Doing a PhD (Doctorate actually)
Computer Science @ ETH

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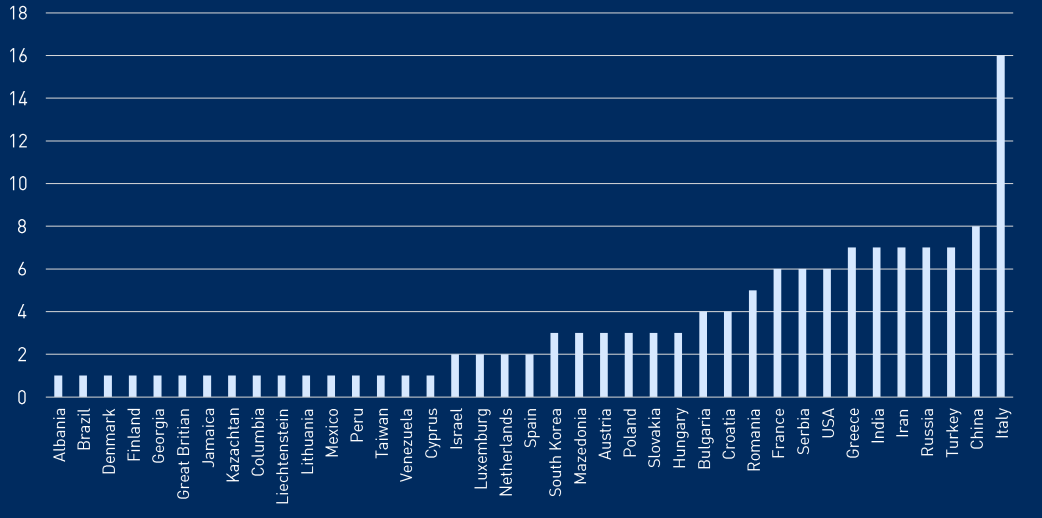
Bild: Micha Lussi, ETH

PhD Students in 2017 (total 231)



plus
Switzerland: 64
Germany: 35

Research ≠ Studying

Problems can be vague at first	Problems well-defined
You are the major driver	Somebody tells you exactly what to do
Irregular checks (meetings etc.)	Regular checks: classes/exams
Open-ended, no "good enough"	Perfect = top grade
Exploration is crucial	Little room to explore
Much time spent reading papers	Little time spent on related work

You Are In The Driving Seat! Be Proactive!

Be creative, have ideas, explore

Read papers

Monitor your progress

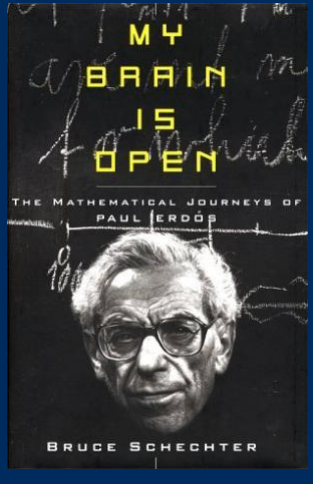
Talk to other researchers (in- and outside your group)

