

# **PhD - The day after**

## **Some possible career paths after a PhD**



**David Pichardie - September 30th 2022**

# Why bother now?

- To make you want to do a great PhD
- To make you want to do a great Master 2
- To make you want to chose carefully your Master internship
- And because sometimes a little bit of anticipation doesn't hurt...



# THE Roadmap



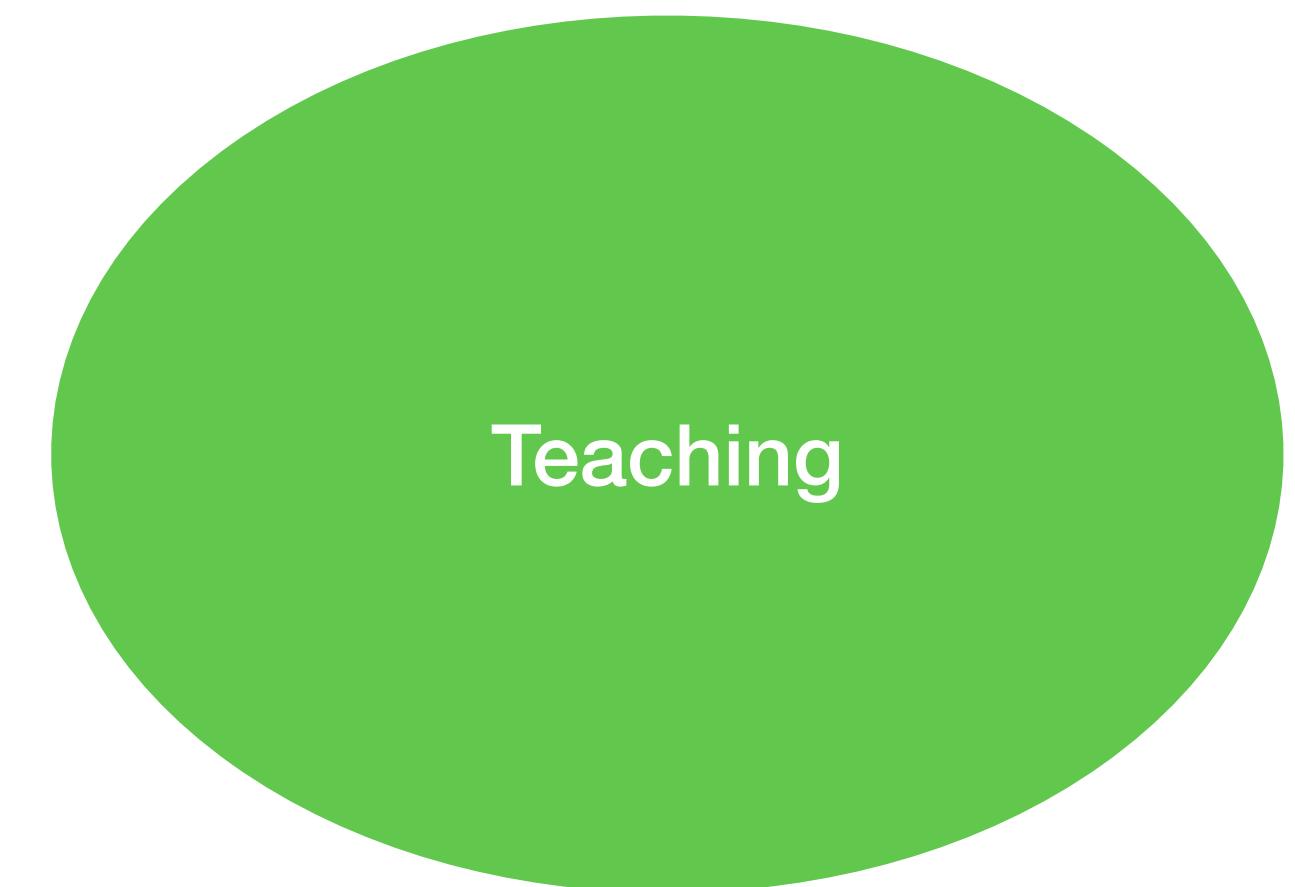
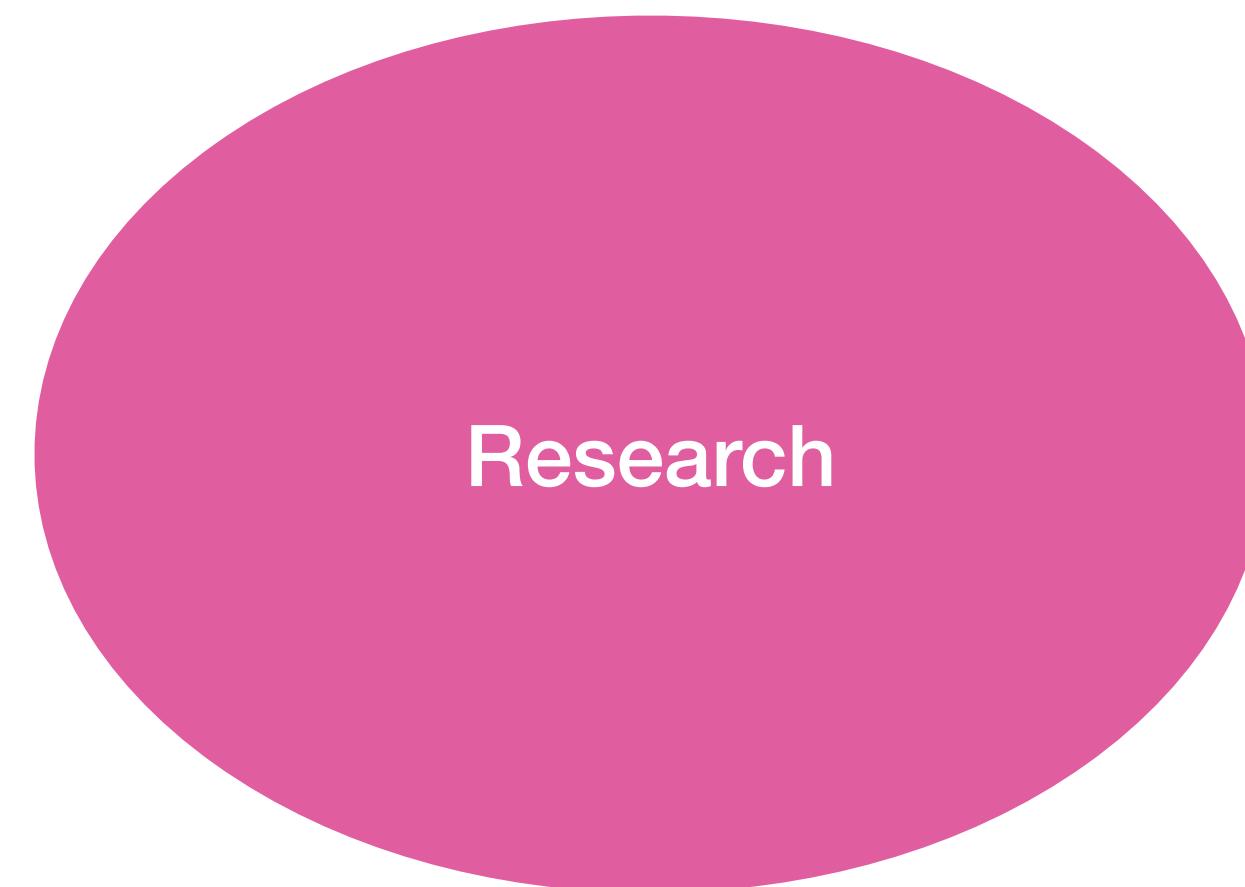
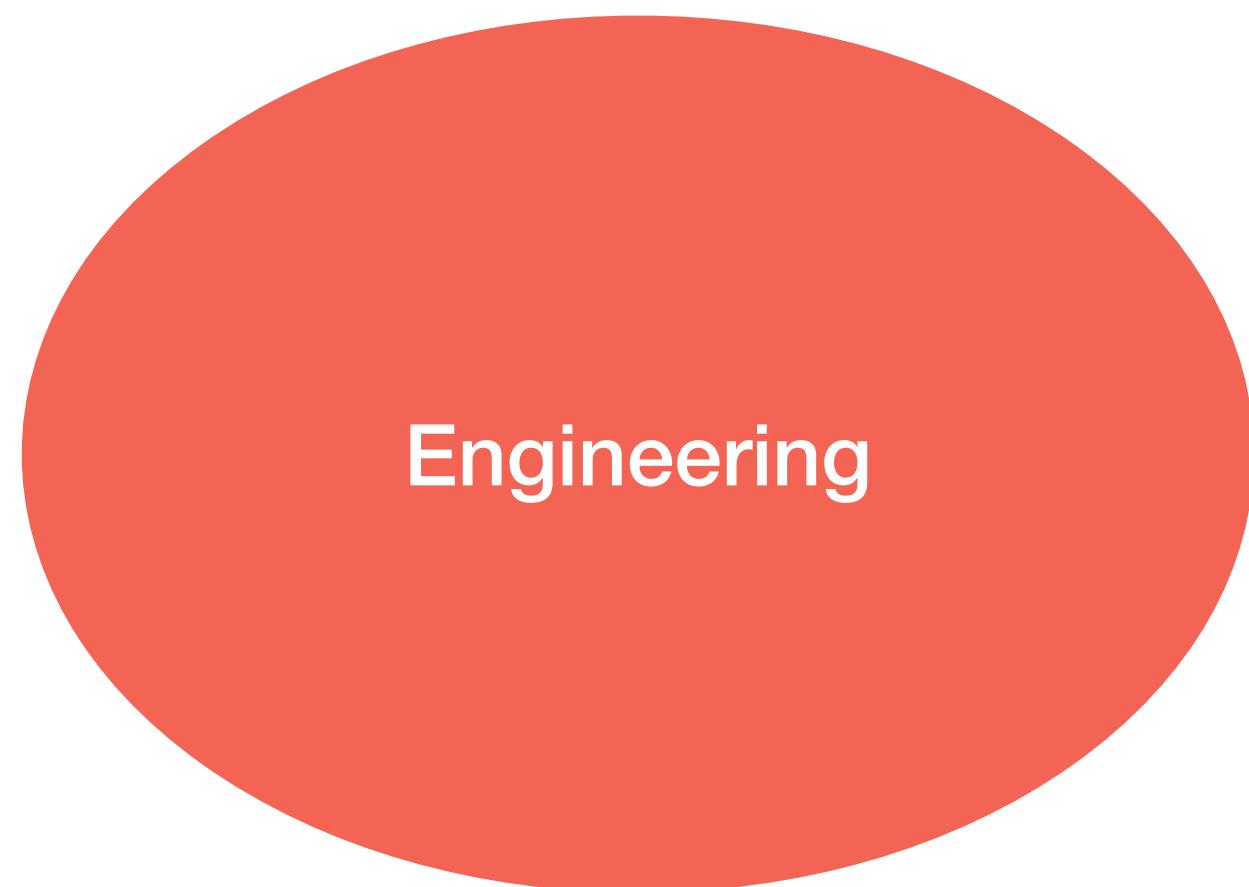


