‘Introduction to analysis of time series data’

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Toumetis Ltd.

WTH Workshop Wednesdays
25th Sept 2019

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Tools

Do you have a Google account?

YES —> sit back and relax

NO —> please register for one now:
https://accounts.google.com/signup/v2

WHY? We will be working with the free online coding environment Colaboratory, which will save your notebooks (i.e. code) in your Google Drive.

Objectives of today's workshop

Introduction to time series data

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Create a project for your portfolio and prepare for a practical interview task

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Create a project for your portfolio and prepare for a practical interview task

Eat some pizza ~ 7.45pm

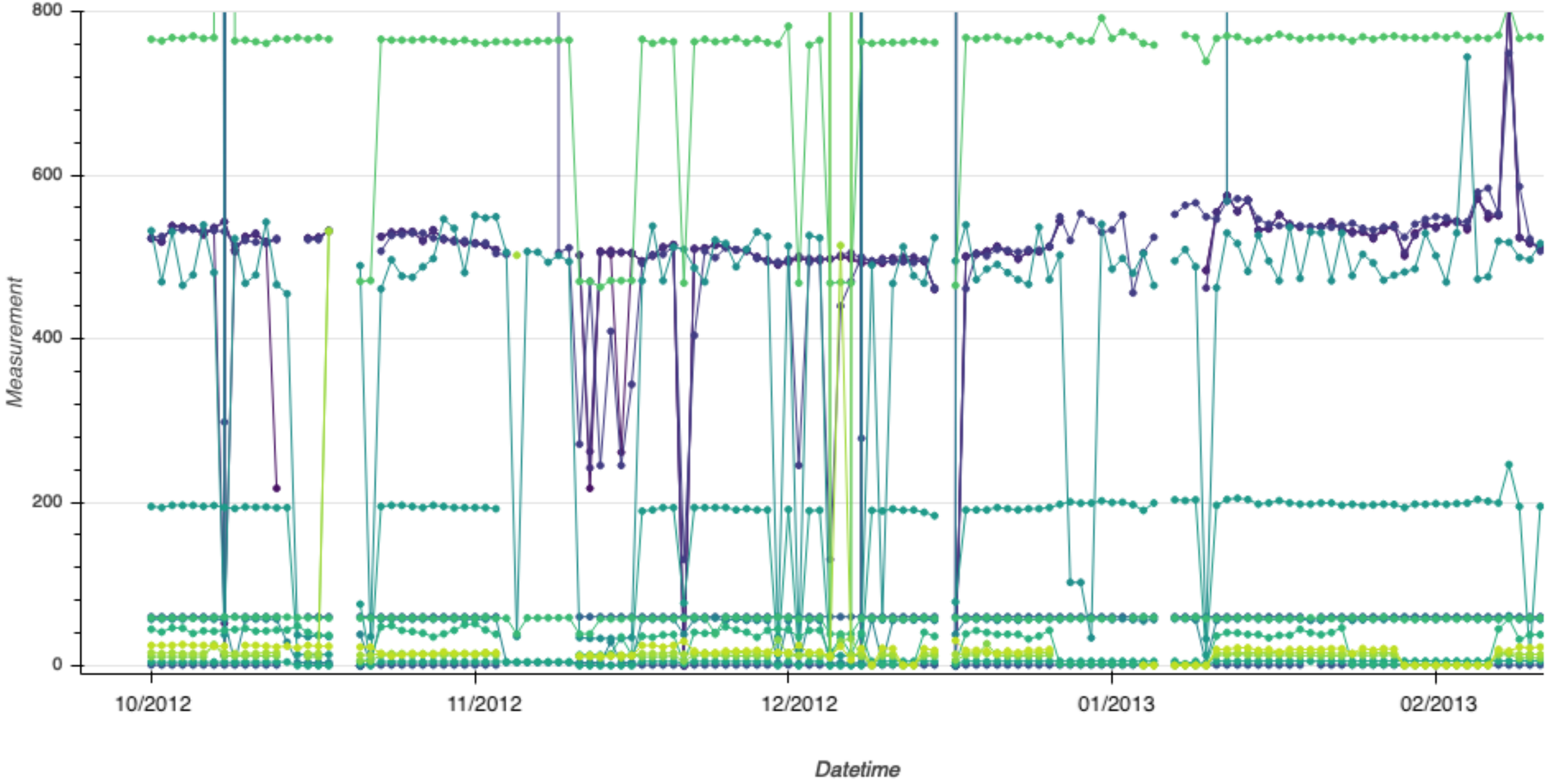
Time series data

Data that is indexed or visualised in time order.