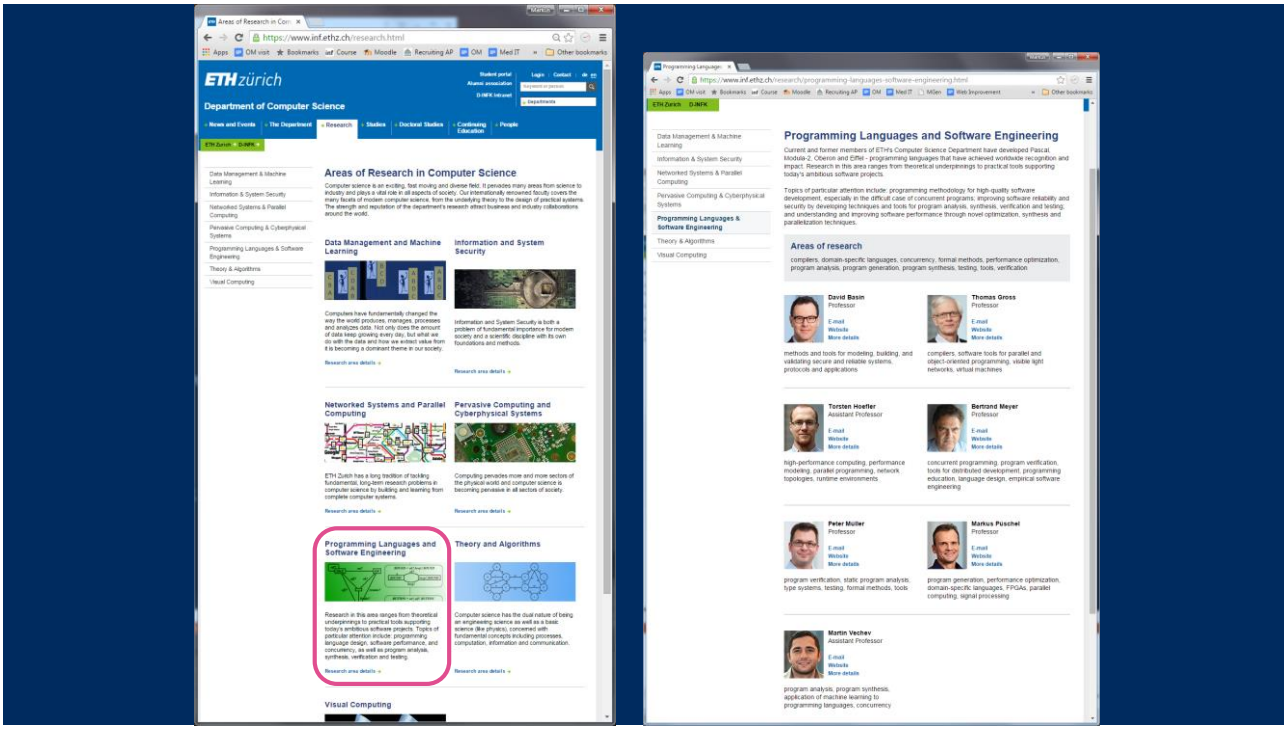
Communicate with advisor (progress, ideas, problems)

Go to our main colloquium and talks related to your work

Talk to people at conferences (= don't stick with your friends)

Problems? Talk to your advisor!





About Talent

There are always obvious differences in how quickly different people pick something up. Some just seem have an easier time playing a music instrument. [...] Some just seem to be naturally good with numbers. And so on.

And because we see such differences in beginners, it's natural to assume that those differences will persist—that the same people who did so well in the beginning will continue to breeze through later on. These lucky people, we imagine, were born with innate talents that smooth the way and lead them to excel.

This is an understandable result of observing the beginning of the journey and concluding that the rest of the journey will be similar.

It is also wrong.

source: Peak: Secrets from the new science of expertise, Anders Ericsson & Eric Pool

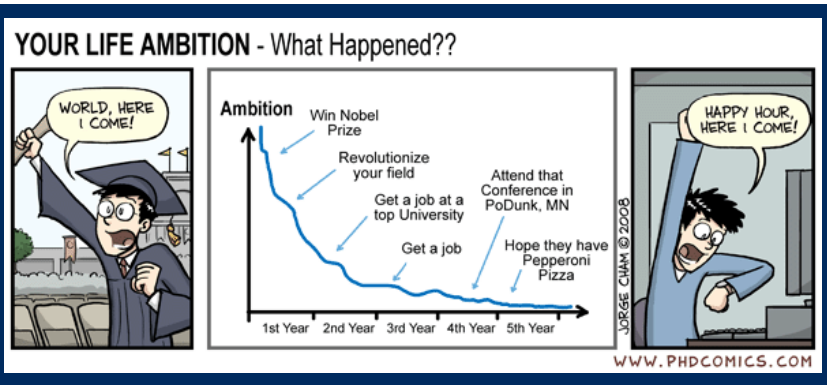
About Talent

In the long run it is the ones who practice more who prevail, not the ones who had some initial advantage in intelligence or some other talent.

People do not stop learning and improving because they have reached some innate limit on their performance; they stop learning and improving because, for whatever reason, they stopped practicing [...].

