A Traveller’s Guide to the PhD

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ICDAR 2015 Doctoral Consortium

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... or: What does “PhD” actually stand for?

- Academic degree: “doctorate”
- “PhD” or “Ph.D.” ≡ Doctor of Philosophy (lat. philosophiae doctor)
  [most academic fields traditionally known as “philosophy”]
- On a business card: “John Smith, PhD”
  In a letter: “Dr. John Smith”
- In Germany: “Dr. Max Mustermann” or, more specifically,
  “Dr. rer. nat. Max Mustermann”, “Dr. jur. ...”, “Dr. phil. ...”, ...
  “Dr.-Ing. Gernot A. Fink”
Scope

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“Imagine a circle that contains all of human knowledge:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“By the time you finish elementary school, you know a little:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“By the time you finish high school, you know a bit more:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“With a bachelor’s degree, you gain a specialty:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“A master’s degree deepens that specialty:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
"Reading research papers takes you to the edge of human knowledge:"

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“Once you’re at the boundary, you focus:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“You push at the boundary for a few years:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“Until one day, the boundary gives way:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“And, that dent you’ve made is called a Ph.D.:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

"Of course, the world looks different to you now:"

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope

“So, don’t forget the bigger picture:”

(from Matt Might’s “The illustrated Guide to a Ph.D.”)
Scope: Recommendations

- Know the state-of-the-art!
- Define your field in relation to the current research lines pursued in the broader research community!
- Others should be able to learn something from your dissertation!
  
  “The world does not need mediocre dissertations that sit on a shelf gathering dust.”
  
  Daniel P. Lopresti

- A good dissertation should propose new ideas or methods!
  ⇒ Avoid just tweaking existing solutions!
  
  ... which might happen in the context of projects

Note: Your supervisor can help you with all of this!
Level of Independence

... or the German “Doktor-Ingenieur” (Dr.-Ing.) versus the Anglo-American PhD

BSc

MSc

PhD

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- Student
- BSc
- MSc
- PhD

Specialization

Independence
Level of Independence

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Specialization

Student

BSc

MSc

PhD

Researcher

Independence

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Some Remarks on Publishing

Your publication(s):

▶ Your PhD thesis has to be published - but ...
  ▶ You should publish (on conferences / in journals) before!
  ▶ Recognition of your publications will (hopefully) tell you something about how the community values your work.

▶ The number of publications should not be primary optimization criterion!
▶ Avoid defining “least publishable units”!
▶ Incremental publishing is ok if increments are “noticeable”.

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Some Remarks on Publishing II

Where to publish?

▶ A viable (and accepted!) publication strategy:
  ▶ Start on workshops!
  ▶ Continue with conferences!
  ▶ Submit mature / extended manuscripts to journals!
▶ Avoid ”conference hopping” – you won’t get in touch with the community!
▶ Don’t pick conferences based on acceptance probability or availability of beaches etc.!
▶ Accept review processes as random experiments - a single outcome might tell you almost nothing!
Some Remarks on Publishing III

Your publication(s) related to others’:

➤ Give credit!
  (i.e., acknowledge the work / achievements of others)
➤ Authorship comes with responsibility: Be honest wrt.
  contributions of your (potential) co-authors!
➤ Join forces with your colleagues in the lab, in order to:
  ➤ Discuss your ideas / problems
  ➤ Share methods and tools
  ➤ Write joint publications

Note: In technical fields it’s mostly about team work!
Results Matter!

- Use well recognized benchmarks (if possible)!
  
  Alternative: Publish your data / benchmark (e.g. via TC-11)!

- Use hard benchmarks!
  
  Note: *When error rates vanish (e.g. for MNIST), benchmarks become useless!*

- Your results should be reproducible by others!
  
  ⇒ Clearly describe your method(s) *on the technical level*!
  
  ≠ Don’t obscure important aspects of you approach!
    (e.g., critical meta-parameters or design decisions)

- Never ever falsify data!
Life Beyond the PhD

- There is **professional** life *after* the PhD ...
  - In academia: The PhD will be your “admission ticket”.
  - In industry:
    - Don’t expect *direct* monetary “reward” for your PhD!
    - Don’t expect to continue working in the field of your PhD!

⇒ Clarify early which option is right for you!

  ... with your supervisor / colleagues / mentors

- There is **private** life *in parallel* to the PhD!
  - Don’t forget about your family, spouse, friends, ...
In Case You Need Some Cheering-up:

From: http://www.phdcomics.com/
All the Best for Your PhD Research!