# There is no ONE roadmap

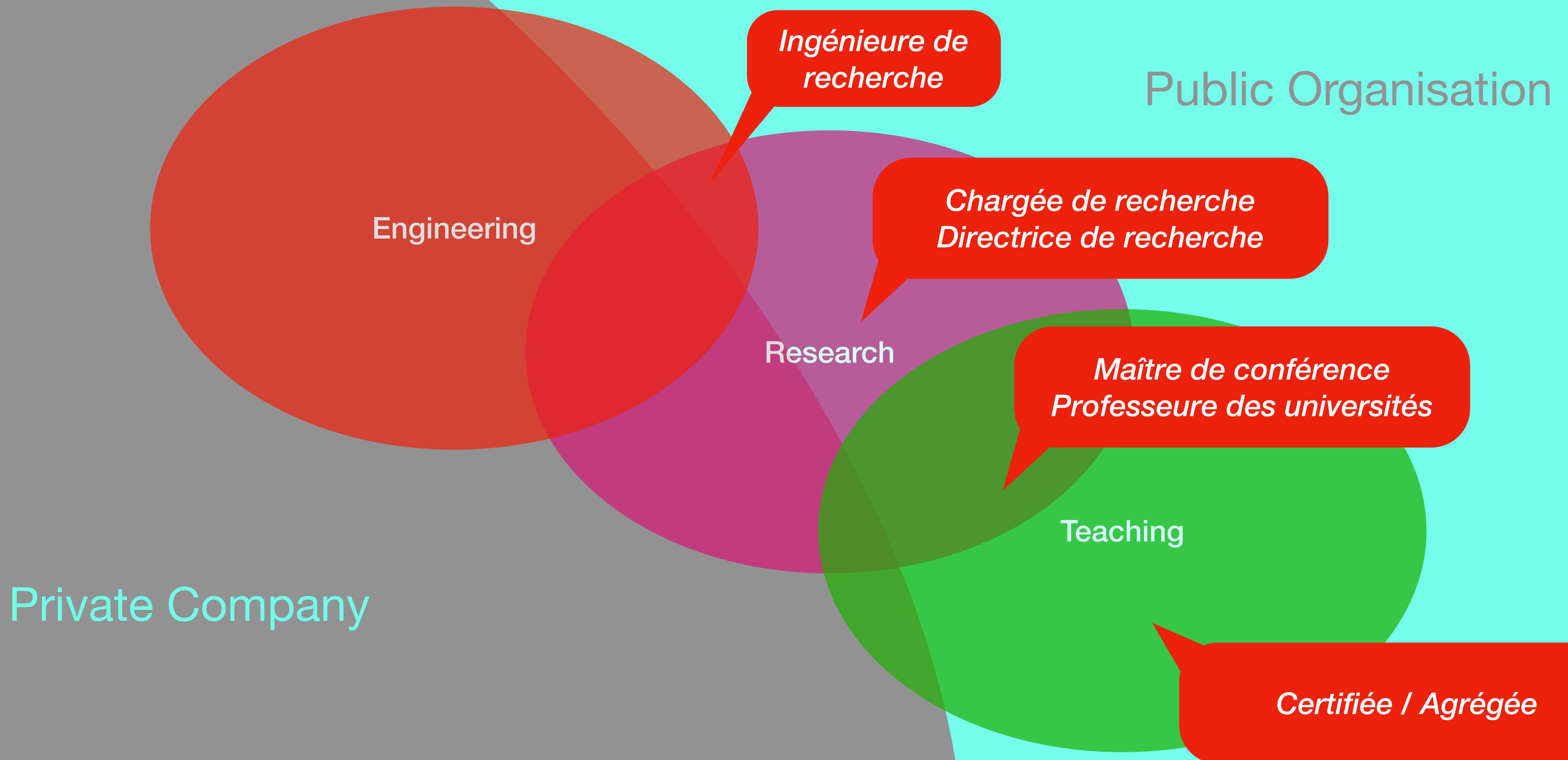
- Many careers are possible
- Each of you has different skills, wishes and family constraints
- Don't make this talk decide for you
- But take the time to learn about
  - the different paths
  - and their specific game rules



