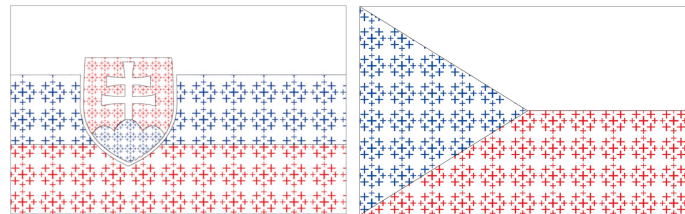


H₂O.ai



#skczTUG



SK & CZ Tableau User Group

**GAP
DATA
INSTITUTE**

Tableau Extensions API & Future of AI/Machine Learning
H2O.ai Meetup + SK & CZ Tableau User Group Meetup - Prague Edition
(#H2Oai/H2O.ai Meetup, #skczTUG/SK & CZ Tableau User Group Meetup, H2O.ai, Prague, Czechia)

19. 9. 2019

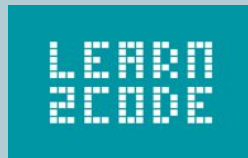
Radovan Kavický, GapData Institute

About me

- Economist (Macro, Finance); Slovak Economic Association
- Principal Data Scientist (GapData), Consulting (public, private)
- Member of Slovak.AI, CLAIRE, European AI Alliance, TAILOR
- Data Science Instructor @ DataCamp, BaseCamp.ai, Learn2Code
- Founder of PyData Slovakia/Bratislava (#PyDataBA), R <- Slovakia (#RSlovakia), Julia Users Group Slovakia (#JUGSlovakia) & SK/CZ Tableau User Group (#skczTUG)



DataCamp



Andrea Cirillo

R Data Mining

Implement data mining techniques through practical use cases and real-world datasets



Packt

Python Programming Blueprints

Build nine projects by leveraging powerful frameworks such as Flask, Nameko, and Django

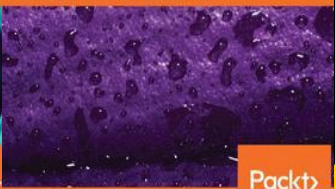


By Daniel Furtado and Marcus Pennington

Packt

Python Deep Learning Cookbook

Over 75 practical recipes on neural network modeling, reinforcement learning, and transfer learning using Python



By Indra den Bakker

Packt

Personal Finance with Python

Using pandas, Requests, and Recurly
Max Humber



Apres

Jen Stirrup, Ruben Oliva Ramos

Advanced Analytics with R and Tableau

Advanced visual analytical solutions for your business



Packt

Vitor Bianchi Lanzetta

R Data Visualization Recipes

A cookbook with 65+ data visualization recipes for smarter decision-making



Pack

Ankit Dixit

Ensemble Machine Learning

A beginner's guide that combines powerful machine learning algorithms to build optimized models



Packt

Tableau (best of BI) & H2O.ai (best of AI/Driverless AI)

Tableau as complex Data Science Platform

- Tableau as a Data Science Platform & Revolution in Analytics
- Integration the best from the world of R, Python & AI/ML World (external extensions)
- Tableau moves beyond its BI & analytics upstream to deliver value at more points in the enterprise customer data
- preparation, integration and even some curation (including extensions)
- answer more questions visually and increasingly answer some questions automatically (ML)
- Tableau & NLP + Voice integration/recognition/control (Data Science as “gimme your data and just ask me what would you like to know”)
- Open to external tools (via API/Extensions)
- Leland Wilkinson (author of The Grammar of Graphics/gg, ex-Tableau, current/ex H2O.ai/AutoViz)



Tableau & Salesforce (or why should H2O.ai even care)



salesforce



DataRobot

- operating independently under the Tableau brand
- still striving to build analytics products you love to use
- still be big supporters and participants in the amazing Tableau Community
- still helping companies and individuals to be smarter and more productive and supporting organizations that make the world a better place
- keep engaging with each other via Tableau Public, Tableau Conferences, and Tableau User Groups.
- various Extensions already working (DataRobot, alphas.ai)
- opportunity to amplify the great work we've started together and on our mission to help people see and understand data faster & have even more impact together



Tableau Sandboxed Extensions & Extensions API



- Tableau (Big T) is no longer just the best BI/DataViz tool (started 2018 but sandboxed extensions now in 2019 allow to send data “outside” of Tableau and return insights or models)
- Integration & extension of ML/AI (instant analytics), NLP & Data-Prep Tools
- <https://tableau.github.io/extensions-api/>, <https://github.com/tableau/extensions-api>

Types of Extensions:

