Master thesis in research group

DistriNet

Distributed Software & Software security

Kick-off event

27 September 2017

The presentation will become available on the web site of DistriNet
https://distrinet.cs.kuleuven.be/
Objective of a master thesis

• perform a major project in an independent way
• participate in research
• 6 aspects whose importance in every master's thesis may vary
  – literature study
  – an analysis of a problem/formulate a research question
  – the formulation of a solution
  – a design
  – an implementation
  – evaluation
• large dose of self-reliance, creativity and a sense of initiative
  – develop a work plan independently and realize it
  – Time management is very important!
• Report: both orally and in writing
Members

- ZAP
  Yolande Berbers, Bruno Crispo, Bart De Decker, Danny Hugues, Tom Holvoet, Bart Jacobs, Wouter Joosen, Frank Piessens, Eric Steegmans

- AAP/BAP
  - 60+ collaborators
  - Spread over several task forces

Large research group

- with a wide research experience
- in highly topical themes that are strongly appreciated today
DistriNet Research Group

• Development of open, distributed object-oriented support platforms for advanced applications, using state-of-the-art software technology
  – always driven by applications
  – often in collaboration with industry

• working around coherent palette of research themes
  – in Flanders strongly committed to industry: in industrial projects, Member of the iMinds, at the base of several spin-offs in the software industry ...
  – Also at European level we are active in multiple projects

• DistriNet recruits every year the best students (mostly from the group of thesis students).
Role promotor – supervisor– task force

- Supervisor and promotor: are not responsible for master thesis
  - STUDENT bears the responsibility, supervisor and promoter are coaches
- Supervisor (or mentor)
  - student keeps weekly contact with supervisor (e.g. weekly appointment)
  - the supervisor follows the progress
  - The supervisor can suggest adjustments when necessary
- Promotor
  - discusses the progress of each master thesis with supervisor
  - E.g. discusses with supervisor if adjustment of subject is advisable
  - does not always have much direct contact with students
- Task force
  - often: advancement for all theses of a task force discussed together
- Reader: from other research group, reads final text, asks questions at defense, sees demo, is involved in the grading!!
Monitoring progress master thesis

- Monitoring progress
  - Supervisor
    - weekly contact
    - email must be read very regularly!!
  - Internal meetings supervisors & promotors
  - Surveys by email (around 2nd week of each month)
    - questions depend on stage during the year
    - evaluation of past month in function of planning
    - plans for the next month
    - evaluation about effort
    - evaluation of progress compared to recommended target
intermezzo

- which time investment does the university expect?
- data
  - year is between 1500 and 1800 hours = 60 stp
  - from beginning of academic year until beginning of June = 36 weeks

- master of engineering in computer science:
  - Master thesis counts for 24 study points
- master in Toegepaste informatica:
  - Master thesis counts for 18 study points
intermezzo: expected time investment

- master Engineering: 24 study points
  - between 600 and 720 hours of work for master thesis
  - Corresponds to an average of 17 to 20 hours per week
  - but there is also exams in January, also vacations ...
    - So in practice >>> 20 hours per week

- master toegepaste informatica: 18 study points
  - between 450 and 540 hours of work for master thesis
  - Corresponds to an average of 12 to 15 hours per week
  - but there is also exams in January, also vacations ...
    - So in practice >>> 15 hours per week
Time investment: how to track

- Faculty has designed a simple timesheet
  - Granularity is a week
  - You can refine this if you like
- We ask you to use the spreadsheet, and to send it every month (see further)

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<th>Difference</th>
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</table>
Additional modalities Master Thesis

- In addition to master thesis text
  - 2 extras (NOT FOR MASTER TOEGEPASTE INFORMATICA)
    - een “scientific” paper
      - IEEE formaat, 4 to 6 pages,
      - is a brief description for specialists
      - With usually an abstract, context, problem statement, the contribution, comparison with other work, conclusion
    - A popularizing paper or a poster
      - EOS / Scientific American like, 5 pages
      - is a short summary for non-specialists
    - specific content may vary by master thesis
Major milestones

• 3 major milestones
  – At the end of December
    • A first text should be ready: paper or poster
    • can be any of the following: detailed problem analysis, detailed literature study, a first prototype, a first solution
  – After Easter holiday
    • Another finished product should be ready
      – Dependent on content of thesis
      – Could be a certain prototype
      – Could be the 2\textsuperscript{de} paper or poster
  – Beginning of June
    • Full text and the two papers

• One continuous care
  – Your text, you should be writing pieces the whole year
Own evaluation of your work

• Each month you get a questionnaire with an evaluation

• Estimate and evaluate the **time** you spend on your master thesis in the past 4 weeks
  – much too little / too little / sufficient
    / more than enough / more than expected

• Estimate and evaluate the **progress** you made, in relation to your set targets
  – far behind schedule / behind schedule
    / well on track / forward on schedule / far ahead of schedule

• Send you timesheet
First questionnaire (October)

