

What's to be a Ph.D. ~~Candidate~~ about?

**SURVIVOR**



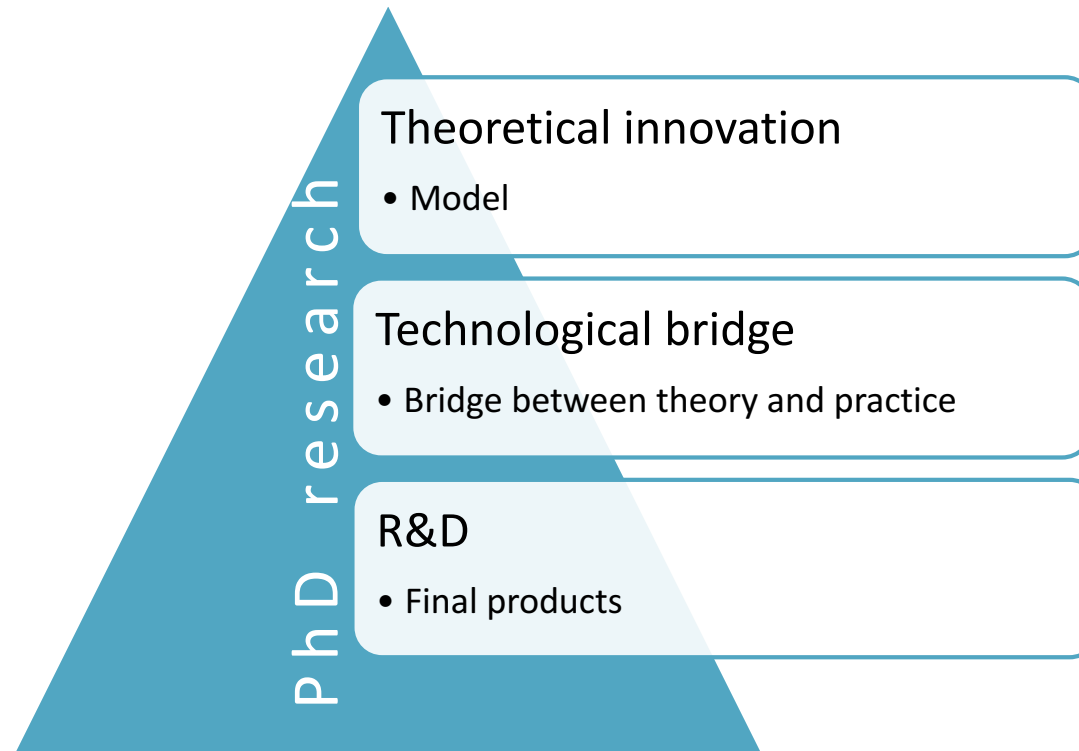
Techniques? Art? or both!?

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# What's PhD research?

- Contribute to the human knowledge
  - Something innovative
  - Solve a given problem
- A PhD student is not (**only**) an Engineer!
  - Should acquire new skills
  - Implementing a prototype is not research!

# What's research?



**3 Years to do the Job!**

## Your 1<sup>st</sup> Ph.D. year

- Keywords: *read*, **read** and read again!
- Then, **take notes**!
- Start with recent **surveys** in your domain
- Focus on the **challenges** identified in the surveys
- Find out the challenges where your topic fits

→ It's time consuming! And boring too...

## Your 1<sup>st</sup> Ph.D. year

- State of the art:
  - Models, methods, approaches, algorithms, APIs, prototypes, etc.
  - Their “+”, “–” and possible improvements
  - Perform a classification (if possible)
  - Come up with good ideas to develop the next year
  - Write your report

**→ So, no stress...(not yet)**

## Your 2<sup>nd</sup> Ph.D. year

### **No good idea, not at all!**

- (Do not) **freak out**...
- Check out what went wrong!
- Start over the process of the 1<sup>st</sup> year

### **You have some nice ideas!**

- Dig deeper into your ideas:
  - Develop your research
  - Publish your research

**→ But HOW to do that?**

# Develop your idea Progressively

Workshop/Poster

- Idea is expressed clearly
- Some empirical results or prototyping

Conf. C/B

- Idea well-formalized with existing tools
- Some experimental results

Conf. B+/A

- Idea well-formalized with a new insight in the theoretical model
- Some experimental results

Conf. A\*

- Idea well-formalized with solid mathematical model
- Solid experimental results

Journal B/A

- Extended version of your conference paper (at least 30% new material)

# Example: a new time machine



People do not like getting wet...