- Network-Enabled Extensions (turned off by default/explicit admin’s turn on @ Tableau Server)
- Sandboxed Extensions (public hosting service/copy of extension +generate URL to access)
- Data Governance (update/Tableau Server/assign data to the specific individual/certification)
- Tableau Server for Linux + Security (with extensions data go outside/external apps)
- Explain Data - new AI-powered feature which helps the analysts to understand “why” behind the unexpected values in data by identifying causes and relationships between the data (Bayesian statistical methods to generate the explanations +evaluating more than a hundred explanations and choosing the most likely ones)
- Tableau Catalog (data management) & Project McKinley (server deployment/AWS +more)
- extensions simply allow developers to write any new, third party functionality (drag & drop extension + RESTful API access to enable extensions in future)

Tableau Extensions API & ML/AI (NLP and voice)

- AI/ML augmented analytics (scenarios for data-driven decision making)
- build and deploy highly accurate machine learning models without writing a single line of code
- experiment, simulate and compare different scenarios using various models/scenarios to identify the best strategy or test ideas before committing resources
- focus on the right data to analyze, get predictive insights with explanations in your dashboards
- run simulations to get actionable prescriptive guidance on what to do next and get instant visual response
- Alphaa.ai (world's 1st AI voice analyst/not just regular “chat bot”)

In past we could use:

- TabPy (connect to Tableau Server from Python)
- Rserve (TCP/IP binary R server)

 alphaa.ai



DataRobot

 + a b l e a u[®]

Future of AI/ML and Data Science

- Back to Basics

What Machine Learning/Artificial Intelligence is? What Data Science is?

“Artificial intelligence is the science of making machines do things that would require intelligence if done by men.”

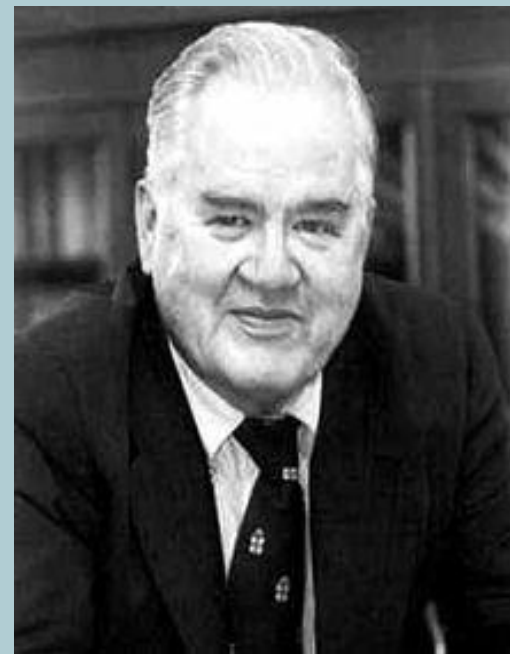
-- Marvin Minsky

- Data Science (definition): collection of scientific results and methods for transformation of data from raw form to meaningful information, knowledge and wisdom, which should support better decisions