Message: focus, work hard, dig deep, aim high – the sky is the limit for all of you!
don't be intimidated by the work of more advanced group members

source: Peak: Secrets from the new science of expertise, Anders Ericsson & Eric Pool



Aim for high quality

your research

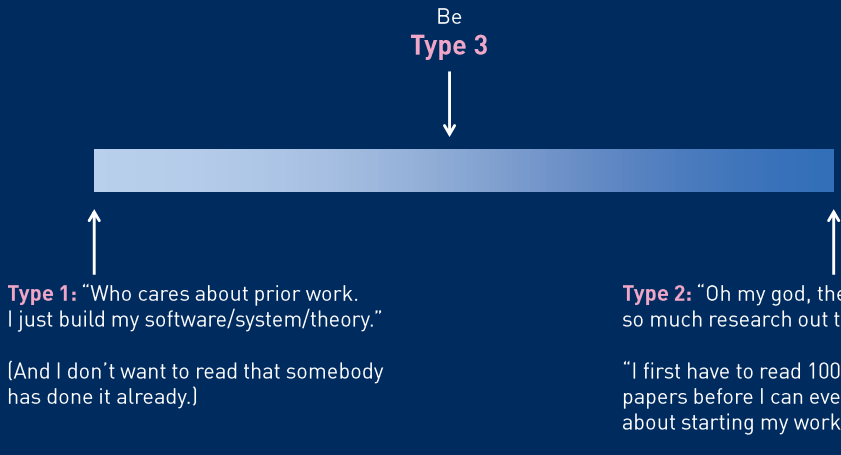
your publications

your presentations

take pride in what you create

Work on your writing/presenting skills

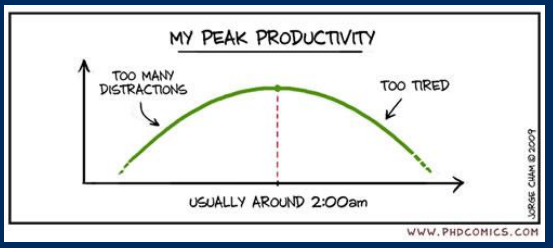
Reading Research Papers



Donald Knuth *(http://www-cs-faculty.stanford.edu/~uno/email.html):*

Email is a wonderful thing for people whose role in life is to be on top of things.

But not for me; my role is to be on the bottom of things.



Be Smart with Your Time

work when you have "the flow"

