



Neuroimaging data science course

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Methods & Data facility
Human Neuroscience Platform
Fondation Campus Biotech Geneva

Virtual machine info

To get an IP, please fill the form at:

<https://tinyurl.com/IORDS2021-IP-python1>

Connecting your:	WIFI SSID	WIFI Password
Laptop (no phones)	NIDS_course	reproduciblescience
Phone	CAMPUS_VISITORS	welcomecampus

START VS CODE AND JUPYTER ON YOUR BROWSER:

- *Start an internet browser on your own machine*
- *VS Code:* <your_IP>:8080
- *Jupyter:* <your_IP>:8888

PASSWORD: braincode!

PLEASE CONNECT TO THE VM

→ Login: brainhacker

→ Password: brainhack!



On site support (including coding):



Maël



Louis

Remote support
(including coding):



Serafeim

Connect to Slack and download the exercise slides

ANY PROBLEM? Please raise your hand or ask questions
on Slack: channel #python

(BRIEF) HISTORY OF PYTHON

UNiplexed

→ MULTICS: MUL~~X~~iplexed Information
and Computing Service

→ 1969: UNICS

→ 1977: Berkeley Unix
Berkeley Software
Distribution (BSD)

[→ NeXTSTEP → MacOS]

→ 1983: GNU's Not Unix (GNU)
General Public License (GPL)

→ 1987: Mini-Unix (MINIX)

→ 1991: Linux

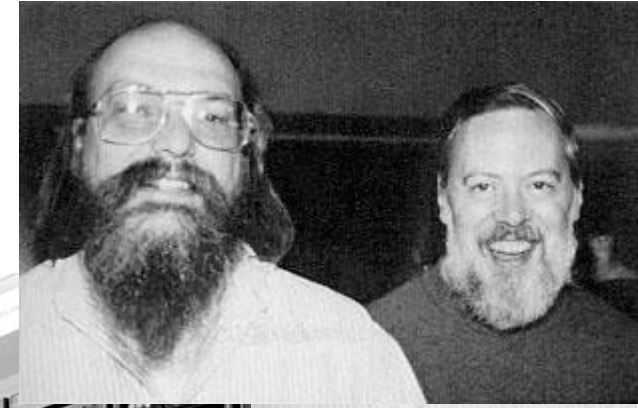


Richard Stallman



Linus Torvalds

Ken Thompson &
Dennis Ritchie



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Linus Torvalds

→ 1989: Christmas project for new language inspired from ABC

Guido van Rossum
(CWI Institute in Amsterdam)



→ 1991: version 0.9 on USENET newsgroup

→ 1994: invitation to National Institute for Standards and Technology (NIST)

"Many scientists are great at research and data but not necessarily great at coding, and Python may be the solution to that problem."



Michael McLay

→ 2000: version 2.0 made compatible with GNU GPL as suggested by Free Software Foundation

(BRIEF) HISTORY OF PYTHON

Since the 1990s

“Computer Programming for Everybody”

- curriculum suitable for undergrad students
- better and easier-to-use tools for program development and analysis
- user community around all of the above