Ideally equal time steps

Examples:

- sales
- stock prices
- sensor measurements



What can we do with this data???

Practical interview task - example

All set to go?

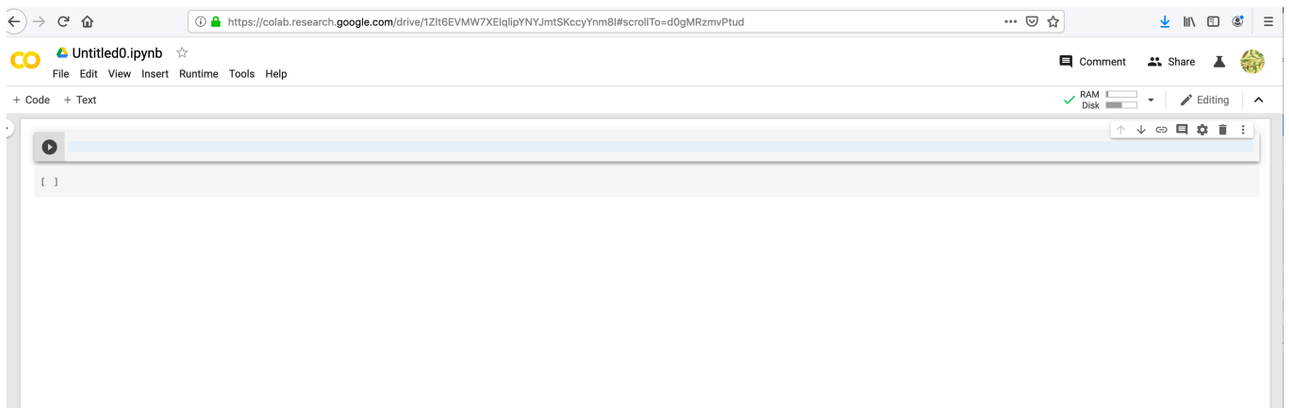
Image by https://pixabay.com/users/Simon-3/

Tools

Google Colaboratory - interactive environment to run Python code

https://colab.research.google.com/notebooks/welcome.ipynb

- Follow URL to homepage
- Right-hand corner: Sign in
- You should get something like this



Tools, cont.

Colab is your own working space

- Change name for notebook into something like ‘Workshop_WTH_IntroData’

- Save

- Cells = code is executed here

What to analyse?

Browser: https://github.com/Toumetis/2019_09_25_WorkshopWednesdays

Download the data file in ‘datasets/’ into your Google Drive (Button ‘Clone or Download’, choose ’Download’ —> download zip file —> unzip)

All set to go?