- What is the goal of your thesis? (5-10 lines)
- What are the main problems? (max 5 lines)
- What have you done to date?
  - Literature (what exactly?)
  - Learn to use tools (which?)
  - Analysis (of what?)
  - Already designed or implemented something (what?) ...
- For which exam session do you plan to submit?
- Send your ISP to your supervisor and promotor
- What do you plan to do in the next 4 weeks?
- Evaluate yourself
Second questionnaire (November)

• Compare what you did in the previous 4 weeks with what you had planned to do in the previous report
• What do you plan to do in the next 4 weeks?
• Give abstract of paper (or poster) and short content
• Evaluate yourself
Third questionnaire (December)

• Give a detailed workplan until the end
  – This work plan must be drawn up PER 2 weeks
  – It details what exactly you are going to do
  – Make it specific:
    • in case of implementation, implementation of which part exactly,
    • in case of writing text, the writing of which chapter(s) exactly, etc.
  – Draw up this work plan independently, and discuss it with your supervisor

• Evaluate yourself
Fourth questionnaire (January)

• Compare what you did with the workplan drawn up
  – How far have you progressed?
  – Should the workplan be changed?

• Evaluate yourself
Fifth questionnaire (February)

• Compare what you did with the workplan drawn up
  – How far have you progressed?
  – Should the workplan be changed?

• Refine the rest of your work plan per week
• Give an outline of your thesis text
  – Titles of chapters, and per chapter 2 to 5 lines with content
  – Of course you can discuss this with your supervisor

• Evaluate yourself
Sixth questionnaire (March)

• Compare what you did with the workplan drawn up
  – How far have you progressed?
  – Should the workplan be changed?

• Give abstract of paper (or poster)

• Describe in 10 lines the demo you will give at your defence

• What did you agree with your supervisor as major milestone after Easter holidays?

• Evaluate yourself
Seventh questionnaire (April)

- text: give most important elements of conclusion
- Refine the outline of our thesis text
  - By chapters: the subsections
    - By subsection: the core idea
  - Estimation of number of pages
- Evaluate yourself
Modalities Master Thesis

• presentations
  – First
    • About master thesis
    • At the end of November
  – Second
    • Around March
    • Usually that is a presentation on a topic related with the master thesis
    • Topic chosen in consultation with the supervisor
Modalities Master Thesis

- Choice final title: April

Texts

- Information on website departement
  - via studenten -> master … -> masterproef -> richtlijnen
- text is very important, it is the basis for your grading by readers + can lead to great awards!
  - Start in time!
  - Make sure you have someone who will proof read your text (supervisor looks at contents, is not your spell checker)
Modalities Master Thesis

- **Texts**
  - **Language**
    - English master: Everything in English!!
    - Dutch master:
      - If text in English:
        » Scientific paper in Dutch
        » promotor has to file a request to program director
      - If text in Dutch:
        » Scientific paper in English
        » popularizing paper / poster: in same language as text

- **Correct citation is very important !!**
  - Plagiarism, even if not intended, is taken very seriously
  - Automatic screening of all thesis
Access to articles, journals, etc.

- Limo.libis.be

- Springerlink, IEEE Xplore, CiteSeer, ...
  - With KU Leuven license within KU Leuven networks
  - From home using **EZProxy**:
    https://admin.kuleuven.be/icts/english/proxy
Sessions organized by faculty

- Three Master’s Thesis workshops to support you
  - First session about **Information Literacy**
    10, 12, 13, 16 October
  - Second session about **Academic Writing**
    6 and 8 November
  - Third session about **Intellectual Integrity and Plagiarism**
    6 and 8 November

- Maybe you have received an email about this
- Attendance for DistriNet students is mandatory
- You have to register, see email
Modalities Master Thesis

• Submission deadlines
  – 12 januari 2018
  – 8 juni 2018
  – 16 augustus 2018
  – +- 15 januari 2019

• See website of Faculty
  http://eng.kuleuven.be/studenten/masterproef/masterproef/deadlines
Modalities Master Thesis

• Master Thesis Defense
  – When
    • a few days before deliberation
  – what
    • Presentation
    • Answering questions
    • Demo

• grading
  – Look at objectives of a master thesis (slide 2) and you will understand how you will be graded!
  – Assessment grid can be found online
  – Criteria used: see next slide
Elements that determine grades

- independently execute an extensive project
  - Were the goals achieved?
- 6 aspects of which the importance may vary (quality of work is important in each aspect)
  - Literature study
  - Problem analysis
  - Formulation of a solution
  - A design
  - An implementation
  - An evaluation
- Large dose of self-reliance, creativity and sense of initiative
  - develop a work plan independently and realize it
  - Time management is very important!
- report
  - Both orally and in writing (texts are very important!!)
- Critical view on delivered work, drawn conclusions
Kick off meeting Master Thesis

- Questions??
Kick off meeting Master Thesis

• Sandwich lunch!