On life in academia

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Who is the target audience for this talk

PhD students

Master students thinking of doing a PhD

Other students considering the vague possibility of doing some days a PhD

Women

- There are too few women in sciences

- This is very wrong because women do great in sciences and computer science…

(Every one else should leave this room – just kidding)

Organization

Some questions you always wanted to ask

Performance evaluation

The road to success

Conclusion

[How to choose a thesis topic]

Warning: computer science bias

Some questions you always wanted to ask

What is academia?

Academia is a collective term for the scientific and cultural community engaged in higher education and research, taken as a whole.

The word comes from the akademeia just outside ancient Athens, where the gymnasium was made famous by Plato as a center of learning... Wikipedia

Also on the Web (Google define:academia)

- Hypothetical or theoretical and not expected to produce an immediate or practical result.
- Marked by a narrow focus on or display of learning especially its trivial aspects

Some bad reasons to go to academia

❑ To manage people   try the army

❑ To be rich   try start-ups

❑ To not work   try a rich spouse

❑ To be famous   try show business or serial killer

❑ To have power   try politics

❑ To be useful   try NGO

Some reasonable reasons

Why???

- Because you cannot do anything else

- Because you don't have any better idea

- Because you want to

How do they spend their time?
Conflicting demands

The tasks

- Research
- Advising PhD/master students
- Grants
- Technology transfer (from consulting to startups)
- Reviewing
- Educating students
- Educating the masses

And the normal life: family, friends, hobbies, sports…

Time management is *the* big issue

Vary depending on institutions

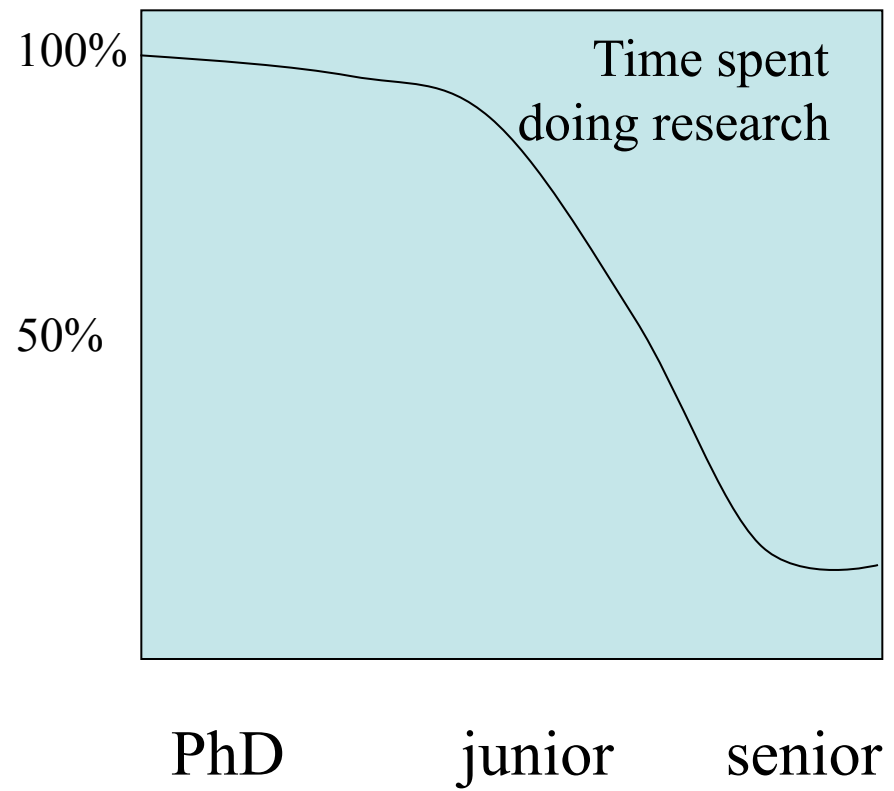Teaching load varies from 0 to hundreds of hours per year
- Industry academic research centers: IBM, MS (rare)
- INRIA and CNRS: varying but low (I teach about 60 hours)
- R&D in industry: Google, Orange Labs, SAP
- University
  - Depends on the university: Stanford U. << San Jose State
  - Depends on the country: less in UK than in France than in Germany

Implication in applications also varies a lot
- R&D centers in industry: major
- INRIA: varying but high
- CNRS and University: varying but less high

Vary with people/age

And not improving with time 🙁

100%

Time spent
doing research

50%

PhD   junior   senior

How do you spend your time in academia?

Some university in the US

Source: private + Jennifer Widom (expert in time management)

Travel – too varied to quantify
- Conferences, visiting colleagues, grant meetings, etc.

