIME RESPONDENTS SPEND ON CATEGORIES OF WORK



SOURCE ACCENTURE SURVEY OF 1,770 FRONTLINE, MID-LEVEL, AND EXECUTIVE-LEVEL MANAGERS FROM 14 COUNTRIES

The Skills Managers Say They Will Need to Succeed over the Next Five Years

They undervalue critical people skills.

PERCENTAGE OF RESPONDENTS WHO SELECTED THE GIVEN SKILL AMONG THEIR TOP THREE





replacing managers |

Suche

replacing managers **with ai**

technology replacing managers

what are some of the advantages and disadvantages of replacing **human** managers **with robo-advisors**

progressive city government reform replacing **mayor's with elected city** managers

managers replacing **wenger**

replacing **project** managers

replacing old routines how ericsson software developers and managers learned to



replace data scientists|

will ai replace data scientists

will datarobot replace data scientists

machine learning replace data scientists

replace data scientists

Google Search

I'm Feeling Lucky

Report inappropriate predictions
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replace data engineer

engineering

Google Search

I'm Feeling Lucky

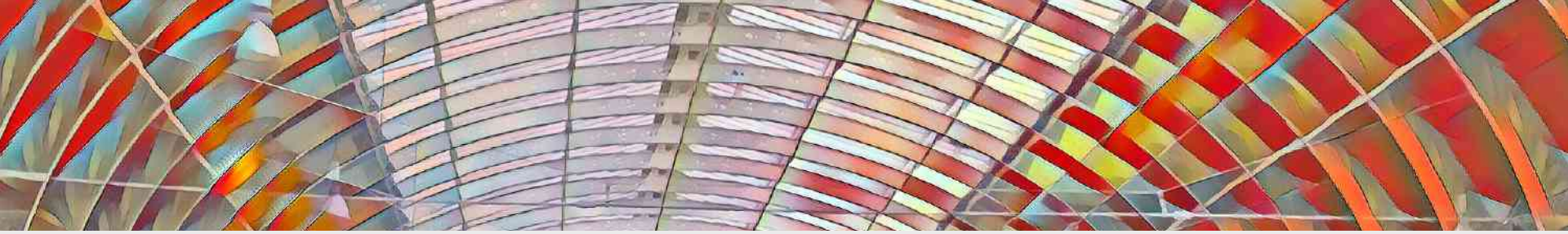
Google offered in: [Deutsch](#)



HYPE, BUZZWORD AND PROMISES



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HOW TO BUY AI



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HOW TO BUY AI IN 2019



AUFSCHNITT ODER AM STÜCK?

CUT OR PIECE?



Data literacy is the ability to collect, manage, evaluate, and apply data, in a critical manner.

Ridsdale, et al. (2016)





ALL YOUR KNOW-HOW





MISTAKE #1

DON'T TRY TO EXPLAIN EVERYTHING.

KEEP IT ON POINT



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DATA COLLECTION

DATA MANAGEMENT

DATA EVALUATION

DATA APPLICATION

DATA COLLECTION

DATA MANAGEMENT

DATA EVALUATION

DATA APPLICATION

DATA COLLECTION

DATA MANAGEMENT

DATA EVALUATION

DATA APPLICATION

DATA EVALUATION

DATA TOOLS

DATA
VISUALISATION

DATA ANALYSIS

PRESENTING
DATA

INTERPRETATION
UNDERSTANDING

DATA DRIVEN
DECISION MAKING

DATA EVALUATION

DATA TOOLS

**DATA
VISUALISATION**

DATA ANALYSIS

**PRESENTING
DATA**

**INTERPRETATION
UNDERSTANDING**

**DATA DRIVEN
DECISION MAKING**

DATA COLLECTION

DATA MANAGEMENT

DATA EVALUATION

DATA APPLICATION

DATA APPLICATION

DATA ETHICS

DATA CITATION

DATA CULTURE

DATA SHARING

CRITICAL THINKING

**EVALUATING
DECISIONS**

DATA APPLICATION

DATA ETHICS

DATA CITATION

DATA CULTURE

DATA SHARING

CRITICAL THINKING

EVALUATING
DECISIONS

DATA COLLECTION

DATA MANAGEMENT

DATA EVALUATION

DATA APPLICATION



PERSONALITIES

PETER BAUMGARTNER: Applied NLP: Lessons from the Field <https://pmbaumgartner.github.io/blog/applied-nlp-lessons/>