# The main category of careers

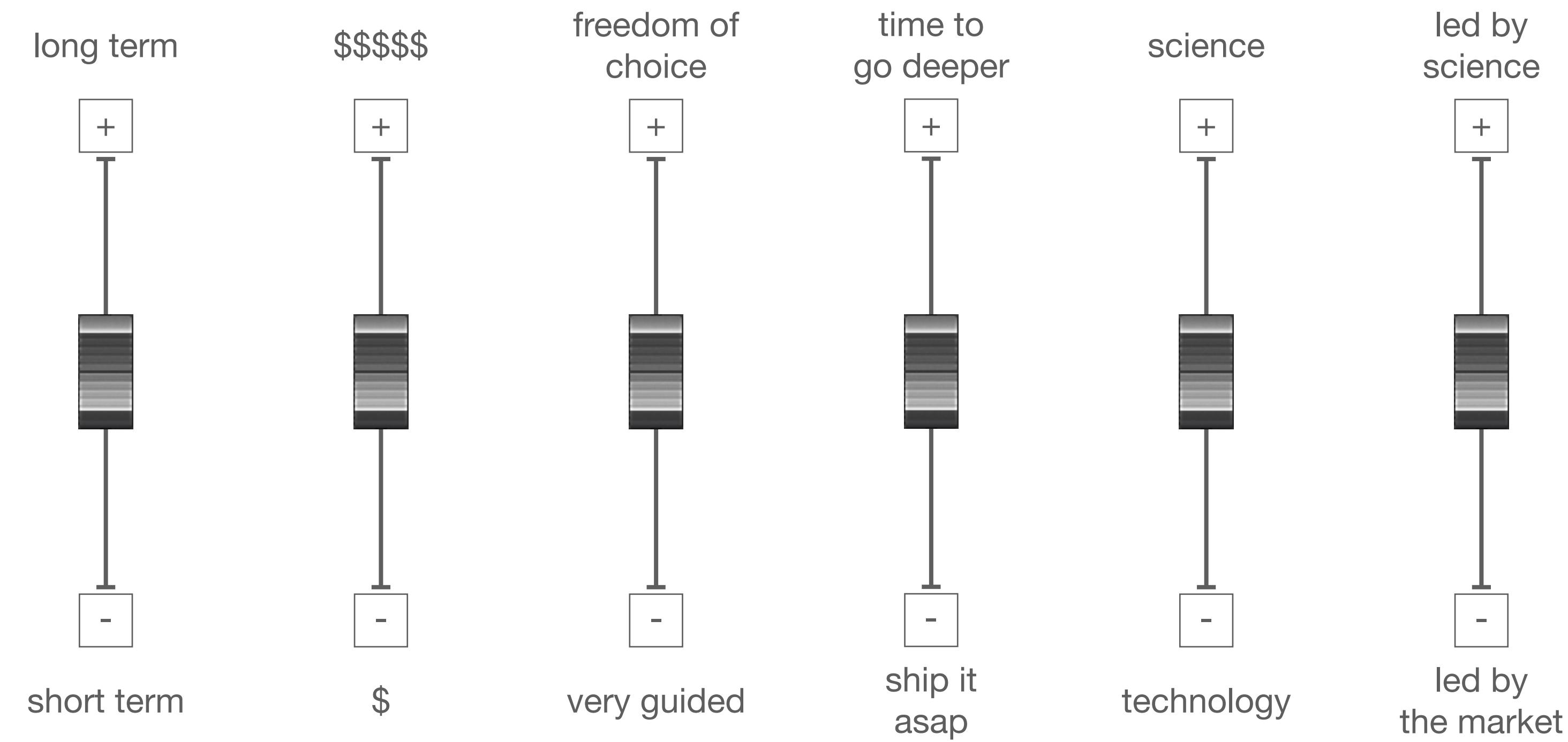


# The main categories of careers



# Choosing your carrier

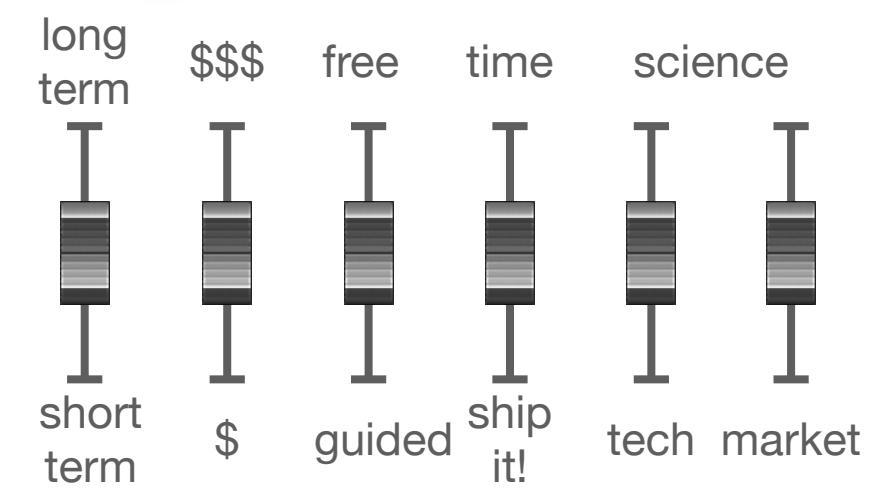
... in a multi-dimensional space



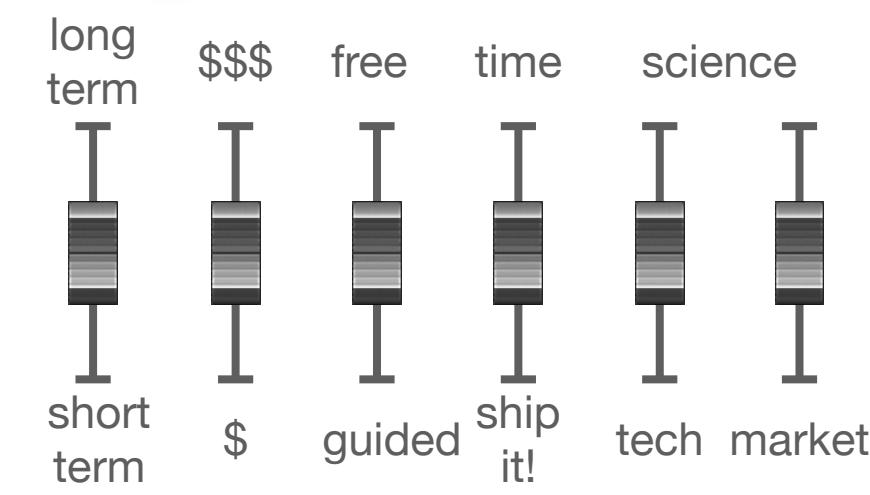
# Practical exercises

Put the cursors at their expected places

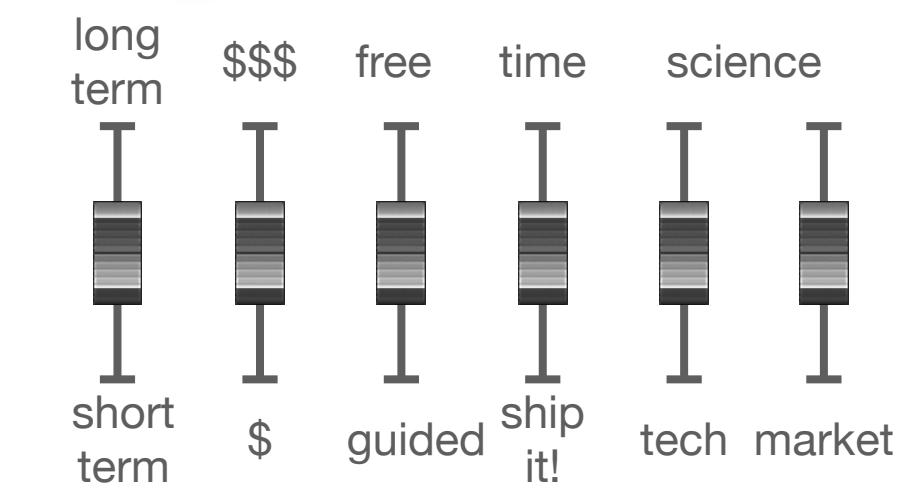
Engineer



Researcher



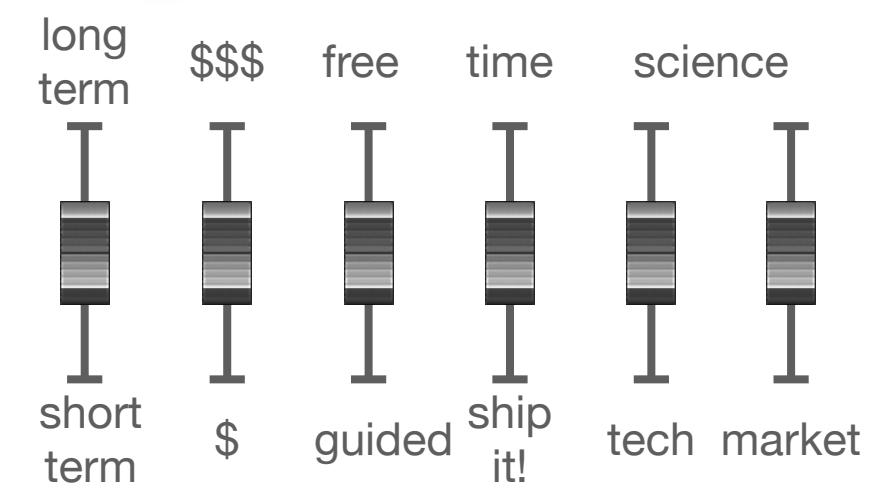
Teacher



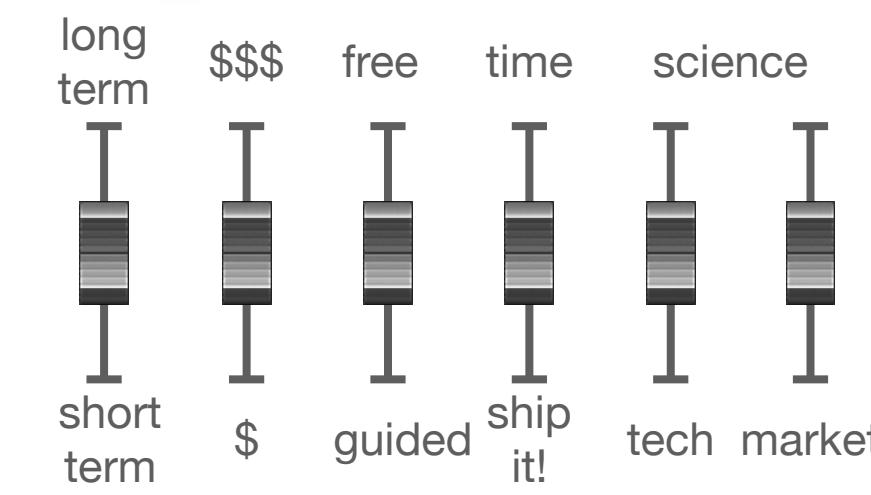
# Practical exercises

## Solution

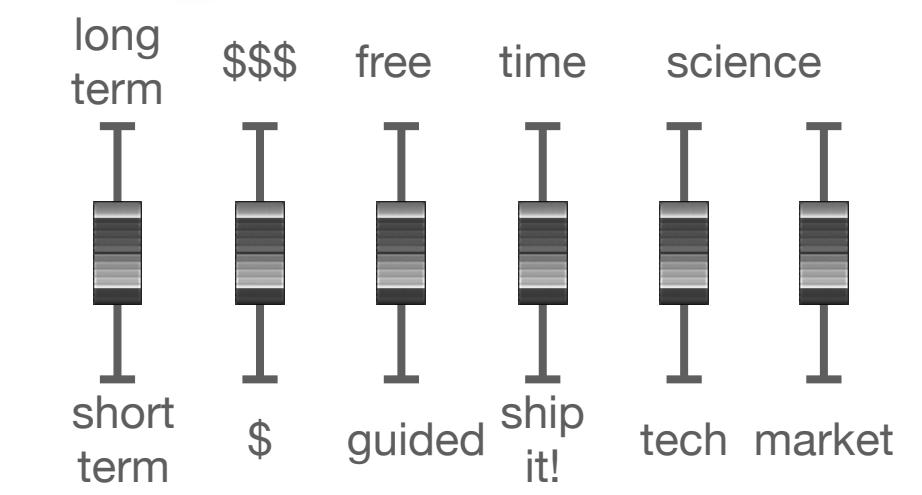
Engineer



Researcher



Teacher



# Academia

## *Chercheurs & enseignants-chercheurs*

- *Chercheurs*: INRIA, CNRS, CEA