Light (each <1 hour/week)
- Coffee and lunch breaks
- Prospective & think of new topics
- Read research papers you don't have to review
  - In your office: libraries are disappearing

How do you spend your time in academia?

Medium (each 1-5 hours/week)

- Deliver lectures
- Department duties: committees, faculty meetings, etc.
- Write research papers
- Reviewing
- Grant-related work (proposals, reports, etc.)
- Read drafts of student

Heavy (each >5 hours/week)

- Handle e-mail of all sorts
- Prepare class lectures, handouts, assignments, exams
- Research meetings including meetings with PhD students

Spending time in front of a dull machine

Reading/writing code

        & documentation

Reading/writing papers

Reading/writing emails

Facebook

Blogging

http://abiteboul.blogspot.fr/

http://binaire.Blog.lemonde.fr

Work-Life balance

There is no limit to the number of papers/lines of code you can write

There is little limit to working hours (max is 24 per day)

If you don't think you can balance, choose another job

Rumor: job-related stress is the main cause for leaving academia

[Opposite rumor: people join academia because of less stress]

I AM TRYING TO ACHIEVE A WORK-LIFE BALANCE.

www.moontoon.com

The ancient rituals

When the season comes, the researchers gather in some fancy places for bizarre rituals that make sense only to the initiated. **They go to conferences**…

The main point is networking

- Not for favors
- To be part of the crowd; to meet colleagues you want to work with

Hitting bars is more important than attending talks (don't repeat this to your advisors – they know)
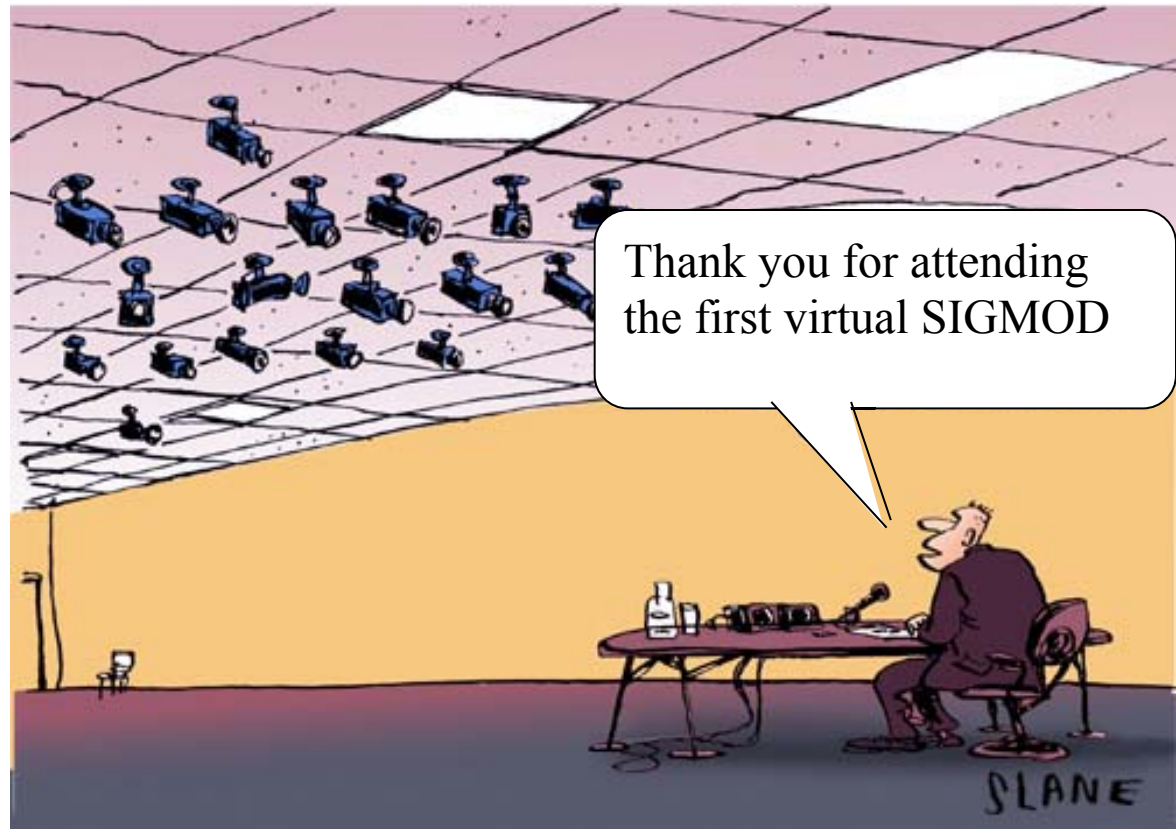
If you don't drink, that is OK…

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Warning: You came too late

The time of these gatherings is counted because of their ecologically disastrous effect

Tough life – Think about it

Academia is a very competitive environment

> Do you know many places with such a high percentage of PhDs?