Persona and response	Implication
Anodyne Andy doesn't know the problem	They need to provide more information about the problem, data, and business process. They need to see examples of what NLP can do.
Easy Ed wants other options	They have a data collection or data management problem for you to solve first. This can set the groundwork for future NLP problems.
Show-off Sarah wants to do "AI"	They might expect magic or your results will be ignored. Set expectations, describe data requirements, show them NLP examples and make sure they understand the limitations.
Helpful Hannah has structured data	They have supplemental data that will help you. Get your hands on it. Use it to better understand the data you might use for NLP. Combine NLP features with structured data.
Labeling Larry has "labeled" data	They might label data or already have data labeled under a different annotation scheme. Their data management process can probably be improved.
Prepared Pam understands the problem and NLP	They understand NLP through conversations with you. Get your hands on the data. (Trust, but verify)

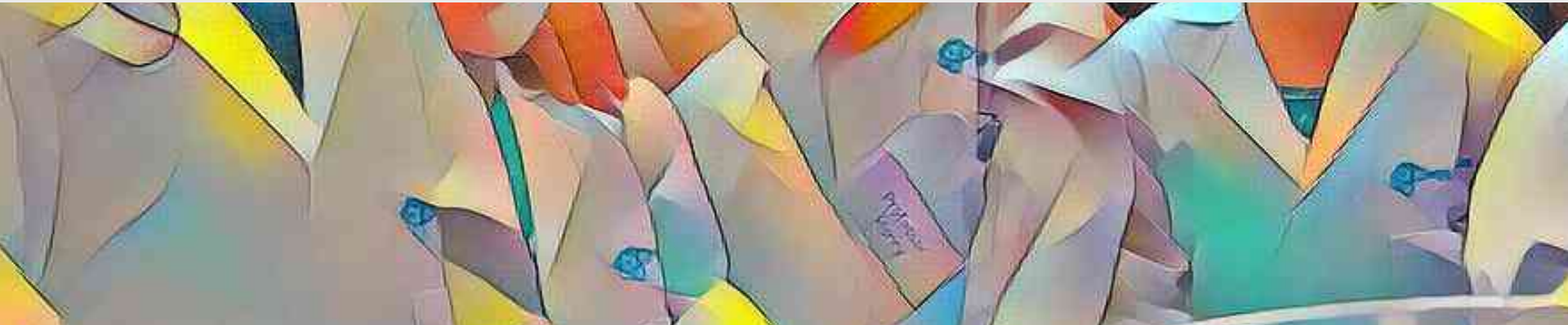


MISTAKE #2

IT'S NOT IT DEPARTMENT



AT FIRST, DATA SCIENCE AND AI IS RESEARCH & DEVELOPMENT!



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MISPERCEPTIONS: BIGGER IS BETTER



