

Research A (IMCo31)

Lecture I: Intro

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Course objectives

- Introduction to doing research
 - practice oriented
 - you will work on different phases
- Training in self-organization
 - YOU! are responsible
 - we give you an environment to practice doing research, it is up to you to go for it
- Learn to meet **deadlines**

Learn academic competences

- Literature study
- Identifying research questions
- Writing a research proposal
- Research methods
- Giving scientific presentations
- Writing scientific paper
- Make plans
- Meet deadlines



Today's objectives

- Overview of the course
- Organization matters
- Get you started
- Next week: 2-hour lecture (Sept. 11)
 - Q&A
 - Proposal writing
 - The research question

What is research? (according Wikipedia)

- search for knowledge
- or any systematic investigation to establish facts

- Applied vs. fundamental
 - the purpose of applied research is discovering, interpreting, and the development of methods and systems for the advancement of human knowledge on a wide variety of scientific matters

Different phases of research

- The research question(s)
- The research proposal
- The research paper
- The research presentation(s)
- Deadlines



The research questions (in short)

- Not too broad, not too narrow
- Relevant and “hot”
- Has to be clear (for everyone)



The research proposal (in short)

- Sell your research
- Show you have a good chance to find an answer
- Show that this answer will have impact
- Show your plan of attack, your method

Presentations (in short)

- A clear message
 - everybody leaves the room remembering your main point
- Well organized
- Captivating / motivating
 - make sure everyone is listening
 - make sure everyone wants to read your paper



The research paper (in short)

- Well organized
- Show a clear contribution

Two research themes

- Big data
- Internet of things



Topics within the themes

- Full list of topics available on:

<http://cryptojedi.org/peter/teaching/research-a-2013.shtml>

or just talk to us

- Visit also other group/section leaders:



Elena Marchiori



Frits Vaandrager



Herman Geuvers

Rules of the game

- Today, you should try make pairs (pair with someone you don't know)
- Within the next two weeks, you choose a topic
- You develop research question(s)
- You write a proposal on that question
- You present your proposal
- You do some research
- You present your results
- You write about your results

Blackboard

- Make sure you're enrolled!
- Blackboard will be mainly used for
 - E-mails
 - Background reading
 - Assignments
 - Feedback
 - Grading



Lecture hours

- Wednesdays - 8:30 to 10:30
 - Only a few (3) lectures in the beginning
 - This time slot is also used for presentations
- Standard lectures
 - how to write papers/proposals, give talks, ...
- Progress reviews with us (every 2 weeks)
 - where are you in your research
 - discuss **drafts** of proposal, papers, slides
 - need to have something to talk about

Tools

- Proposal and paper
 - LaTeX (preferably)
 - pdf files
- Slides
 - free to choose
 - remember that pdf always works!



Deliverables

- D_0 – short e-mail containing:
 - the team, title, supervisor (**Deadline Sept. 17, 15:00, CET**)
- D_1 - Research proposal submission
 - question, method, plan (**Deadline Sept. 27, 15:00, CET**)
- D_2 – Slides for presentations submissions
 - $D_{2.1}$ proposal slides (**Deadline October 1, 15:00, CET**)
 - $D_{2.2}$ paper slides (**Deadline December 17, 15:00**)
- D_3 – Draft paper and final paper submissions
 - $D_{3.1}$ first version of research paper containing your results (**Deadline December 10, 15:00**)
 - $D_{3.2}$ final version of your paper (**Deadline January 10, 15:00**)

Presentations

- Research proposal
 - on October 2, times tba
- Paper presentation
 - on Dec. 18



How much depth?

- You are training
 - no breakthrough expected
 - re-discovering the wheel is acceptable
 - literature study is pretty good
- But more is always possible
 - it is up to you
- Most important
 - learning about doing research



Grading

- Final grade is:
 - $0.2 * g(D_1) + 0.3 * g(D_2) + 0.5 * g(D_{3.2}) - p$
 - $g(D_i)$ is your grade for the corresponding deliverables
 - D_2 is the average of the 2 presentations
 - p is your penalty



Deadlines and penalties

- Strict !
- Miss intermediate deadline
 - penalty of 0.2 of your final grade (for each missed deadline)
- Miss final deadline
 - by less than a few days, maximum grade is 6
 - otherwise, you failed the course
- You need 5.5 or more to pass ...

Deadlines: why being so hard

- This is our life !
- EU, NWO projects
 - servers close at fixed times x:00
 - submitting ε time later is not possible !
- Conference submissions
 - ditto



Your next objectives

- Make pairs (**not** with your friends!)
- Go find a topic/supervisor !