- *Enseignants-chercheurs*: universities, grandes écoles
- *You will spend the next 4 years with them!*
  - take the time to observe them
  - reality: the number of permanent positions has decreased
  - beware: (french) people always complain about their work!



but not as much in Computer Science than in other domains

Don't listen too much the grumpy!



# Industry

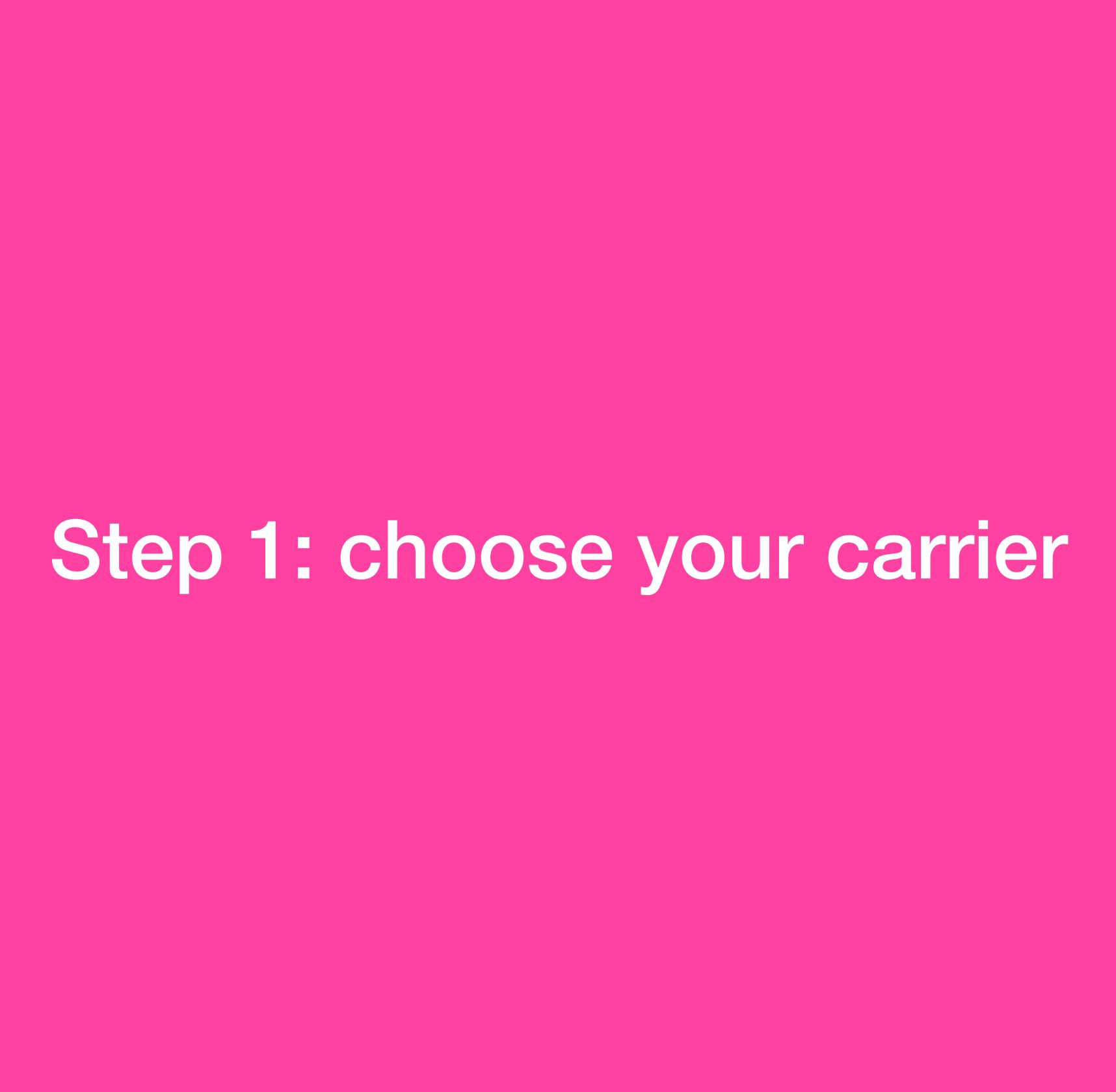
- Big companies / medium-size / startup
- Each company has its own *culture d'entreprise*
- The level of science may depend a lot of the company/team
- But *Time is money*
- French industry does not valuate as much PhD diploma but at the same time they need deep expertise on some selected topics