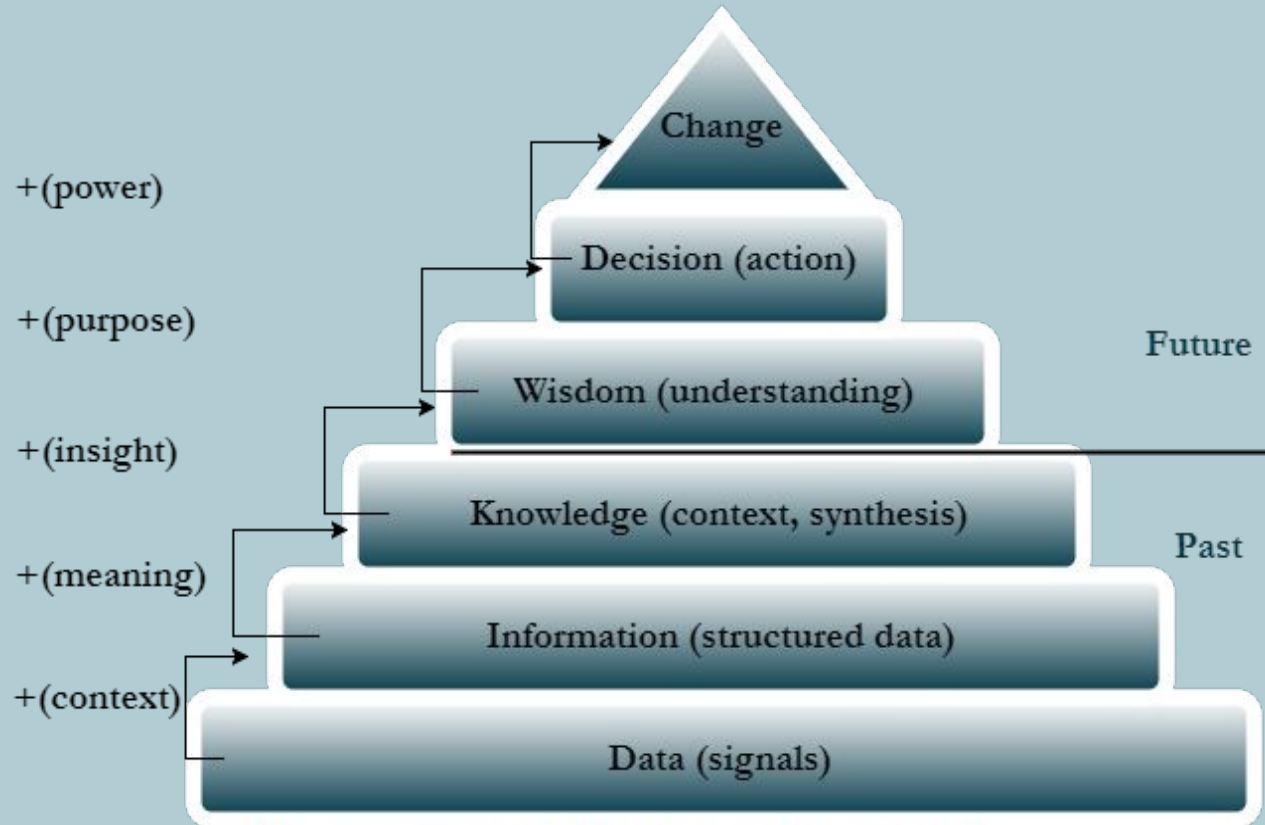
- Data Science: Statistics + programming; data analysis + Computer Science, modelling + Econometrics, Big Data, ML/DL

- Expectation/Prediction: Data Scientists, one of the first “victims” of automation

- Is Data Reality? Do we model reality? (noise/signal)



Data Science Pyramid



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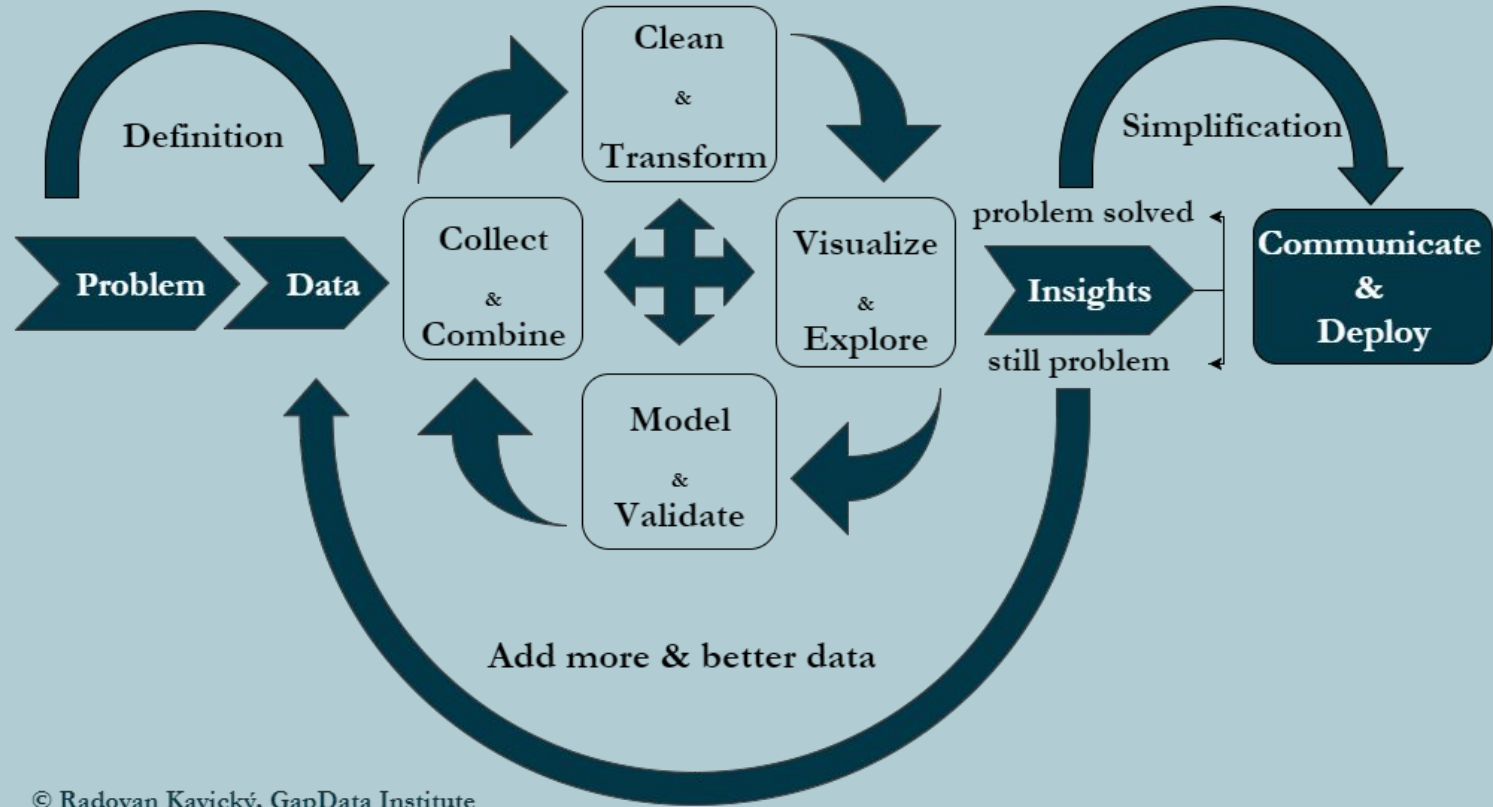
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Is data reality?