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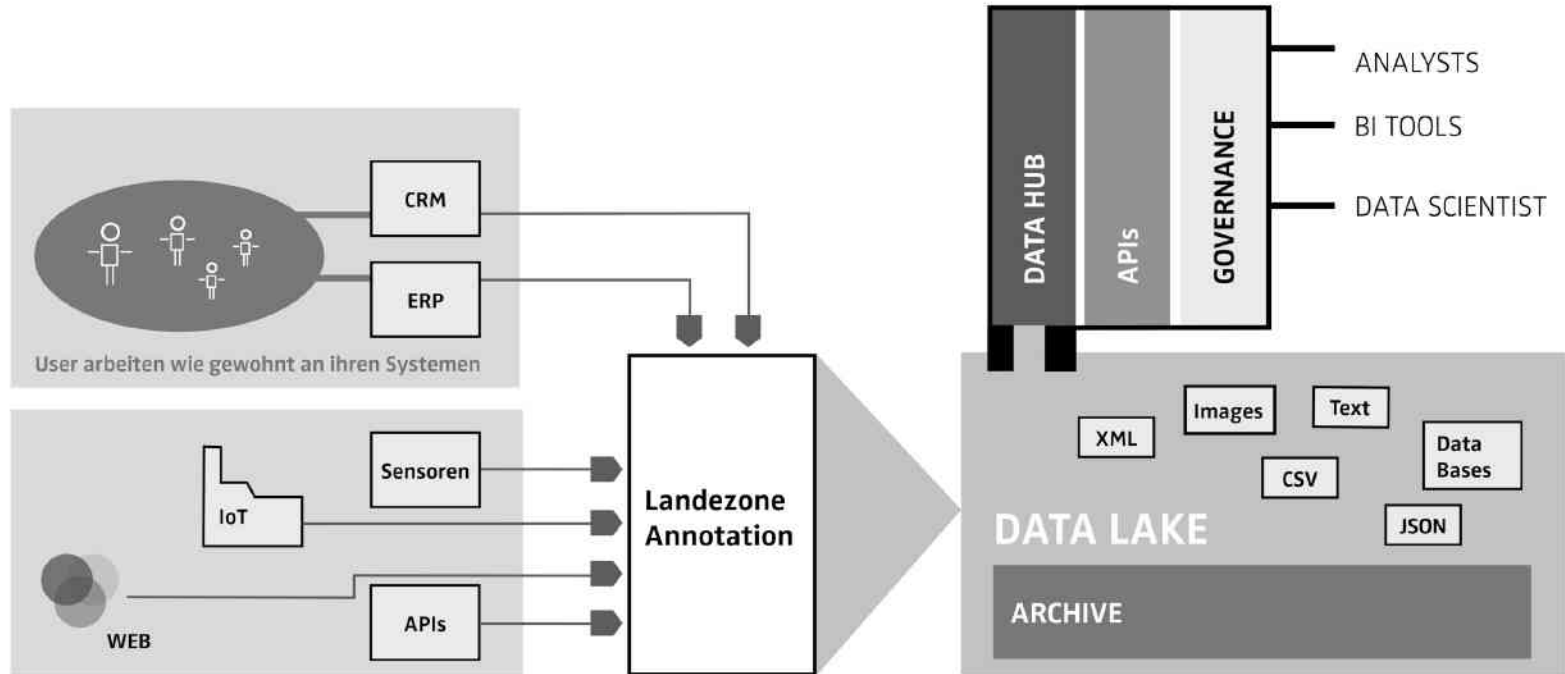