# Teaching Computer Science in a High School

- Many opportunities during the next decades
  - CAPES created in 2020
  - Agrégation created in 2022
- School curricula will contain more and more computer science
- PhD is not required, but you will never forget this unique opportunity to focus on deep science





**Step 1: choose your carrier**



**Step 2: get the job!**

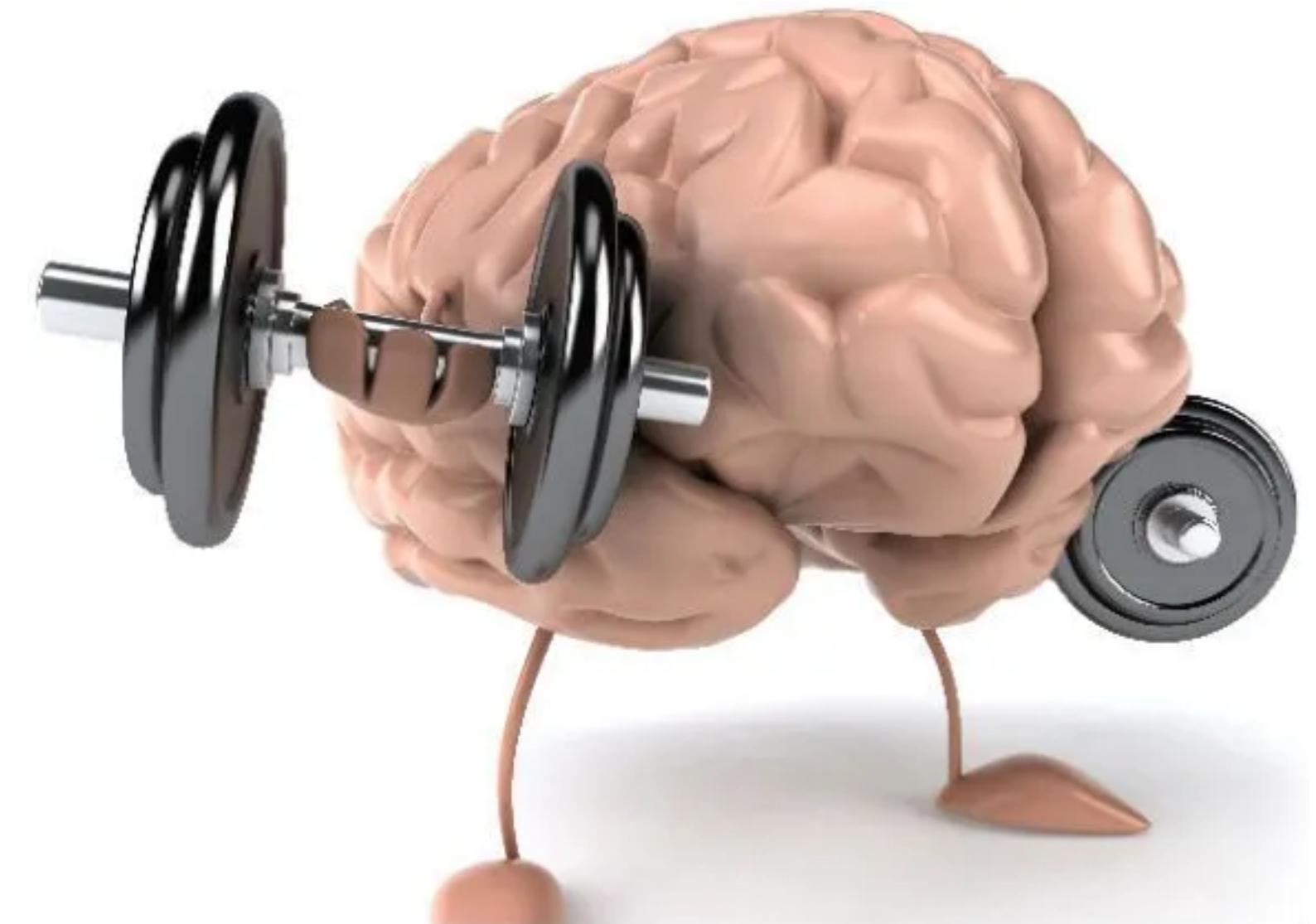
# My advices

- I will give you some advices
- Several are inherited from a previous version of this talk (by Luc Bougé)
- Take them with a *pinch of salt* and discuss with other colleagues when the time comes



# Be competent

- We expect your PhD to make you an expert in your (narrow) domain
  - don't forget that
  - and enjoy this *bubble of science*
  - go deep
  - read
  - experiment
  - meet the gods of your domain



# Improve your communications skills

- After (and a bit during) your PhD, you will have to explain your expertise area to non-experts
- You can practice during your PhD
- Communication can be oral or written
  - written: you will have to write research proposals
  - oral: you will have to make presentations