don't fragment your time

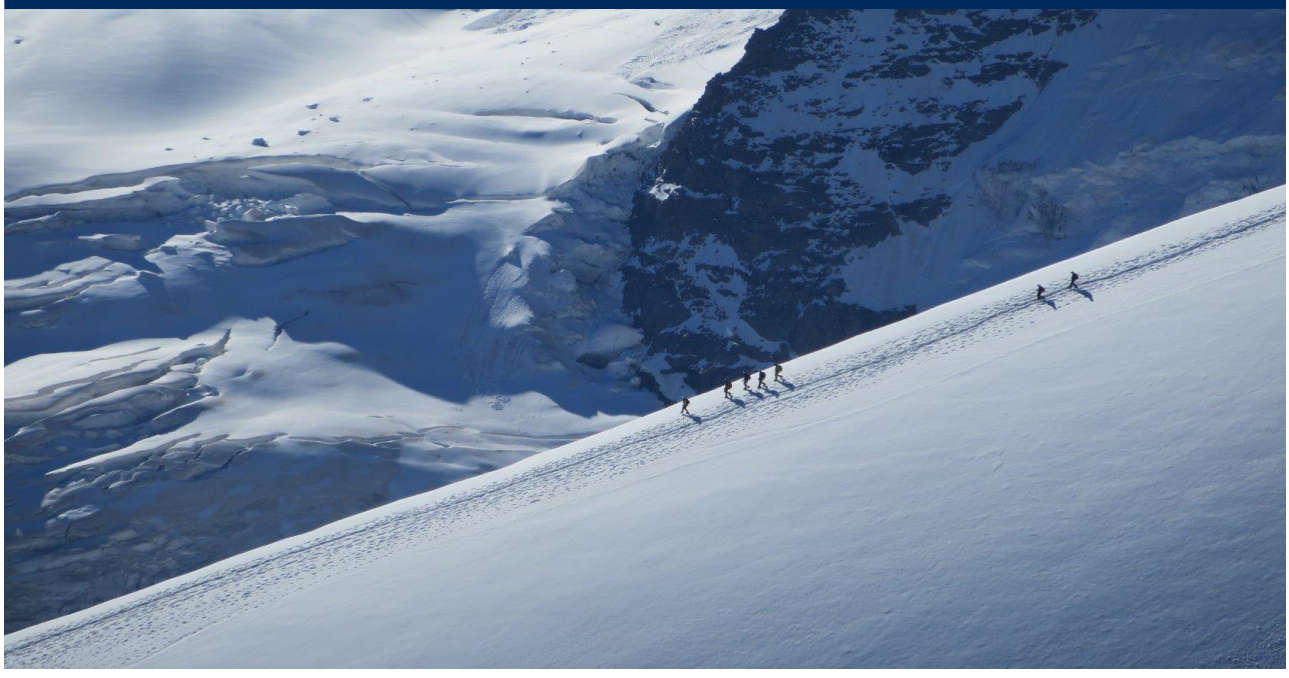
use a calendar

keep a steady schedule

avoid permanent distractions (email, facebook, ...)

Find a Balance to Work

Find a Balance to Work



Find a Balance to Work

Integrity

Discovery and advancement of knowledge are not possible without a commitment to personal integrity, honesty, and ethical conduct

Examples

Assessment of your own work

Comparison to prior work – be proper and thorough

Acknowledgment of collaborators

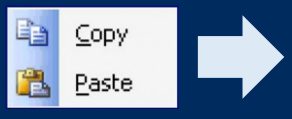
Keep commitments

Be a good team member

Don't be full of yourself

Proper behavior with advisor:
you are given a lot of freedom – don't abuse it

Plagiarism



Be very careful!

Learn proper behaviour from your advisor and peers

A Word on Professional Communication

Rules at ETH and in our department

By email:

~~*coolguy@gmail.com*~~ *yourname@inf.ethz.ch*

Publications/presentations:

Markus Püschel
[optional additions] ← *Institute, Center, Lab, Group, etc.*
Department of Computer Science ← *Should be included*
ETH Zurich, Switzerland

No:
Eidgenössisch Technische Hochschule
Swiss Federal Institute of Technology
ETHZ

