Guided Research Computer Science

What is Guided Research?

- You solve some nontrivial, but tractable problem
  through own activity, but with support by your supervisor

- Will be your (maybe longest) project, hence requires a planful approach

  - „failing to plan is planning to fail"

  - Eg: whole write-up during last week – bad idea

- „Guided Research thesis" = „Bachelor Thesis"

  - CS Handbook: "Guided research is part of the undergraduate program in CS. The guided research courses are offered by all professors of Computer Science jointly. The professors propose a number of research projects, which will be posted on a dedicated guided research website. Students interested in particular projects should get in touch with the professor in charge of that project."

  - no graduation without guided research!

320371 Guided Research Proposal

2.5 ECTS

- Procedure:

  - Choose advisor (a CS Prof.) + topic until 2016-oct-01   (or lose 10% per day late)

  - Register your advisor by an e-mail to j.schoenwaelder@jacobs-university.de

  - Write "guided research proposal" document
    - *introduce field of study*
    - *state research questions/hypotheses*
    - *describe expected results and their importance*
    - *set up work plan with Gantt chart*

  - Submit to https://jgrader.de until 2016-dec-15   (or lose 10% per day late)

- Details at http://cnds.eecs.jacobs-university.de/courses/gr-2017/

  - Document template; target size 10–15 pages
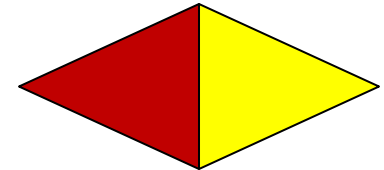
320342 Guided Research

5 ECTS

- Procedure:

  - work off proposal, write down thesis

  - Submit to https://jgrader.de until 2017-may-tbd   (or lose 10% per day late)

  - guided research presentation on 2017-may-tbd, 15+5min

- Grading: 80% report + 20% presentation

  - what matters most is content, not layout or length

  - Show that you can write a scientific text

- Details at http://cnds.eecs.jacobs-university.de/courses/gr-2017/

  - Document template, target size 30–50 pages

- Optionally, derive publication from your work   (looks good on CV)

Conducting Guided Research (inspired by [1])

- Topic choosing phase:

  - Skills match?

  - Enthusiasm & engagement?

  - Supervisor?

- Immersion phase:

  - Find literature
    - *similar projects? Similar work in other fields? Adapt existing techniques? Experience?*

  - Understand nature of what is requested
    - *Theory? Proof? Implementation? Evaluation? ...*

  - Talk & discuss regularly
    - *Supervisor, supervisor's group members; co-students with related challenges; …*
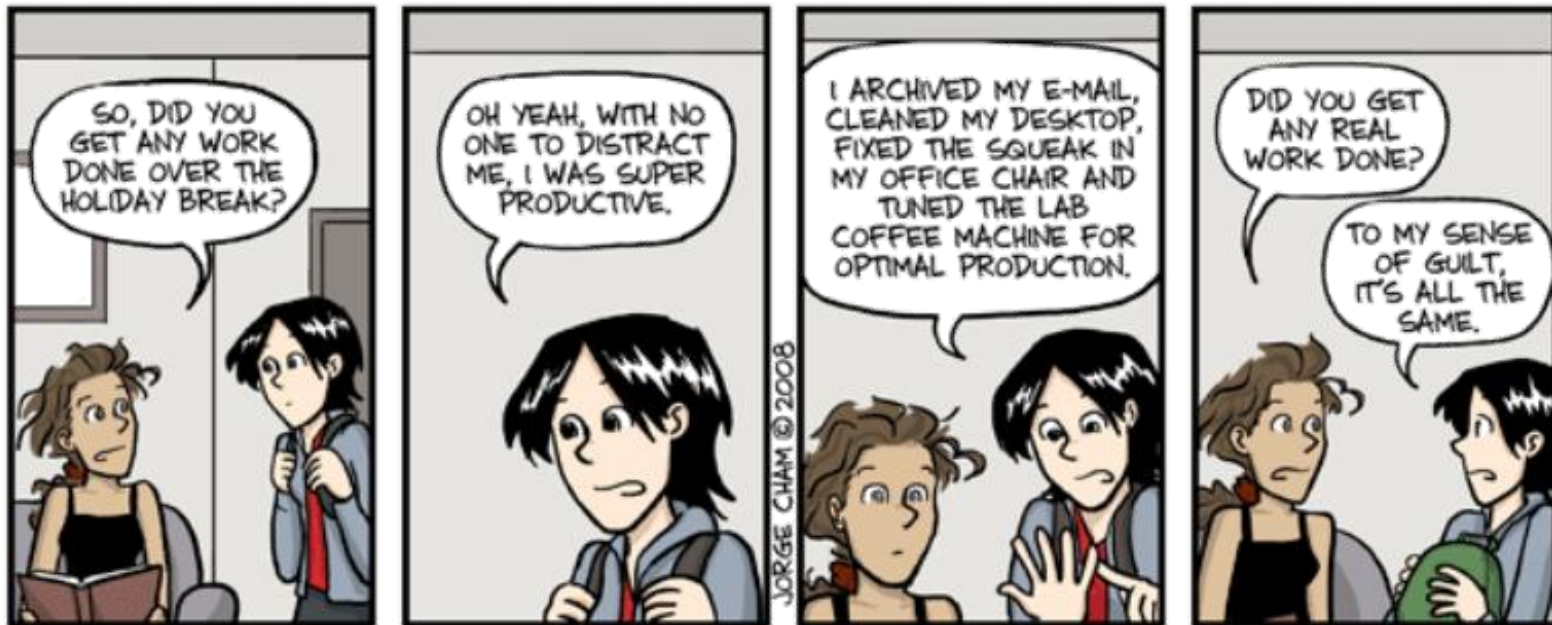
Conducting Guided Research (inspired by [1])

- Problem solving phase:

  - Try understanding

  - Play with concrete example scenarios

  - Simplify until tractable; then enhance again, step by step

  - Ask supervisor for exercises, mini-projects, etc.

  - Write down ideas & findings early   ("Big Bang" not good here)

  - explain your ideas to someone (supervisor, talk in research group, friends, …)

- *...more in discourse with your supervisor!*

Some Worst Enemies

- „Lonely warrior"

- Not citing work used

- Procrastination