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Let’s work together

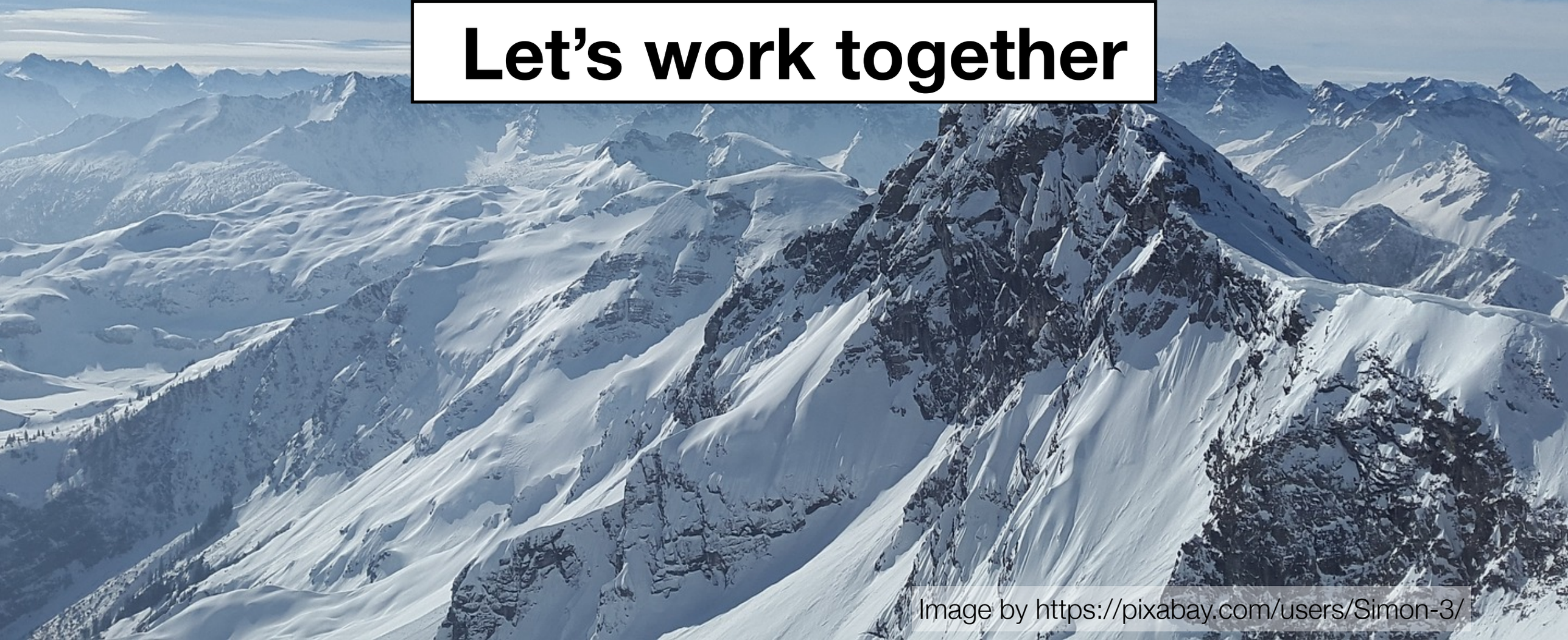

Image by https://pixabay.com/users/Simon-3/

Hands-on demo

Download notebooks from repository

Go to Colab and log in with your Google account https://colab.research.google.com/notebooks/welcome.ipynb

‘File’ —> ‘Upload notebook’ —> choose the file ‘Electricity_Load_Classification_Workshop.ipynb’

Run cell by cell

Data Science

You did some Data Science!

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Data science is the field of study that combines domain expertise, programming skills, and knowledge of math and statistics to **extract meaningful insights from data**.
(Source: https://www.datarobot.com/wiki/data-science/)

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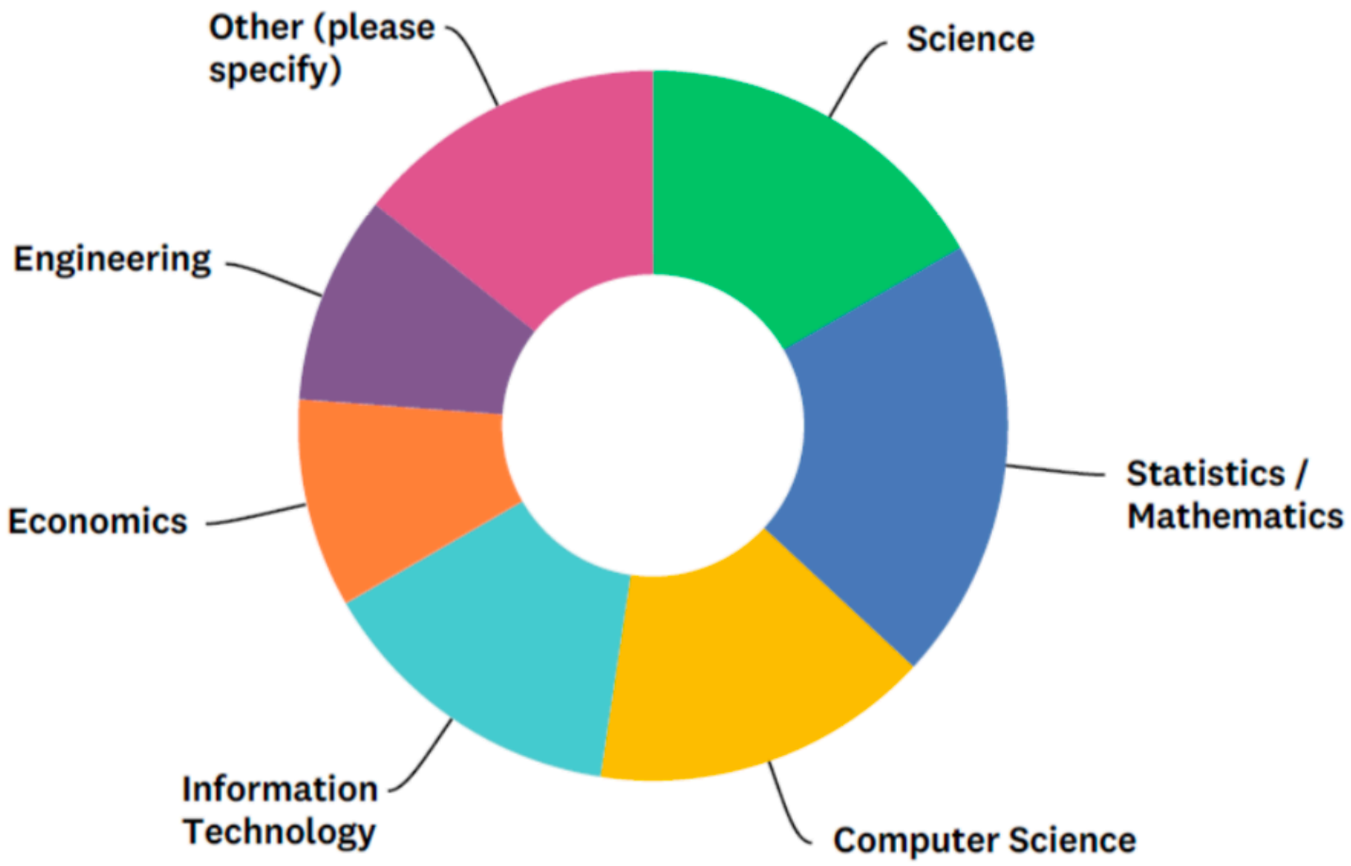
A bit more about the people who do Data Science...