PhD: The Procedure

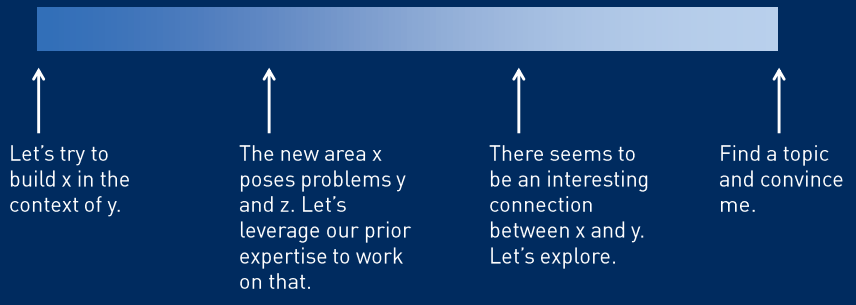
PhD in a Nutshell

Find thesis topic

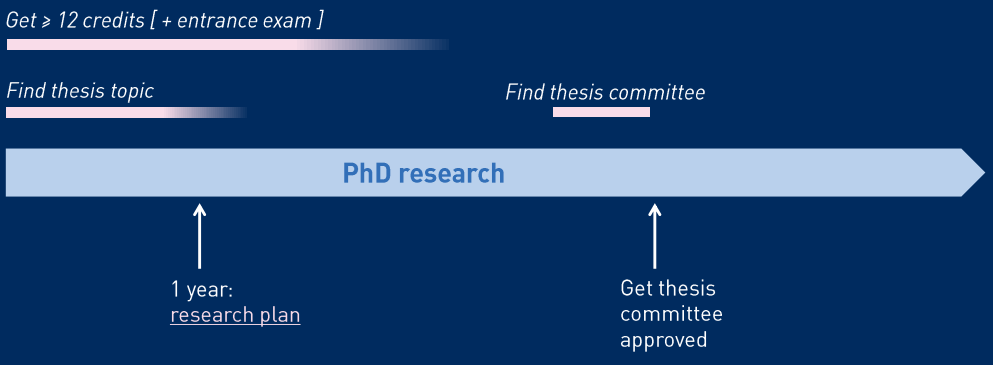
PhD research

Find Thesis Topic: Every Advisor Does It Differently

Some examples



PhD in a Nutshell



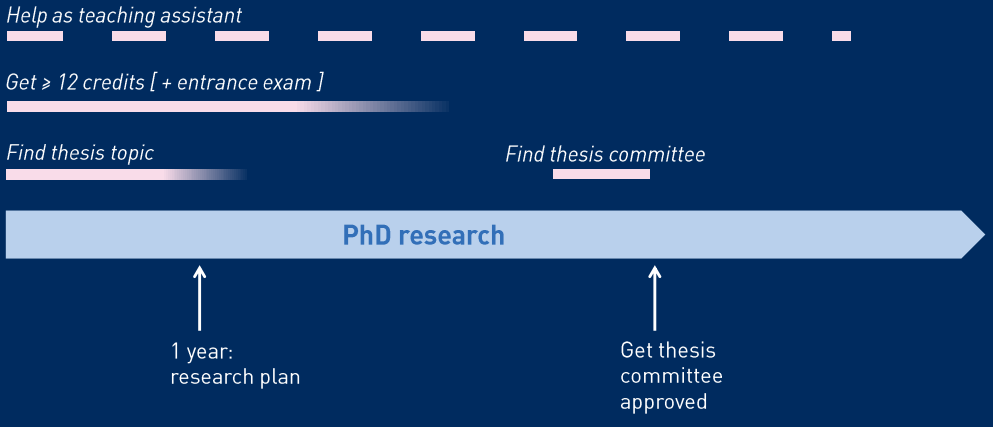
Find Thesis Committee

Together with advisor

Needs at least one independent senior researcher
(typically professor with tenure)

Approved by doctoral committee

PhD in a Nutshell



Teaching Assistant

Part of your training

Part of the reason you get paid very well

Decide together with advisor

Frequency: Every semester

Rough work load: one day/week

Balance undergrad and grad courses

German speaking people: consider first year/service courses

Embrace it – it's fun & you learn a lot

Learning to Teach

This course imparts a variety of teaching skills which will help Doctoral Teaching Assistants with their teaching tasks.

Course content

- Basics of student learning processes
- Active student engagement
- Assessing students' progress

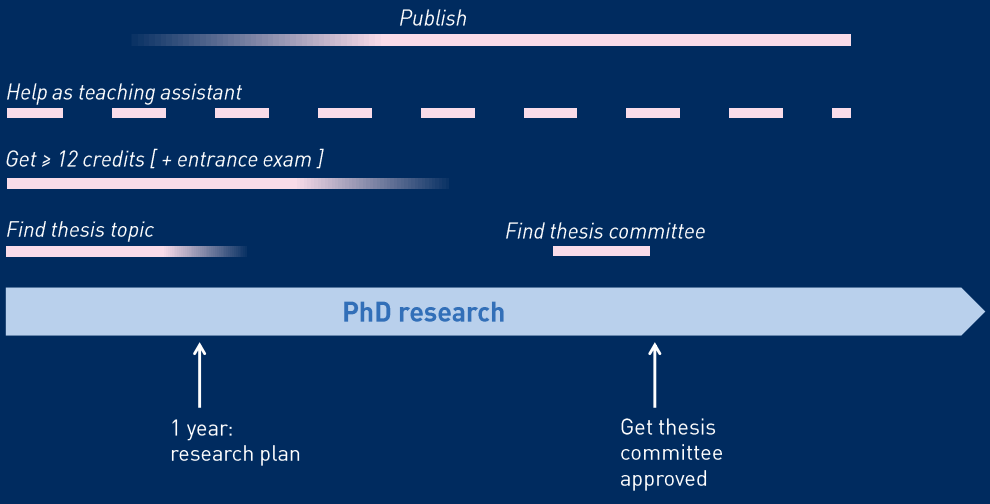
Is this course for me?

This programme is designed for ETH Doctoral Teaching Assistants with **current teaching responsibilities** (exercises, excursions, supervision of practicals, lectures, etc.) **or those who will assume teaching tasks in the semester following the programme.**

No previous teacher training is required.