Data is not reality.
And if you think so, you
should quit your job...
right now.

Source: Me :), H2O.ai Meetup, Prague 2019,
<https://www.meetup.com/Prague-Artificial-Intelligence-Deep-Learning/events/264335458/>

Data Science Process & Workflow



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10/12

AI & Ethics (food for thought & main challenges for the future)

- we should all be humble & think all the time about ethical implications of our work
 - data in not (at least our) reality & need of transparency (explainable AI/HLAI/Superintelligence)
 - we have no programming of common sense (fails/CYC)
 - we need both left and right brain/lobe thinking
 - we don't know how we really think (and if you think you know, well... good luck)
 - we don't know what intelligence is (unknown processes)
 - we are not walking neural nets (but if some of you are, please, let me know)
 - design perceptron (imitate brain without knowing how the brain really works), real research of brain started (Brain Initiative/public and private research, 2013 +DARPA, IARPA)
 - we need to rethink the basic design of neural nets (mathematics of deep learning)
 - we can count all the neurons in our brains (10's of billions and 1000's of billions synapses)
 - we need rules (ethical & law standards/technology is currently before ethics)
- “But the big feature of human-level intelligence is not what it does when it works but what it does when it's stuck.”
- Marvin Minsky

Future is awesome.
All we have to do
now is to build it.

#PyData

Data Science & Data Visualization in Python.
How to harness power of Python for social good?



Source: PyData Berlin 2017, Talk on YouTube: <https://www.youtube.com/watch?v=I5578BhU4sE>

PyData Bratislava & activities within CEE + V4



- 300+ members
- 600+ on mailing list
- 800+ followers



AI Startup Showcase Machine Learning Prague

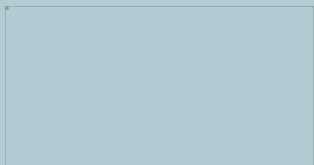


- Partners: O'Reilly, robime.it, Learn2Code, sli.do
- Sponsors: H2O.ai, SwissRe, ERNI, Kiwi Security
- WeAreDevelopers World Congress (“GAPDATA-25” & “PYDATA-25”), Vienna, 28.-29. November
- Tensorflow World 2019 (“PCGAPDATA” for 20% discount), Santa Clara, 28.-31. October 2019
- Our Conferences (satRday, PyData Bratislava)

GapData Institute (GDI) and how to support us.



- Economic Research & Public Policy & Data Science think-tank (data-tank)
- Data. Think. Change.
- GapData Institute (GDI) is a non-profit nonpartisan research institution harnessing power of data & wisdom of economics for public good.
- Transparent account (from day #1;
SK7383300000002200933920
<https://www.fio.sk/ib2/transparent?a=2200933920>)
- Partnership (openness, transparency)
- Slides (this talk): tiny.cc/h2o2019prague
- <https://github.com/radovankavicky/H2OPrague2019>



Thank you for your attention

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<https://gapdata.slack.com/>

Invitations (e-mail): <https://gapdata.herokuapp.com/>

<https://github.com/radovankavicky>

FB> <https://www.facebook.com/groups/3566351380316>

@radovankavicky, @PyDataBA, @GapDataInst



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In case you have any question, feel free to ask.

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Join at
slido.com
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How do you like this talk.

#skczTUG @ sli.do

In case you have any question, feel free to ask.



That's all Folks!

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Audience Q&A Session

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Tableau Extensions API & Future of AI/Machine Learning