Background of data scientists

Source: 'The Timeline of Data Science - Reviewing the results' (Wade Macdonald recruiting)

Skills required

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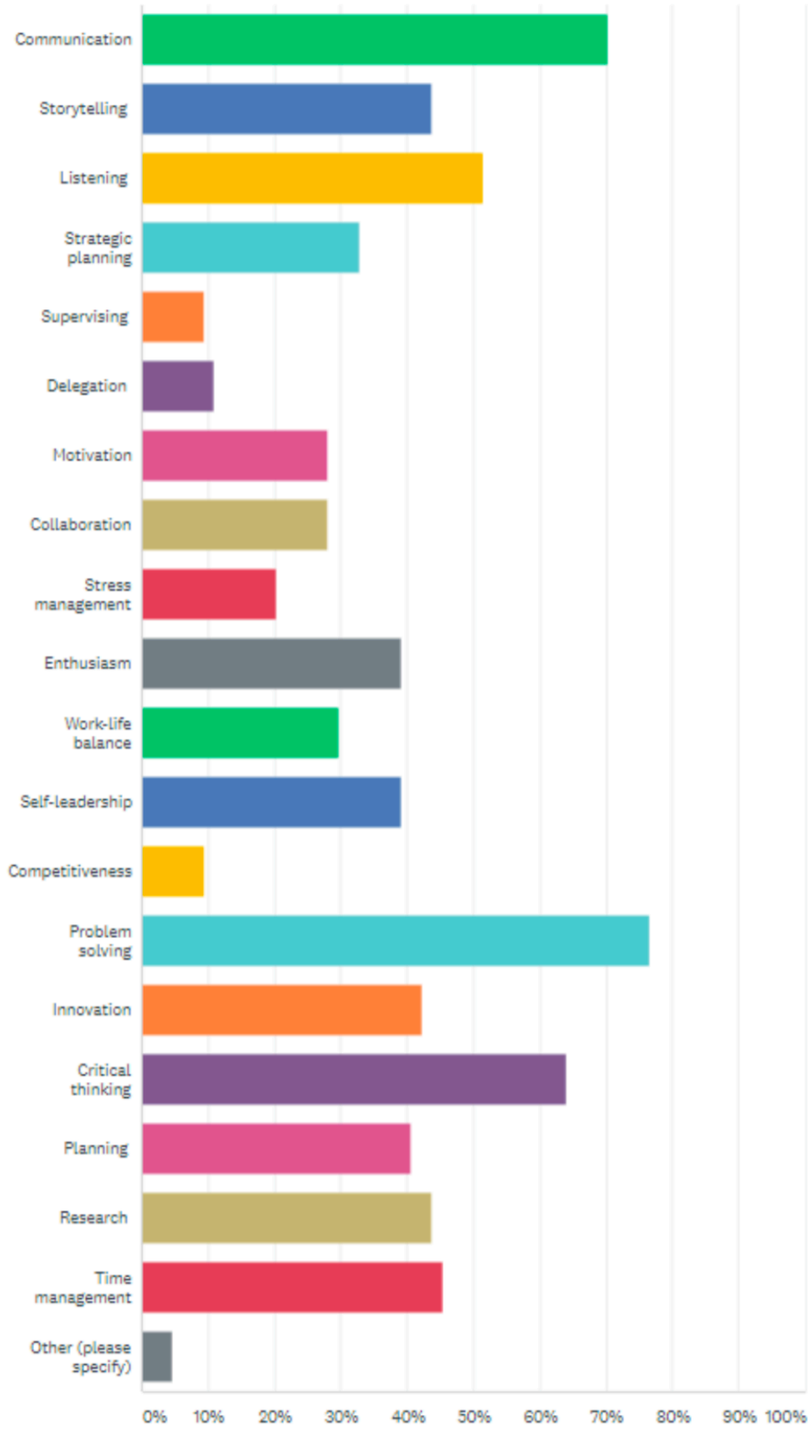