MISPERCEPTIONS: DATA LAKES ARE RESERVOIRS



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Data Lake





**PROBLEM JUST SEEMS SIMPLE JUST
BECAUSE ONE HAS NO EXPERIENCE**

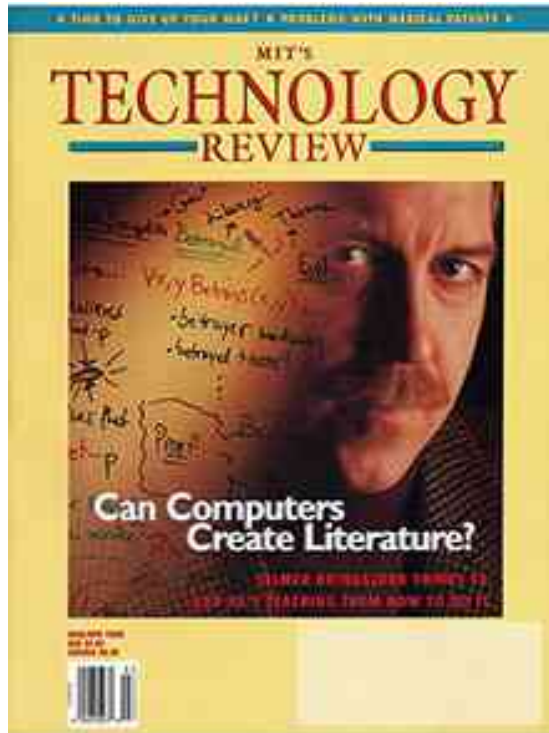


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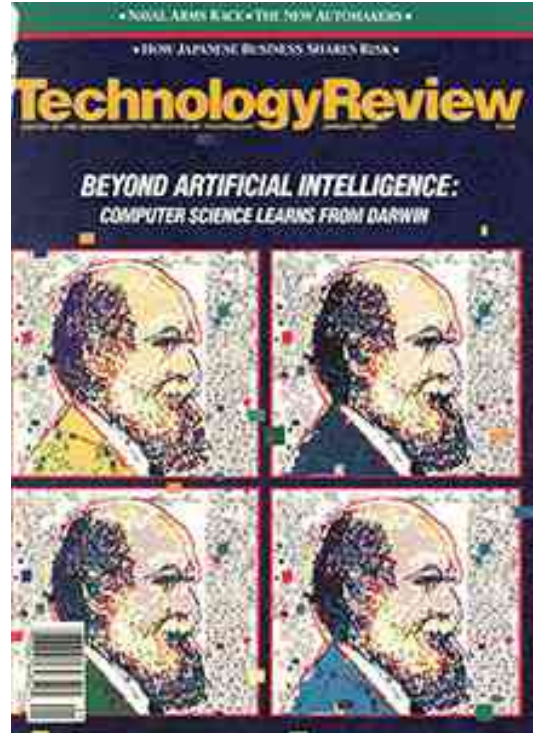


We have all seen this before, it's just a hype...