Academia is loaded with smart people who are perhaps

> faster

> more knowledgeable

> better at writing code or proving theorems

than you

If you don't like competition, do something else

Tough life for research labs?

Founding of research labs is decreasing
Increasing demand to look for grants
Increasing demand to transfer results to society?

.

Tough life, you may end up in ZRR

Zone à régime restrictif

Physical and electronic accesses limited

Glamour: what you do interests someone

Painful: more complicated to invite your friends

Performance evaluation

Evaluation is essential in academic life

You will be evaluated all the time

- For papers to conferences and journals
- For grants, awards
- By ranking in GoogleScholar, Citeseer, h-index…
- For promotion also

If you don't like competition, do something else

Publishing an article

You write an article to describe your work/results

- Journals/conference proceedings are now digital
- More and more article in open access

Peers decide whether it is worth publishing (after some corrections)

Some of your articles will get rejected

- with perhaps reviews such as "stupid" or "no content"

Don't worry

- This is not going to improve with time

Evaluation: pitfalls

(1) It is not because your work was rejected that it is trash

- Reviewers are sometimes wrong
- May be you are ahead of your time

(2) It is not because your work was accepted that you are a star

- Reviewers are sometimes wrong
- May be you just did some timely increment

I have seen colleagues (including myself) indulging in both

☹ Both are negative and lead to psychological disorders

☺ Both are positive and lead to breakthroughs
  (1) You become modest and work harder
  (2) You are driven to push further your works & dare wild ideas

Evaluation: the two sides of the coin

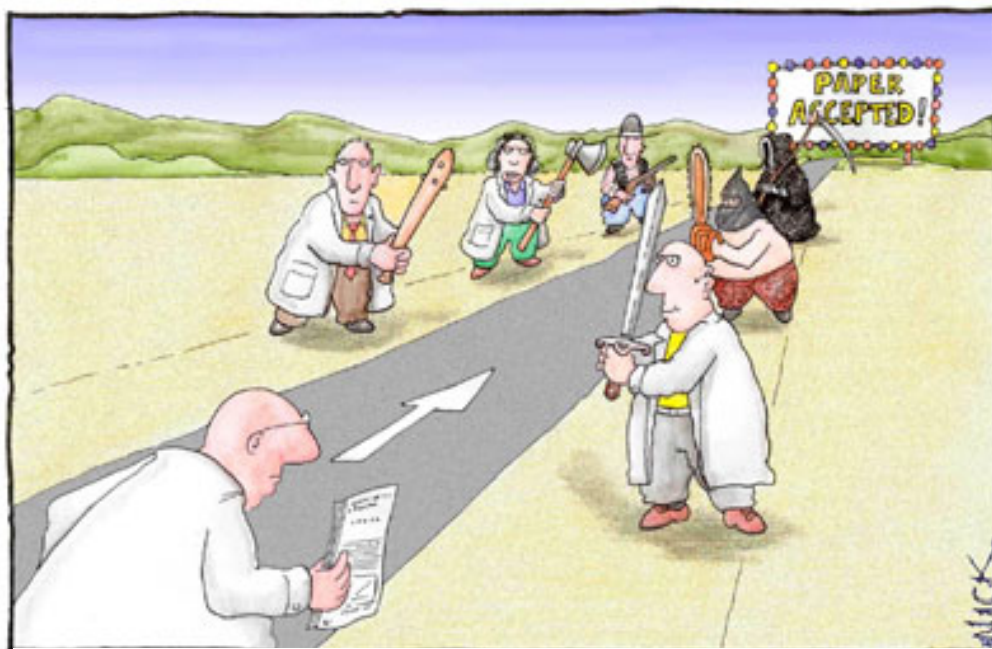Reviewers are sometimes too busy and do a poor job

Remember! you are both reviewer and reviewee

- As a reviewer, try to review very seriously as a service to the community
- As a reviewee, try to understand the points of the reviewer
  - There is always the chance that she is smarter than you
  - Even if he is not so smart, **he is the one deciding!**

And this is the best known system,

arguably better than a random function (not proven though)

Evaluation: what you should remember

Publish or Perish (but think long term)

The road to success

Optimizing your chances of success (1/2)

Learn to manage your time

Work hard

- Most successful people I have met in academia are hard workers
- If you want a cool job, consider something else

Kiss! = keep it simple stupid!