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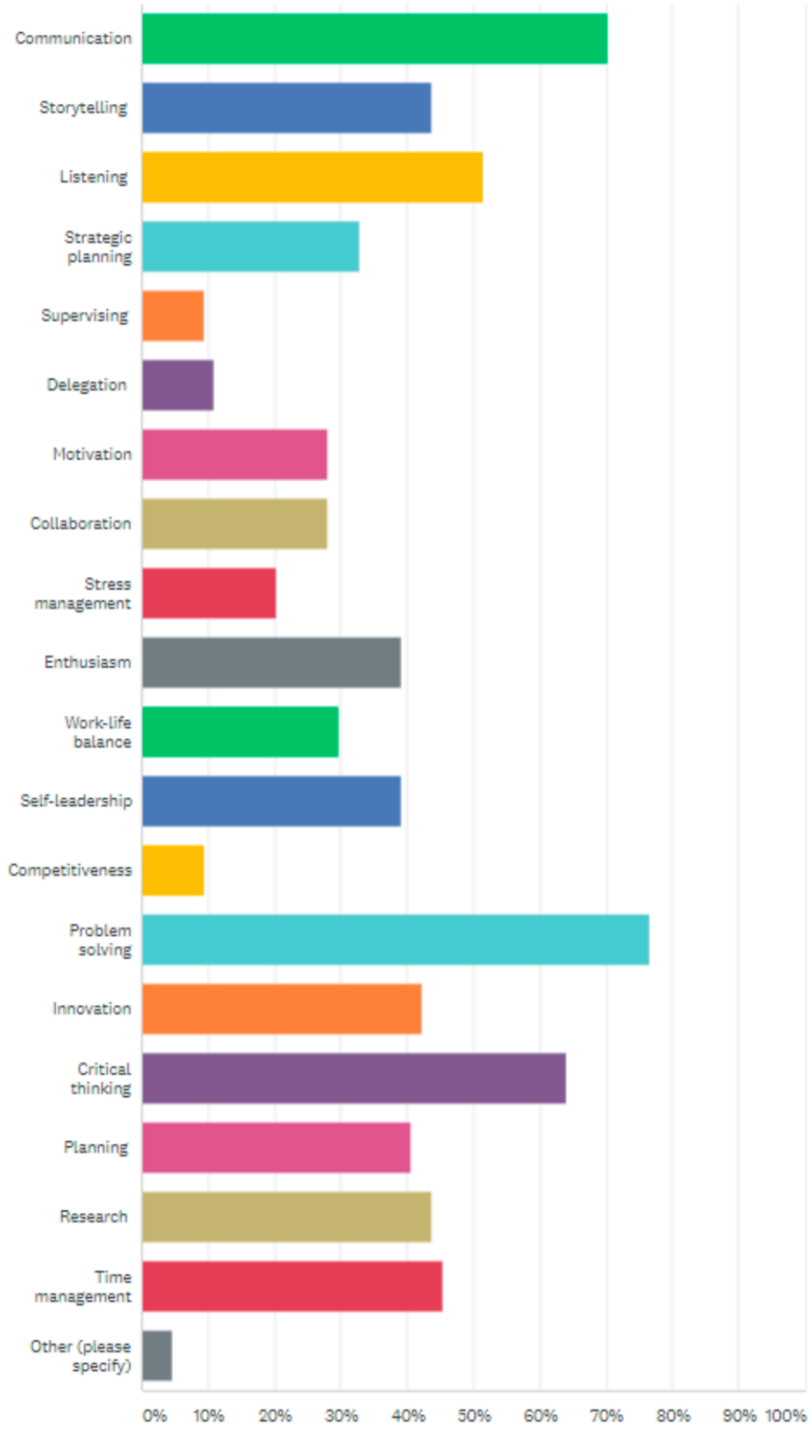