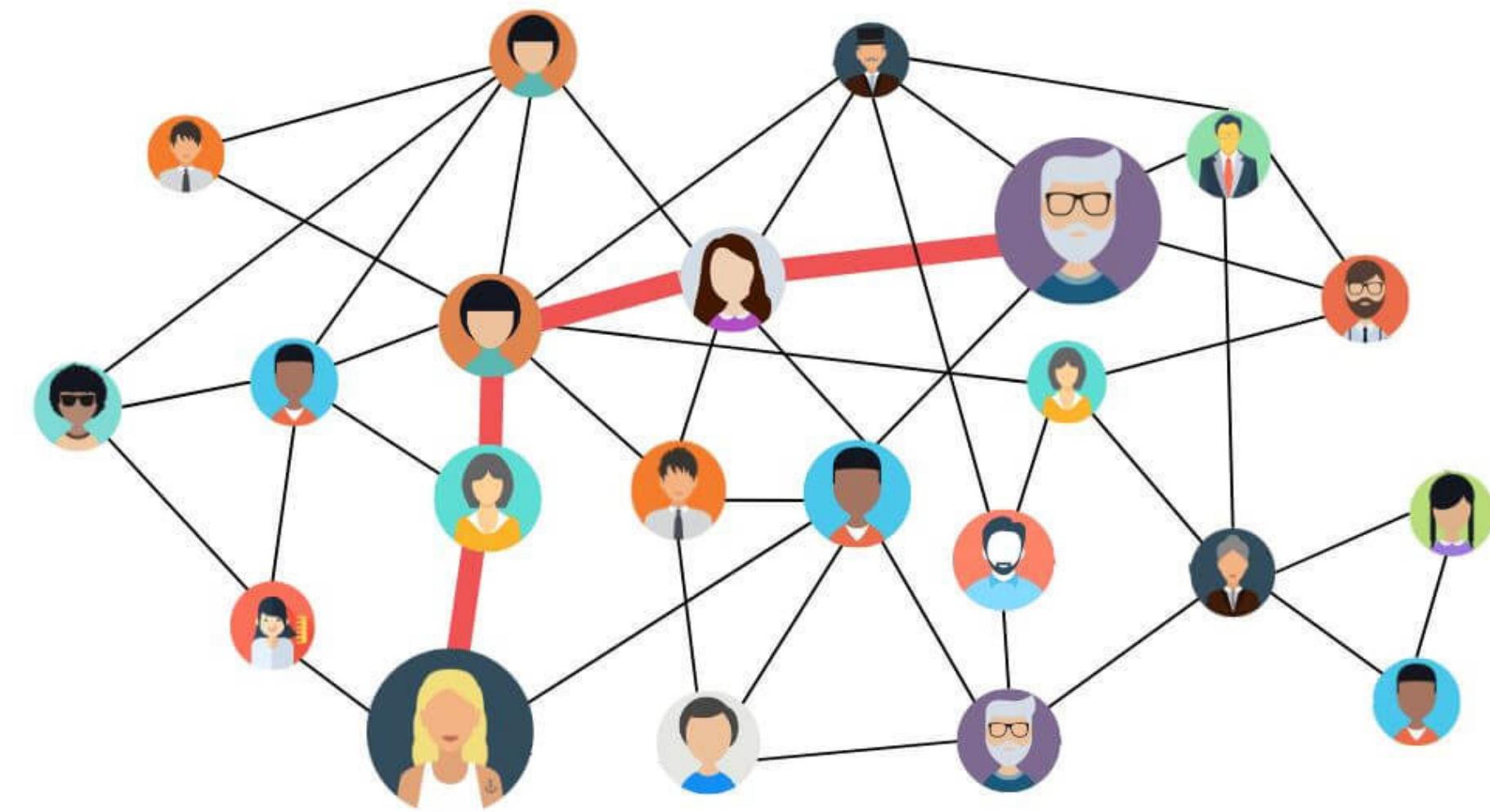


and of course research papers

and of course research talks

# Build a network

- Don't hide in your PhD office during 3 years!
- Meet as many people as you can
- Listen about their own experience
- Do not speak only to PhDs and PostDocs
- Give also a try with senior people and try to put yourself in the shoes of those who will hire you later