- This is true in computer science for systems but also for theory because we are building the most complex systems (I think)

Always question, disagree, try new paths, be creative, try to invent

- May be you will not invent anything
- But at least you get a chance to

Optimizing your chances of success (2/2)

Human quality matters

The quality of relationships in the workplace is a key ingredient to success in research

Most of the successful works I have participated in are teamwork

Most of the successful works I have seen

The whole is greater than the sum of its parts. Aristotle

INRIA

What is a PhD good for?

Getting a job in academia

- Compulsory to become university professor & INRIA/CNRS researcher

Getting an interesting job in industry

- Extremely helpful out of France
- Less clear in France but changing

And

- A PhD is a great personal experience

What you should do immediately after you get a PhD

Short term: get drunk is not such a bad idea

Longer term – if you want to stay in academia

- It is a very good idea to go away for one or two years, e.g., post-docs
- It is a good idea to spend some time in industry, e.g., a startup

- It is a very bad idea to be hired in the department where you graduated

Choose carefully your research topic

How to choose a thesis topic?
A personal view

Disclaimer: do not follow these guidelines.

Invent yours

INRIA

How to choose a research topic?
Ask people!

Ask your advisor

Proven 500 years ago to be questionable

Ask your friends

Not so bad, but the risk is to loose some friends

Ask your neighbors

Unfortunately, they are musicians and you don't want to change field

Ask the web

soon: in beta test at Google

Theorem 1: Nobody will help you

How to choose a research topic?
It should serve some goal!

One that will make you rich

>*If you want to be rich, go to industry*

One that will make you smart

>*If you are not smart yet, leave this room*

>*Please! I was just kidding… ☺*

One that will make you famous

>*Yes, which one is it?*

One that is useful

>*Forget it: the goal is not to fix the problems of the world*

Theorem 2: the *unique* goal of a thesis is to get a thesis

How to choose a research topic?
Other possible criteria

The most difficult one

First get a thesis, and then only you work on P=NP

The easiest one

The statement should be simple (positive elevator talk)

but the technology nontrivial (negative elevator talk)

The most popular one, e.g., The best dating algorithm

Not good – some of the others may be smarter than you

The most esoteric one, e.g., loopfree ʊ-derivation in λXML

Not bad – no one will read your thesis, so it is unlikely that they will find bugs in it

Are you getting desperate?

How to choose a research topic? Wake up! Good ones coming

Some continuation/increment of some work

A bad idea: if they didn't do it, it is either boring, useless, very difficult, ugly or all of the above

Something very new

A great criteria for lazy people – if it is new, it is much easier to get new results

Something very beautiful

One great criteria (but be realistic, it will not improve your success with boy/girlfriends)

Theorem 3: It should be new, beautiful, have a simple statement and be technologically difficult

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Main result

Theorem 5: You must choose a fun topic

Proof: by Theorem 2, you are going to have a hard time. By Theorem 1, Theorem 3 is bogus – do not believe anyone who claims to know the secrets for finding a topic

Thus, at least, you should enjoy doing it.

$\square$

Quotes of the day

I have very high philosophical expectations of what a Ph.D. thesis should be, but I wont let that interfere with my main goal: to get one fast
(Indian PhD student whose name I forgot)

I had this idea of a Ph.D. topic. I got drunk. It still sounded like a PH.D. topic. Then I decided it was one
(Italian PhD student who asked to be anonymous)

This idea is crazy and will probably not work. It is so much unlike everything I have seen before. Who cares! Let's try it for the fun.
(French researcher who is declining any responsibility)

Conclusion: life is great in academia

INRIA

Why it is such a great job

Intellectually exciting and challenging
- I don't know of any job that is as much fun
(perhaps writing novels but that's too competitive)

Less repetitive than other jobs
- When you get tired of a topic, you change

Freedom and independence
- No real boss
- Freedom to choose what you want to work on

Rich human interactions with smart and international people

Socially positive
- People think it is a cool job
- Clearly useful (for teaching and perhaps research)

I am free!!!!

10 highlights of life in academia

Some light of understanding in the eyes of the audience

The excitement of the arrival of a new PhD student

The deliverance of the departure of a PhD student (aka defense)

The success of your ex-students in their career

The orgasm of proving a theorem that resisted for months

The delight of having your system finally do something

The ecstasy of having a paper accepted at a top conference

The happiness of seeing your paper cited and (with God's help) even read

The joy of seeing a book you wrote on the desk of a colleague

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There are only 9!
If you want to get a PhD you should pay more attention to this talk

The joy of seeing a book you wrote on the desk of a colleague

Most importantly:

Don't be overwhelmed by your responsibility in the progress of science

&

Enjoy your time as PhD student

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