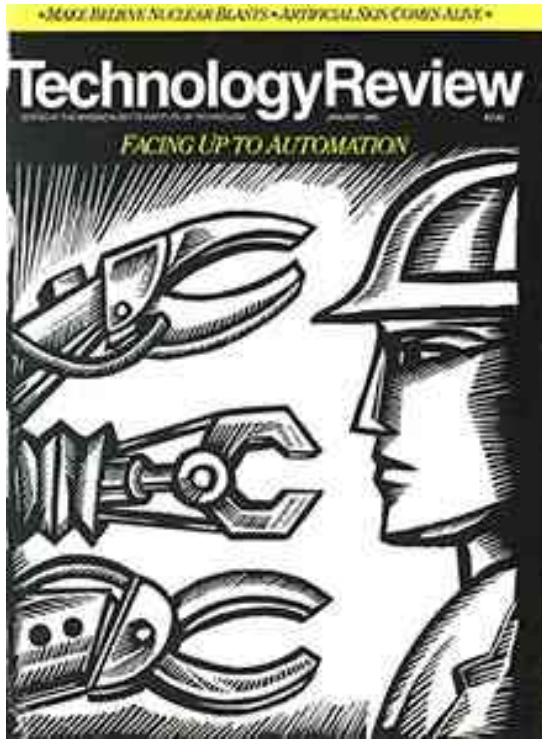
1998



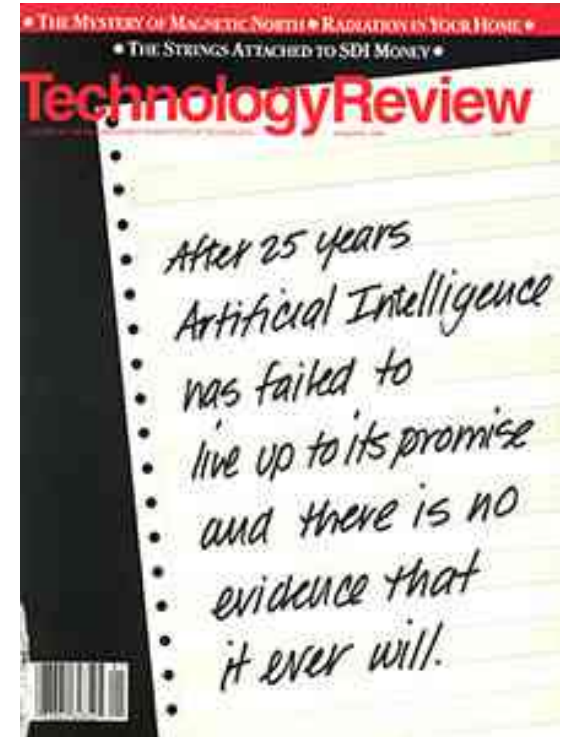
1989



1987



1985

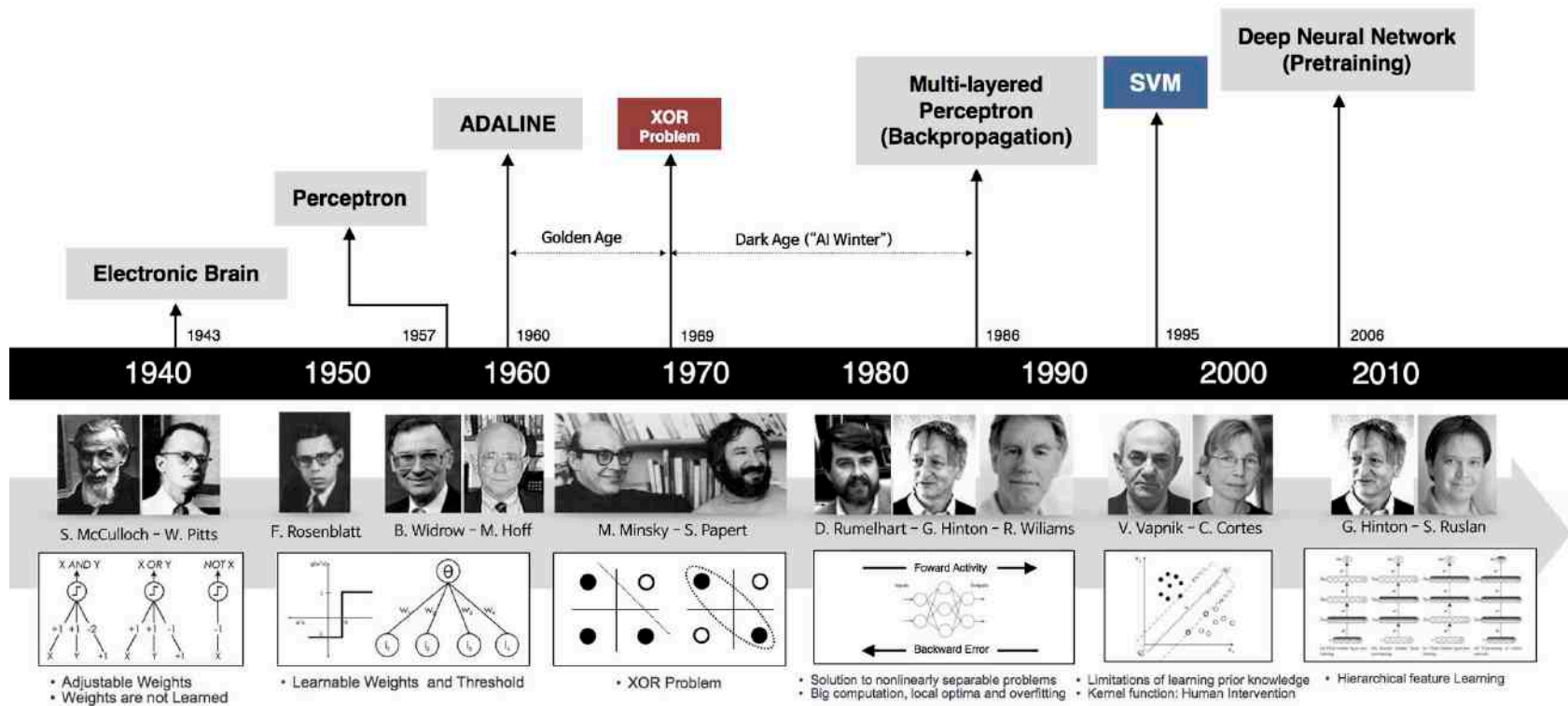


1986



Don't Believe the Hype.

Public Enemy 1988



NATURAL 'PROZAC': DOES IT REALLY WORK?

Newsweek

May 5, 1997 • \$2.95

Man vs. Machine:
The Rematch

What Computers Will Do Next

The Brain's Last Stand

Chess champion Garry Kasparov

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Alfred Binet

Alan Turing

"Chess may hold the key to unlocking the secrets of human cognition."