Seminar

Conferences

Summer schools

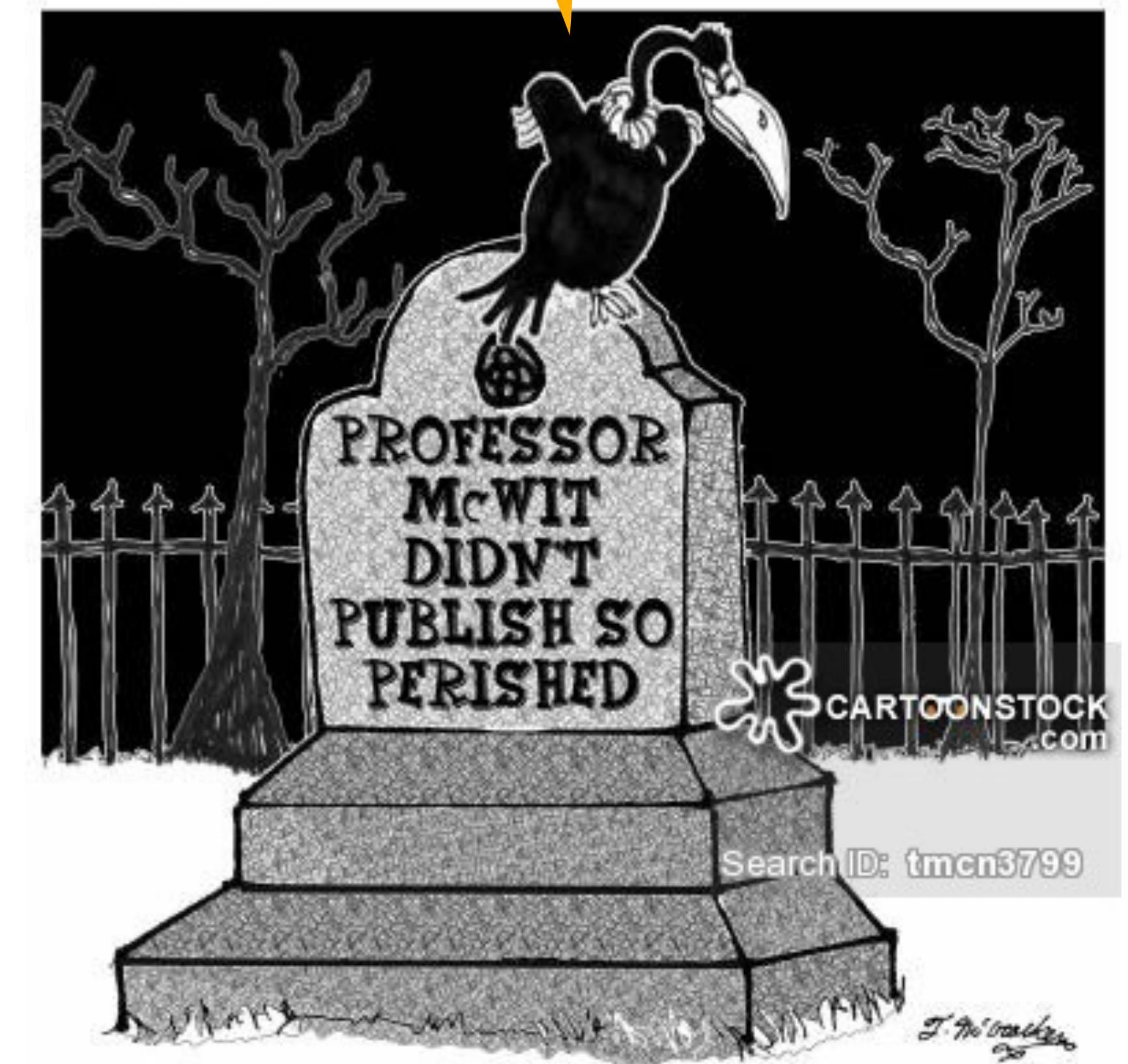
Cafeteria

*Fête de la science*

# Publish

Keep in mind that USA ≠ France

- Full research positions required a first-class publication track (PhD+PostDoc)
- Teaching positions at university are less demanding
  - but still, you will be mainly evaluated on your research, not your teaching skills
- Your supervisor will give you the keys
  - find one who fits best with your career plans
- You can also get a PhD with just *honest* publications, if you plan to join Industry or High School teaching after



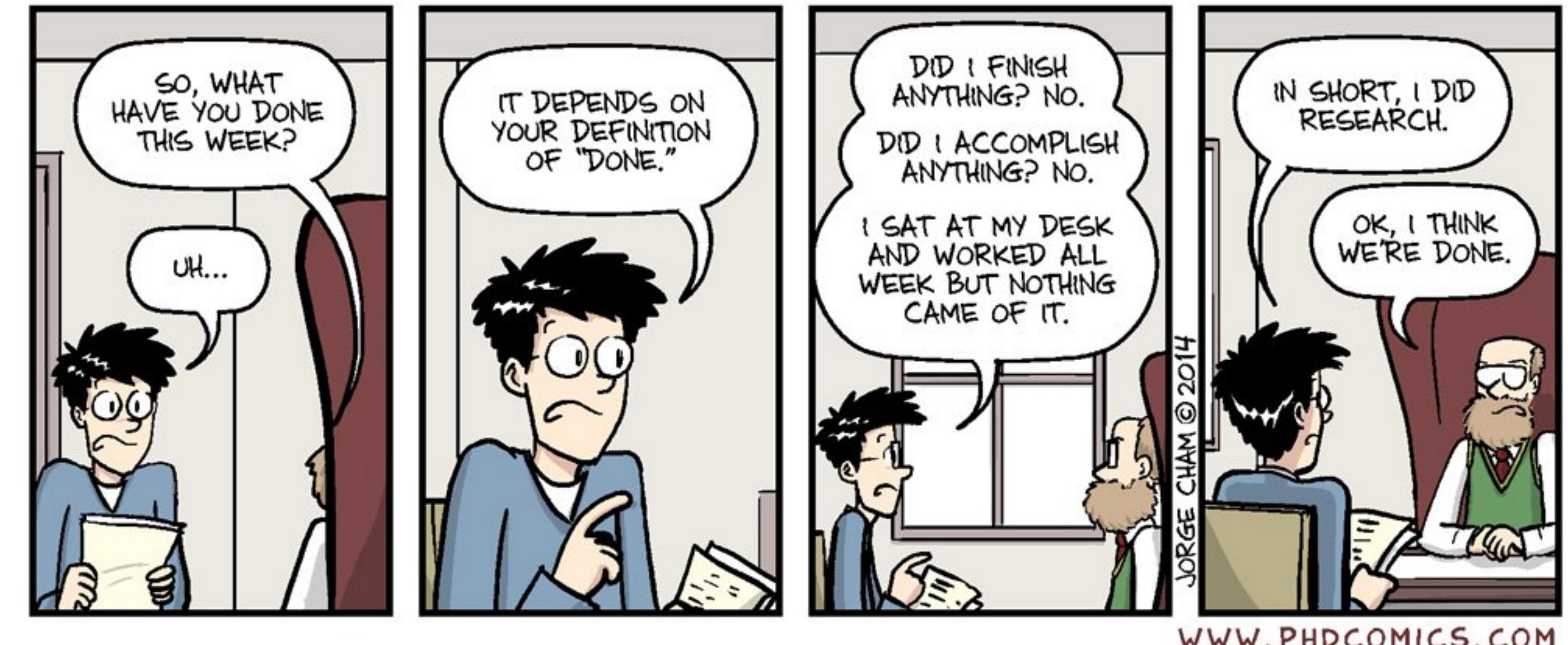
# Anticipation

- Applying to a position is a one-year task
  - searching for proposals
  - meeting the right people, understanding their needs
  - building up your application
    - extended CV
    - research proposal
      - short-term / mid-term / blue sky
    - teaching experiences
    - reference letters



# Get the most of your advisor

- You are responsible to solicit him/her
  - plan regular meeting
  - prepare well to have an effective meeting
  - take notes, manage archives
- Keep in mind
  - you are (mostly) mono-threaded
  - He/she is multi threaded



# You shall

- Learn
- Communicate
- Meet people
- Publish
- Anticipate
- Listen to your supervisor



# Don't be afraid by planning

- It's not easy for anyone
- The future
  - may be frightening
  - but you have plenty of opportunities in front of you
  - just find them!



# **My personal journey**

I was still hesitating with a career as High School teacher

This lack of mobility has penalised me

Many collaborating projects in France

This time my family was ready

Partially supported by INRIA

PhD in Rennes

PostDoc in Nice

Chargé de recherche Inria Rennes

2y sabbatical leave in USA

A PostDoc abroad would at boost more my CV

I've met international researchers thanks to a collaborative EU project

Teaching hours at Univ Rennes 1, ENS, INSA

My ENS position is waiting for me during 5 years (dispo)

Have to deal with far more human interactions than ever

Quite a different job - many new responsibilities

???

Researcher at Meta

Professeur des universités ENS Rennes - head of department

I think about it sometimes while shaving

Very difficult to get in

I've learnt to say NO

ERC grant

Multithreading require good scheduler and priority queue !

# My personal thoughts

- I could have failed many times
  - specially because of self-censorship
  - every time, colleague advices have unlocked me
- I'm lucky enough to get several different activities
  - my tastes have changed over time
  - we have to make our own luck!



**Good luck**