Not suitable for claustrophobic



Seriously, just one seat and so old



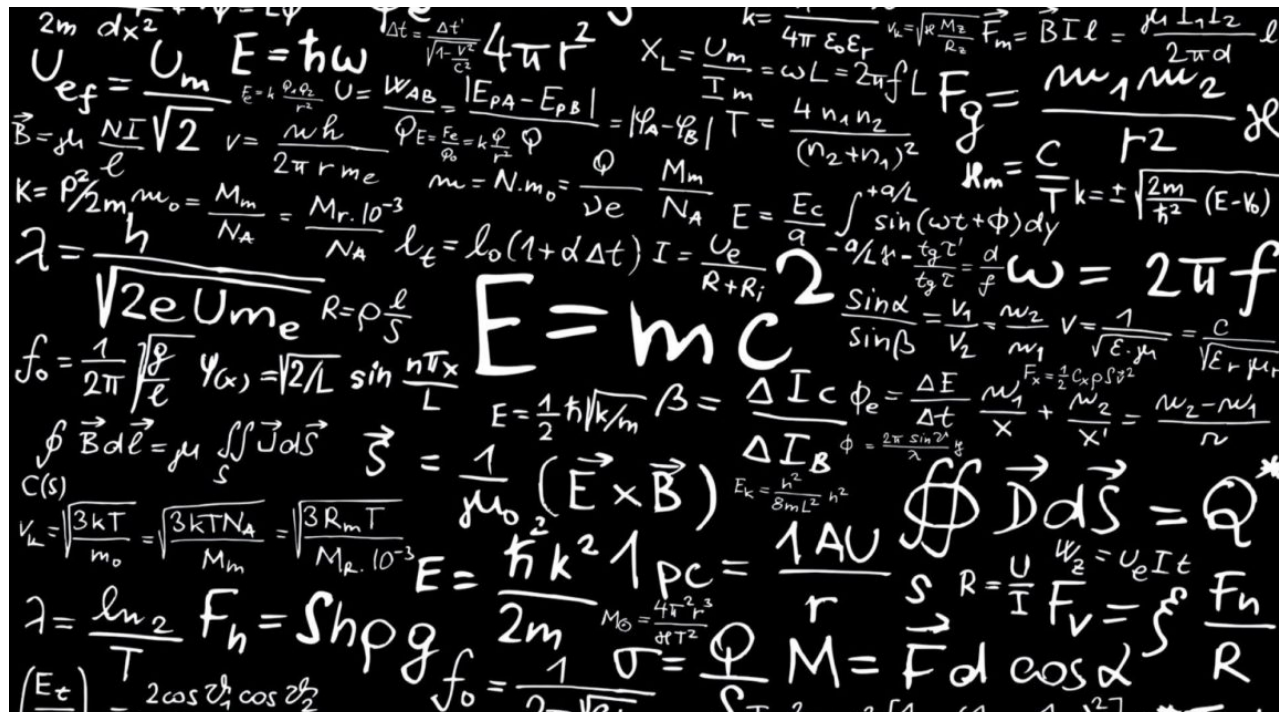
!...cool, but does not look safe!

## Example: a new time machine

- Let's give the De Lorean an extreme makeover and make it fly:
  - People inside the car cannot get wet!
  - It is not a phone box, so suitable to claustrophobic!
  - It is not a one-seat sled! I can travel with friends!
  - It is designed to enforce safety and security.

Example: a new time machine

- Work the math (seriously)!



# Example: a new time machine

- Design a prototype
- Do some experiments and analyze the results
- Write your **research** report:
  1. Start from your method
  2. Then your experiments
  3. The state of the art
  4. Conclusion and future work
  5. Finally, the introduction



# Example: a new time machine

- Your supervisor(s) is (are) supposed to give you feedback
- How your supervisors might see your work!



## From a research report to a “good” paper

- If your research report is OK then extract a research paper
- Your research report is not a paper:
  - You need here some supervisors’ advices
- A good paper is a good story-telling:
  - Technical requirements
  - Writing style

# Where to submit your paper?

- Ranking + deadline(s) + number of pages + format (IEEE, ACM, LNCS, etc.)
- Conference selection:
  - Make your conference list from the papers you've read (state of the art)
  - Ask your supervisor(s)
  - Mailing lists:
    - Bull-i3: <http://icube-web.unistra.fr/gdri3/index.php/Bull-i3>
    - EGC: [http://www.egc.asso.fr/13-FR-Liste\\_de\\_diffusion](http://www.egc.asso.fr/13-FR-Liste_de_diffusion)
    - DBWorld: <https://research.cs.wisc.edu/dbworld/>
    - ...
- Conference ranking:
  - <http://portal.core.edu.au/conf-ranks/>

# How to write a “good” paper?

- Technical requirements (Skeleton or bones)
  - **What** is the subject of your paper?
  - **Why** are you trying to solve this issue?
  - **How** do you solve the issue?
  - **What** are the results you obtained so far?
  - **What** is still to do?