Norbert Weiner

Claude Shannon

AML2019

Applied Machine Learning Days

Kasparov.com

Historical chess engines' estimated ELO ratings



Applied Machine
Learning Days



*“Computers are
useless, they can
only give you
answers!”*

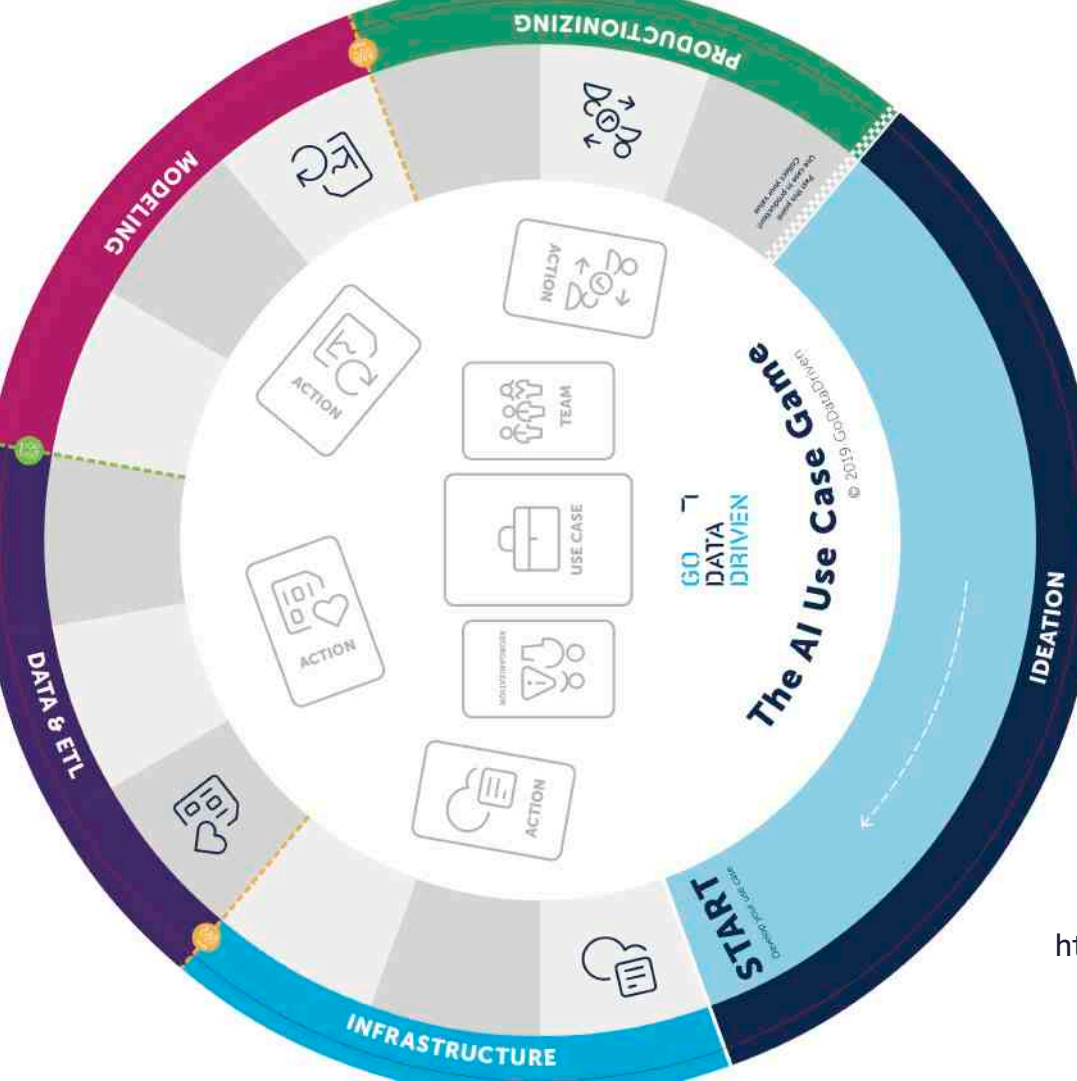
Pablo
Picasso





DEMOS & MAGIC





DATA DRIVEN BOARD GAME

In the game, you lead a team of data scientists and engineers. Your goal is to create as much business value as possible for your company while you and competitors each finish up to three use cases.

<https://blog.godatadriven.com/data-driven-game-design>



TITANIC IS STILL SUPER INSTRUCTIVE



EXECUTIVE SUMMARY

TITANIC DATA: INSTRUCTIVE EXAMPLE

HOW TO MAKE PREDICTIONS

HOW TO MAKE BAD PREDICTIONS

DOMAIN EXPERTISE

Once upon a time there was a little mermaid named Siren, who lived with her step mother under the sea, She didn't get to go out of the Sea like any other."