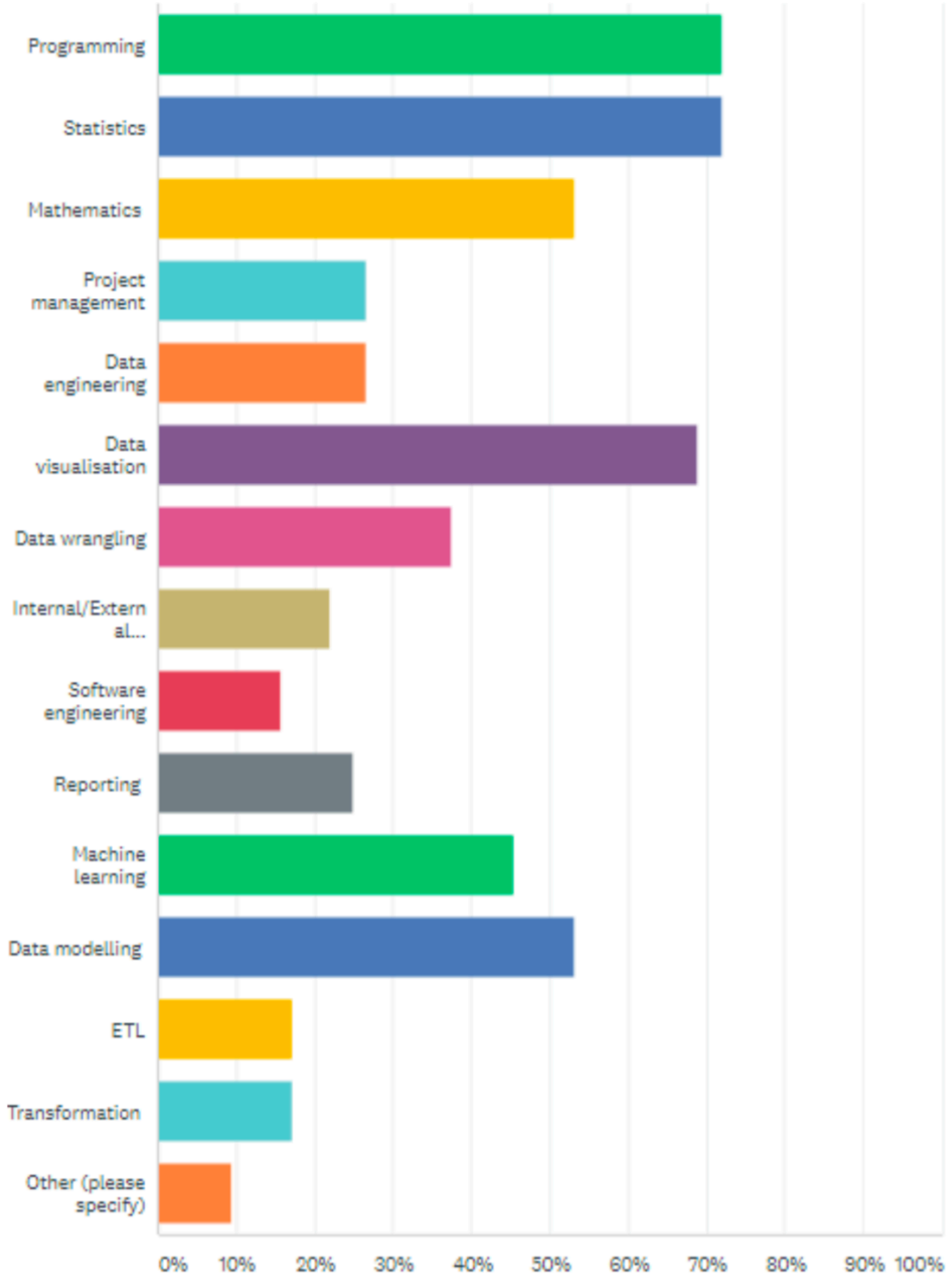

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Links to articles, tutorials and datasets for time series

- Tutorial https://machinelearningmastery.com/decompose-time-series-data-trend-seasonality/

- Datasets for all kinds of ML tasks, not only time series: https://archive.ics.uci.edu/ml/datasets.php

Want to learn more?