Empowering the non-programmer

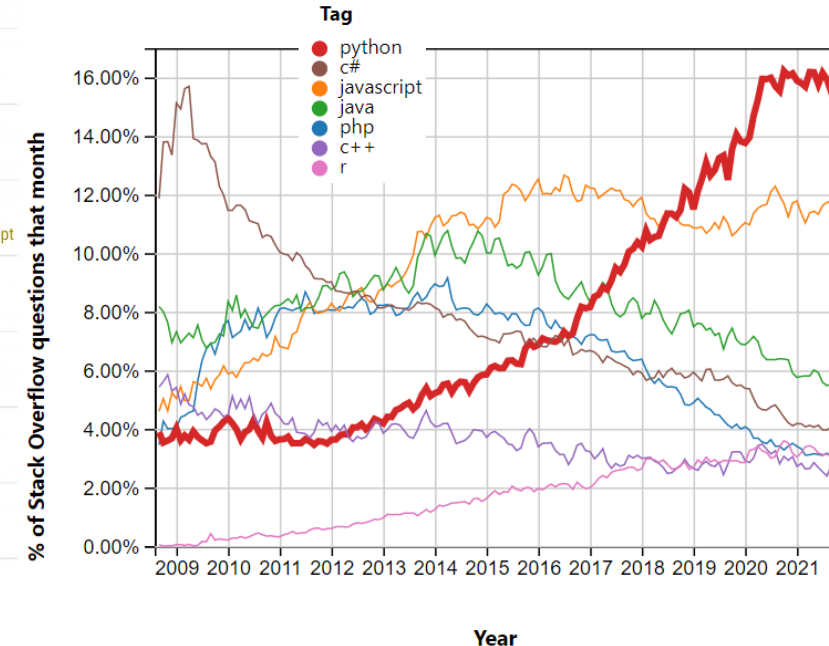
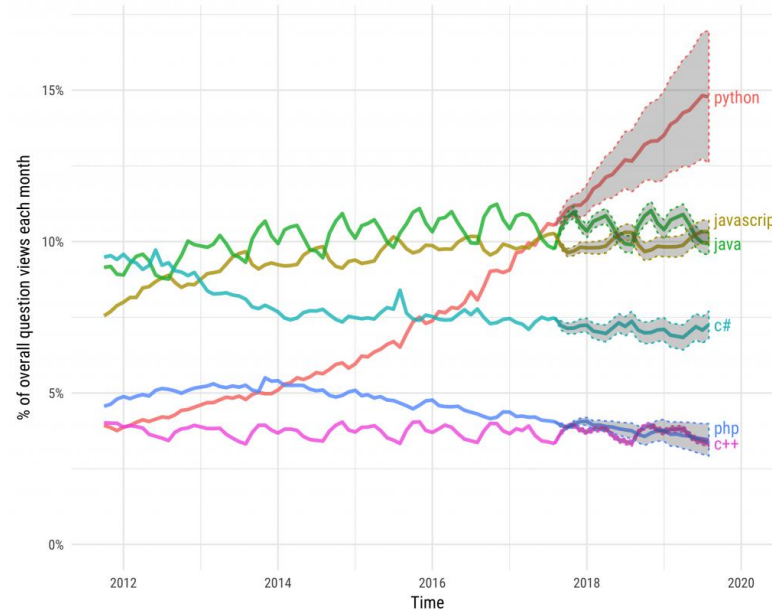
Since the 2000s

Data mining / analysis with projects emerging from the Python ecosystem: pandas, NumPy, Matplotlib, scikit learn

Facilitating Data science

Projections of future traffic for major programming languages

Future traffic is predicted with an STL model, along with an 80% prediction interval.



Now 9 million developers (> Switzerland pop.)