9 DAYS OF TRAINING

NN CAN READ ENGLISH TEXT - WITHOUT
CLOUDSERVICE.

SCALABLE INSTANT APPLICATION



Tacotron2

- LJ Speech Dataset (English)
<https://keithito.com/LJ-Speech-Dataset>
- Natural TTS Synthesis by Conditioning WaveNet on Mel Spectrogram Predictions, Jonathan Shen, Yuxuan Wang and Zongheng Yang et al.
- Tacotron2 implementation used:
[NVIDIA/tacotron2](https://github.com/NVIDIA/tacotron2)

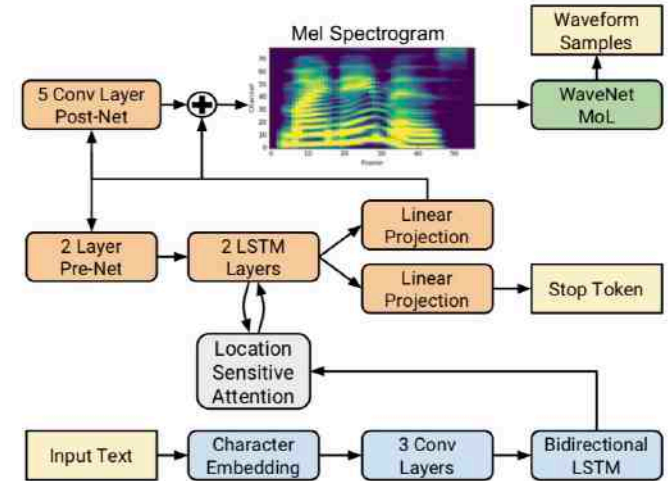
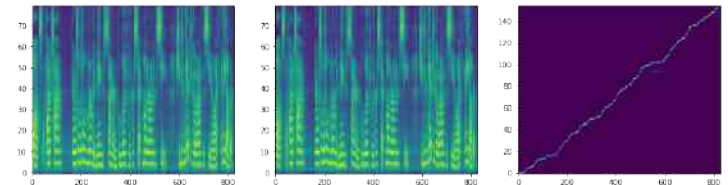


Fig. 1. Block diagram of the Tacotron 2 system architecture.



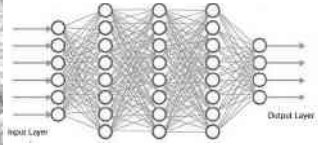
EXECUTIVE SUMMARY

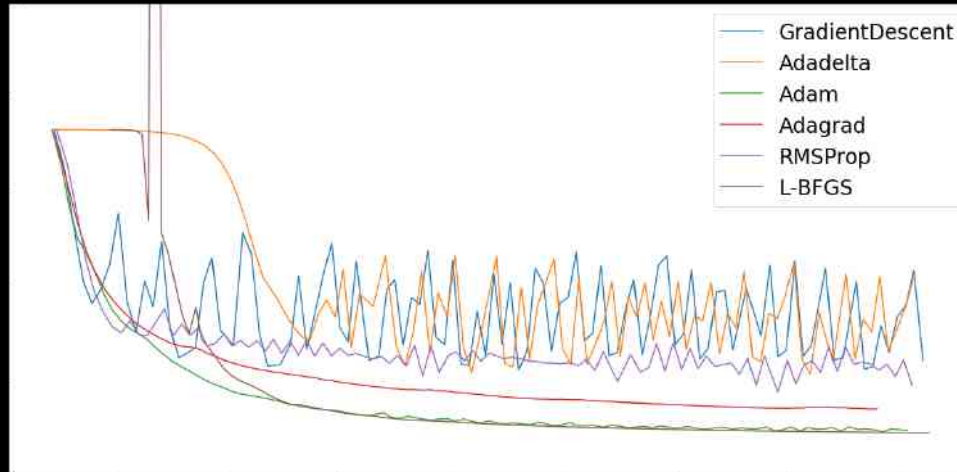
**HIGH QUALITY DATA +
A CLEVERLY DESIGNED NEURO NET**



DATA, SIGNAL & PREDICTIONS







Fast Style Transfer, per second: 192 pictures
COCO 2017, VGG16, content weight $1e5$, style weight $1e10$