- Women Who Code Data Science Slack channel: events; webinars and recordings (e.g. ‘DS Bootcamp’); resources; academic papers reading group; career topics; job opportunities https://www.womenwhocode.com/datascience
- Kaggle: datasets, tutorials, competitions https://www.kaggle.com
- UCI Machine Learning Repository - Datasets: https://archive.ics.uci.edu/ml/datasets.php
- Machine Learning Mastery - tutorials, guides https://machinelearningmastery.com
- Medium ‘Towards Data Science’: inspiration, visualisations https://towardsdatascience.com
- Learning Python: https://pythonprogramming.net/ and the youtube channel by the same author https://www.youtube.com/user/sentdex/featured
- https://www.fast.ai/ Various free courses, amongst other on Machine Learning, Deep Learning and Natural Language Processing
- explore local Meetup groups for Machine Leaning and Data Science talks, workshops and learning groups

Women Who Code Data Science

Women Who Code inspires women to excel in technology careers.

656 Members | 10 Events

Launched March 2019

Join Us

Upcoming Events

THU 19 SEP

Mini Data Science Bootcamp Part III w/ Sumana *Featured*

6:00 PM – 7:15 PM (EDT) | ONLINE / REMOTE => See The #Track_events Channel In Slack

Register

SAT 28 SEP

Read and Implment Research Papers for Fun, learnings and profit! (Prof. + Researcher guided study group) – Part 2/2: Intro and Implementation of CNNs (convolutional neural nets) *Featured*

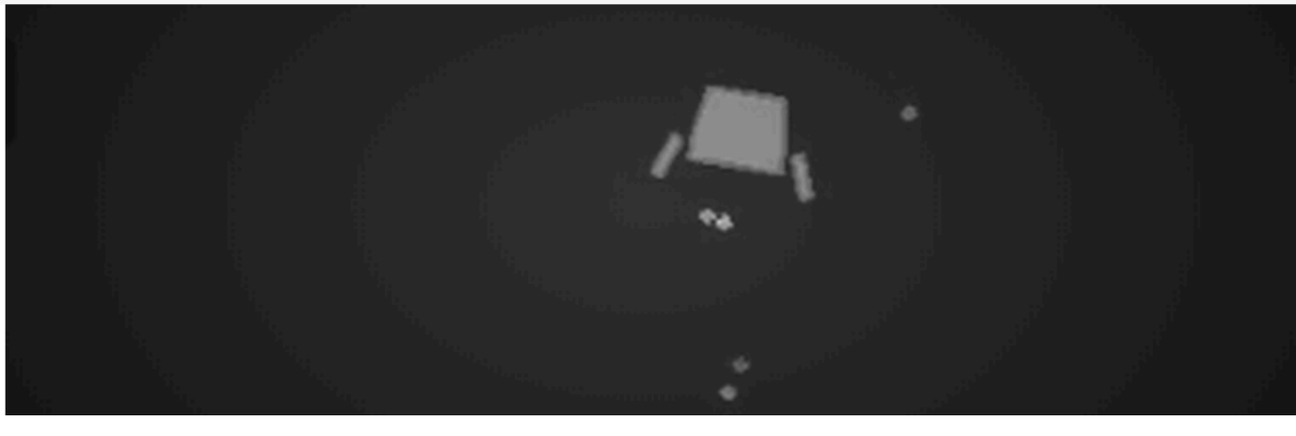
7:00 PM – 8:15 PM (EDT) | ONLINE / REMOTE => See The #Track_events Channel In Slack

Register

Upcoming tutorial and webinar events: **coming soon to a browser near you!**

- Computer Vision
- NLP
- Reinforcement Learning (beginner + advanced: learn to train a AI agent to play a Atari game: see screen shot =>)
- How to read research papers (for fun and profit)

Sign up / join to be notified.



Stay in touch

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elena@toumetis.com and on LinkedIn

Toumetis Ltd. - hiring
https://toumetis.bamboohr.com/jobs/

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