ZEN OF PYTHON

PEP: Python Enhancement Proposal

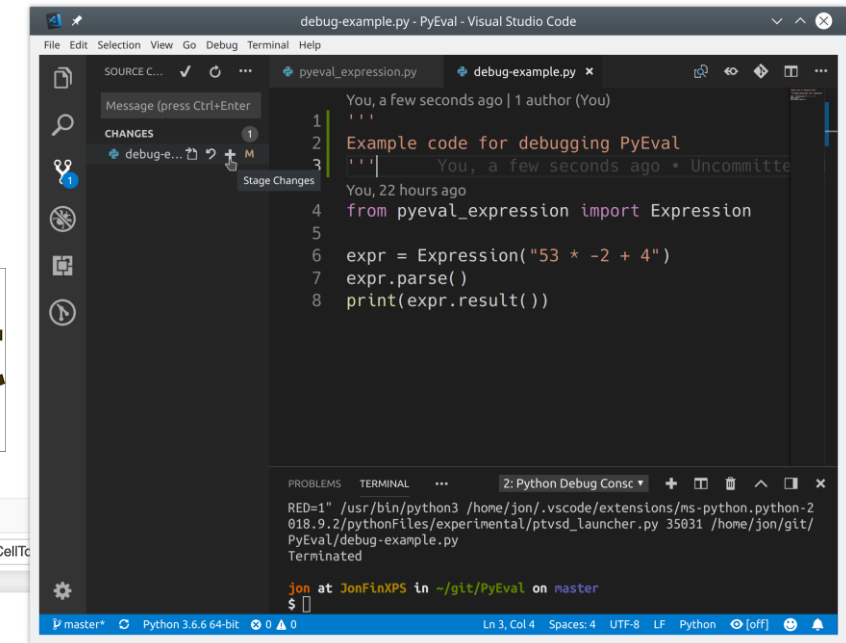
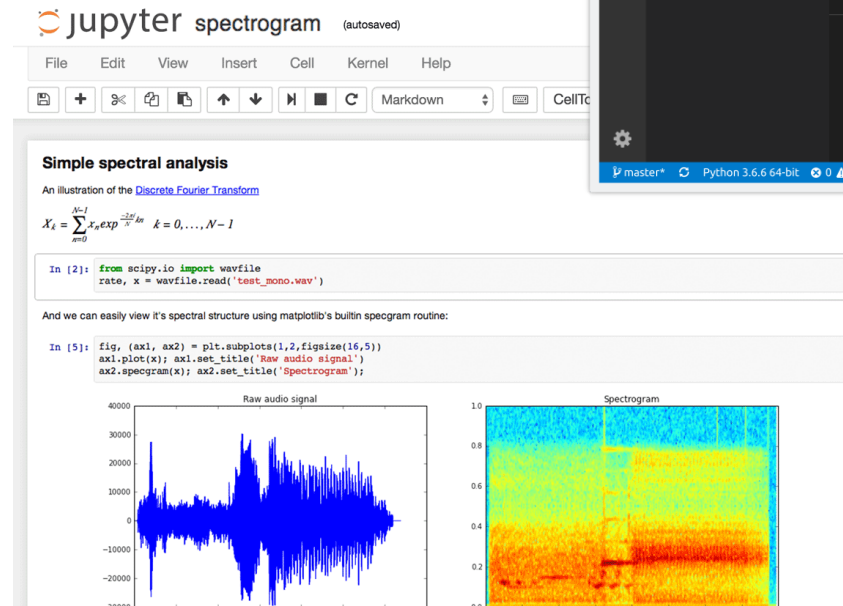
Each signed off by "benevolent dictator for life" Guido

Zen of Python (PEP 20)

- ❖ Beautiful is better than ugly
- ❖ Explicit is better than implicit
- ❖ Simple is better than complex
- ❖ Complex is better than complicated
- ❖ Readability counts
- ❖ There should be one-- and preferably only one -- obvious way to do it
- ❖ ...

PEP 572: new assignment operator (:=) in Python 3.8

→ Oct 2019: Guido quits BDFL position, replaced by steering council



Brainhack

➤ OPEN EVENTS ON ANYTHING-NEUROIMAGING-RELATED:

To encourage cross-pollination of ideas, neuroimaging hackathons called “brainhacks” are organized at least once a year

Examples of such projects are:

- Augmented reality to guide brain stimulation
- Brain computer interface for syllable decoding
- Generating music from functional MRI data



Brainhack Global Geneva 2021 (brainhack.ch)

Thursday DEC 2nd to Saturday DEC 4th

- Submit a project proposal:
→ tinyurl.com/BGG21-proposal
- Join the hackathon:
→ tinyurl.com/BGG21-join



Any inquiry ? Please email methods@fcbg.ch

COURSE SUPPORT

SLACK (iords2021.slack.com)

- Course main channel: #general
 - Topic channels: #linux, #linux-capstone, #git, #git-capstone, #python, #full-example, #machine-learning
- Check regularly for course info (esp. pinned items)
- Do not hesitate to ask questions (please reply “in thread”)



1-to-1 OFFICE HOURS for course questions:

- 20-min slots every Friday morning between 9AM and 11AM
- Book a time slot here: <https://tinyurl.com/IORDS-office-hours>
- Do not hesitate to ask any kind of question, this is a beginner course !

EMAIL: methods@fcbg.ch ← Please whitelist!

Thank You!

Michael Dayan: methods@fcbg.ch