# How to write a “good” paper?

- Writing style requirements (blood, fat, flesh)
  - Short sentences
  - Go straight to the point
  - Be kind with the authors you criticized
  - Use correct grammar, no typos (the fewer, the better)
  - A good user-guide at: <https://goo.gl/9hMRus>

# Submission...

- Before submission:
  - Your name comes first!
  - Check the reviewing type: simple or double blind
  - Be careful with submission platforms (EDAS, EasyChair, “home-made”, etc.)
- After submission:
  - Enjoy the time between the submission and the notification date...
  - 2 possible outcomes:
    - Acceptance 😊
    - Rejection ☹️

## In case of acceptance 😊

- Prepare the camera-ready based on the comments of the reviewers
- Check the compliance with the editing rules imposed by the conference
- Go (survive) through the registration process:
  - ULR procedure is really **painful** and **time consuming**!
- Check if the conference offers student discount and/or student grant
- Prepare the “mission”!
- Prepare your **presentation** *(I need another presentation to deal with that!)*
- Enjoy the conference

## In case of rejection 😞

- Take a couple of days (not weeks!) to process the rejection
- Read carefully the reviewers' comments
  - Are the comments fair and objective?
- Work on the weaknesses of your paper
- Rewrite the paper
- Submit your paper somewhere else...

**→ fingers crossed**

## Your 3<sup>rd</sup> Ph.D. year

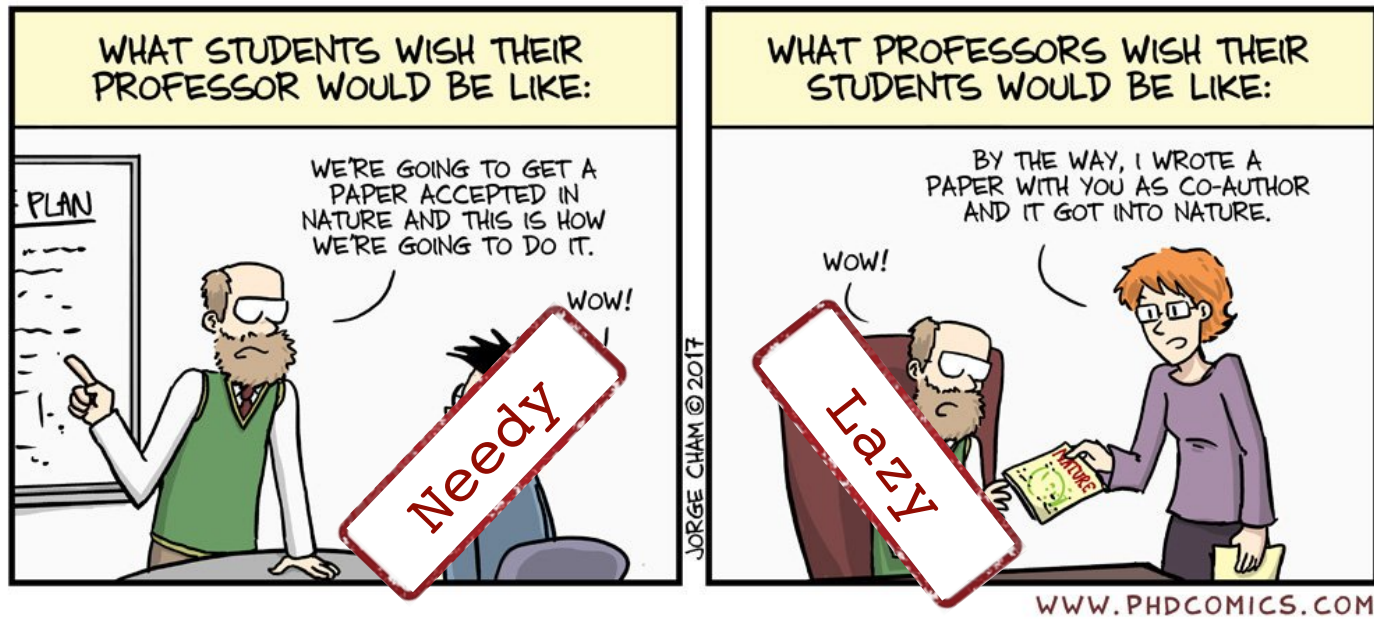
- You're supposed to have published (a) paper(s)!
  - So, in the 1<sup>st</sup> half you can improve your research track with journal paper (Time machine 2.0)
  - In the 2<sup>nd</sup> half, start writing your manuscript:
    - Between 3 and 6 months
    - Check the min/max number of pages (avoid **stuffing**!)
    - The state of the art part is the most exhausting one!

→ **Look for a job!**

## Your 3<sup>rd</sup> Ph.D. year

- No paper: You can start to **freak out!**
  - Your supervisor(s) is (are) supposed to **not** let this happen...
  - Communication issue! Is it possible to solve?
  - Otherwise, **look for a job!**

# (Serious) Expectation Problem!



What's the solution?

## Your 3<sup>rd</sup>/4<sup>th</sup> ... year: The Defense

- The mean duration of a thesis in CS is around 42 months
- In France, the defense is a mere formality:
  - You are authorized to defend your thesis based on 2 reviewers
  - Do a comprehensive presentation of about 45'
  - Read carefully the comments of the reviewers
  - **What comes after the defense?**
    - it's a story for another day...

What is PhD research all about?

Keep pushing!