ETH course run by LET

PhD in a Nutshell



Publications

In computer science, most (but not all) top publication venues are conferences

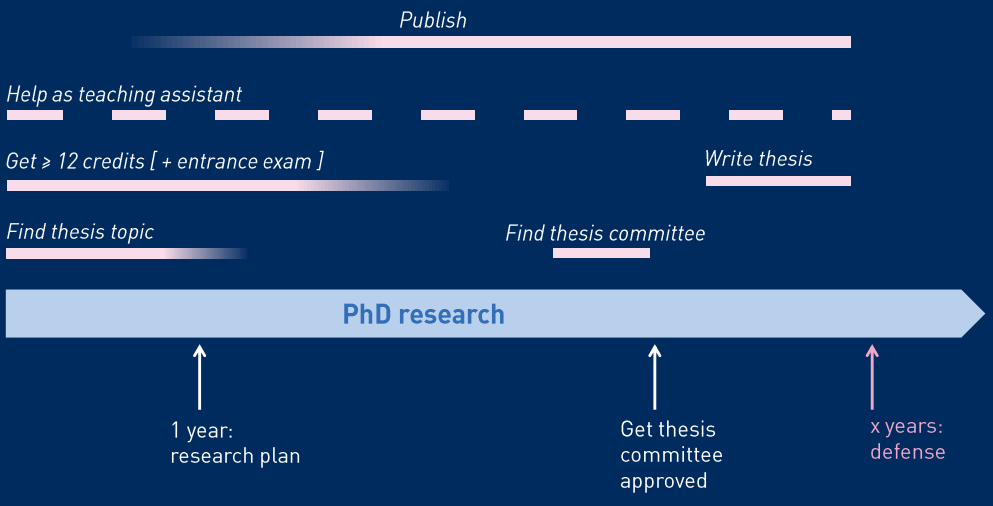
Big difference in quality

Aim for a few papers in top tier venues (as main author)

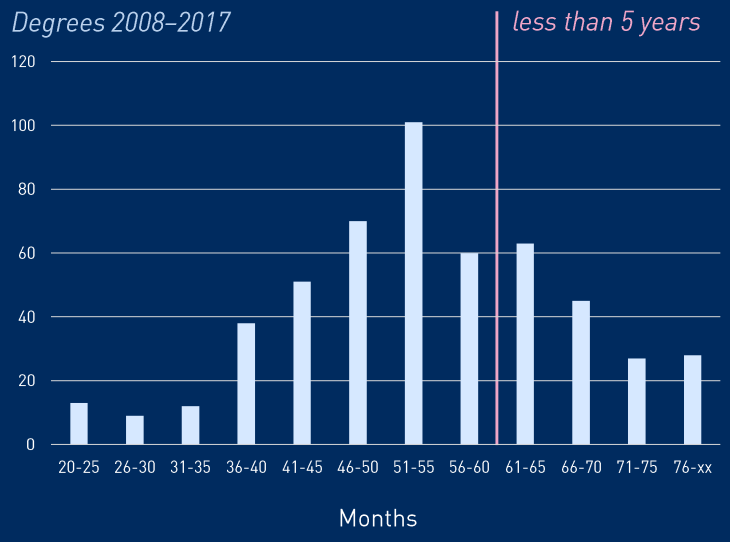
Contribute to other publications in your group

Offer Master thesis projects that may lead to publications

PhD in a Nutshell



What Is x?



Median = 4.5 yrs

63 / 580
dropped out

Doctoral Committee

Members: Ueli Maurer, Onur Mutlu, Timothy Roscoe



Tasks

- *Decides on entrance exams*
- *Approves credit transfers*
- *Approves research plans*
- *Approves thesis committee*
- *Can help with problems*

Excellent Study Administration

Denise Spicher

Marion Wenger

Bernadette Gianesi

Toni Joller

And Afterwards? It Looks Great!

International Postdoc/Industry
- *Your advisor has good connections*
- *ETH highly visible as international top university*

Local industry
- *Severe lack of computer scientists*
- *Start-up culture*

Local research
- *ETH, EPFL, ...*
- *Industry*
- *Research labs (CERN, PSI, ...)*

PhD Should Be a Fantastic Experience

Cutting edge work

Creative

You can show what you can do

Multimodal:
research, write, present, teach, travel, communicate, advise

Few distractions

Great environment

Make the best out of it!