Tiger in a Tropical Storm, Henri Rousseau, 1891 ©



Moebius, Incal (collage from), 1980



Franz Marc, Der Tiger, 1912



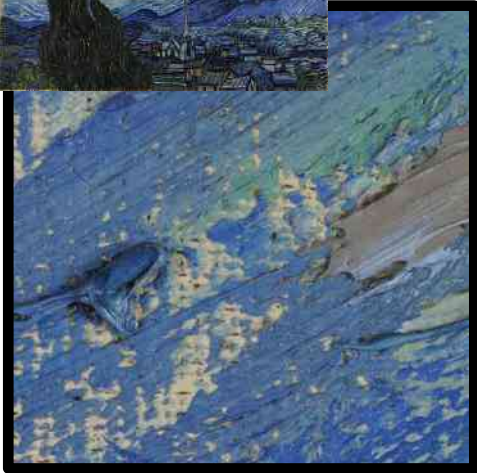
Jean-Claude Mézières, Valerian & Laureline - L'Empire des mille planètes (col.), 1971



DC Comics, *Batman No. 59 – Batman in the Future* (collage from), 1950



Leonardo Da Vinci, L'adorazione dei Magi (unfinished, excerpt), 1481



Vincent van Gogh, De sterrennacht (excerpt), 1889



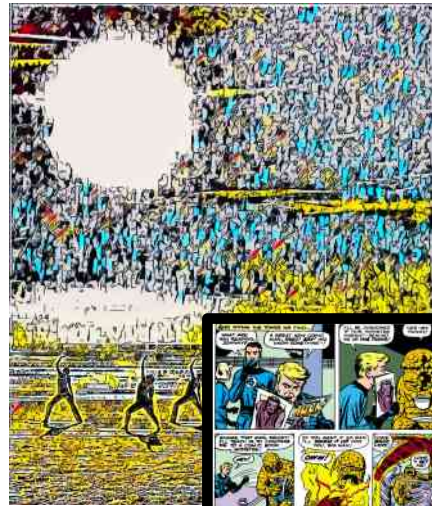
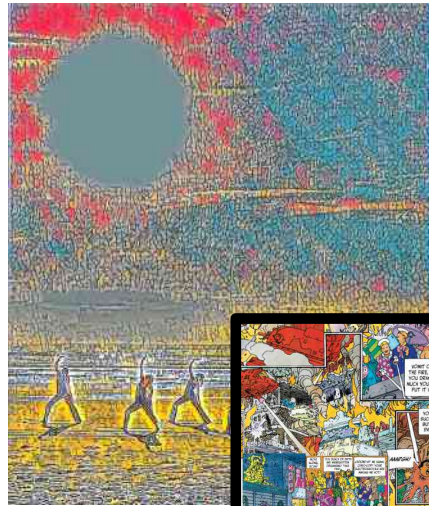
HR Giger, Atomcity (excerpt)



Pablo Picasso, Las mujeres de Argel, 1955



Marvel, *Fantastic Four* No. 225 (collage from), 1961





PAPERS + THE INTERNET + THE NEWS



EXECUTIVE SUMMARY

PAPERS DEMONSTRATE IMPRESSIVE FINDINGS.

FOLLOWING PROGRESS IS IMPORTANT.

95% PAPER (UNFORTUNATELY) DO NOT WORK IN PRODUCTION.



ADVERSARIAL ATTACKS



Fooling automated surveillance cameras: adversarial patches to attack person detection

Simen Thys, Wiebe Van Ranst, Toon Goedemé

<https://arxiv.org/abs/1904.08653>

April 2019



<https://www.youtube.com/watch?v=MlbFvK2S9g8>

NoT so
YOLO

EXECUTIVE SUMMARY

NEURO NETWORKS DO NOT PERCEIVE REALITY AS WE HUMANS DO.

NEURO NETWORKS MAY BE FOOLED.

NEURO NETWORKS ARE BETTER + FASTER AT MANY THINGS.

NEURO NETWORKS CANNOT TRANSFER KNOWLEDGE.



**TEAM UP:
OPEN, HONEST & RESPECTFUL COMMUNICATION CULTURE**



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**LIKED THE PICTURES IN THE SLIDES?
COME BY OUR BOOTH AND MAKE YOUR OWN!**

Thank you!



We're hiring

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