Student Conference 2018
8th Student Conference on Software Engineering and Database Systems

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(based on slides by Christian Kästner, Fabian Benduhn, Veit Köppen)
Overview

• Graduate level course (Master, PhD)
• 6 CP Module for „Schlüssel- und Methodenkompetenzen“ in Master
• DE/DKE Specialization
• Topics
  – Academic Writing
  – Scientific Peer Review and Publishing Process
  – Presentation
  – Research Ethics
• Goal: Preparation for research career
Contents

• Several lectures
• Write an academic paper... “Current state and future challenges in X” (4-8 pages)
• Submit the paper to our “conference”
• Participate in a review process (2 rounds)
• Present your work at our “conference”
• Paper and presentation must be in English
Conference Organization

• Program Chairs
  – Jacob Krüger (Sweden) + N.N. (local)
  – N.N. could be one of the participants (with Bonus in Grading)
  – Call for Papers, Organize the reviewing process

• Program Committee
  – All participants
  – More experts if necessary

• Conference Chairs
  – Organize the conference at the chosen place and time
  – Jacob Krüger ? + N.N. ?
Warning

• Take this course seriously!
• 6 Credit Points = 180 h, all within the semester (12h/week)
• Focus on reading and writing
• Paper (first version) is due in 6 weeks (4-8 pages)!
• Plenty feedback and opportunities for improvement: Use it by starting with a good version
• Tough grading
Deadlines

- In 1 week: title / topic (topic assignment until Sunday)
- In 2 weeks: 5min presentation of topic and relevant literature
- In 3 weeks: submission of abstract
- In 6 weeks: submission of paper (4-8 pages)
- Within 1 week: first reviews due (2x)
- Within 3 weeks: submission of improved paper
- Within 1 week: second review round due (2x)
- Within 2 weeks: submission of final paper
- June: practice presentation
- July: final presentation at the “conference”

See website for precise dates. All deadlines are strict.
Grading

• Grades (master students) based on quality of
  – the submissions and final paper (50%)
  – the presentations (30%)
  – the reviews (20%)

• Focus on formal criteria (style, cohesion, adequate references) instead of novel contribution

• Details in the corresponding lectures

• PhD students can get a certificate
Topics

• We recommend: “Current state and future challenges in ...” (unless you have some other contribution)
• We have some topic proposals (at the end of the talk)
• You can select your own topic:
  – Pick something you are interested in learning more about e.g., open research question from lectures that interests you (e.g., ISP, Database II, DWT)
  – It should have had academic relevance in the last 10 years
  – Narrow it down: you can never cover a topic as broad as “data warehousing”, “big data”, “software product lines”
• Search literature: you should find publications by at least 5 different research groups related to this topic
Survey Papers

• Discuss different approaches/solutions for a problem
• Group/classify solutions, discuss commonalities and differences
• Try to be complete or at least select important representatives
• Aggregation and describing relationships is your contribution! (instead of a new solution to the problem)

• Which problems are still open
• Are there initial ideas for that?
Our Requirements

• Explain the problem (and its importance) to readers unfamiliar with the domain
• Discuss at least 5 different solutions (by different research groups)
• Give a benefit compared to reading all papers
  – Discussion
  – Comparison
  – Additional context
• Between 4 and 8 pages (ACM Master Template with [sigconf] option, including references, each submission)
Finding Literature - Overview

- Library: Journals (online & print), also interlibrary lending (Fernleihe)
- scholar.google.com (use links “All x versions”, “Cited by”, “Similar articles”)
- ACM Digital Library (articles accessible within university network)
- dblp.uni-trier.de

- Related work therein
Finding Literature I

Get Overview

- Case: Examining a topic for the first time/unaware of the research on it
- Starting with broad syntheses of the literature
- Look at overviews/summaries/reviews of the literature on the topic

Research Concerns and Questions

- Define research questions (RQs)
- Generate sub questions (questions that have to be answered as part of answering the larger question)
- Make first educated guess: If the article you were looking for were in a library, what would the label on the shelf say?
  - Background topic: Finding literature you have to know to appear credible to other academics researching in this area
  - Obvious topic: Finding authors who have published similar research
  - Going fishing: If you look for the opposite you might find something interesting

Define Search Strings

- Consider synonyms/alternate terms/word stemming/common abbreviations
- Take spelling into account (e.g., American and British)
- Use Boolean operators
  - AND: Articles that mention both words
  - OR: Widen the search and fetch more articles that mention either subject
  - NOT: Narrowing the search (exclusion of articles containing the word)
- Caution: Different libraries support different search strings (e.g., length restrictions, limited support of operators and brackets, ...)

04.04.18 Student Conference
Finding Literature II

**Digital Libraries**

- Focus on popular libraries containing peer-reviewed article matching your research area (e.g., ACM, IEEE, Science Direct, Scopus, Springer Link, ...)
- Google Scholar
  - Has limits (many irrelevant literature)
  - Helpful to find keywords (searching using natural language possible)
- Don’t limit search to only one database
- Use filters (e.g., article types, text availability, language, journal categories, ...)
- Use reference managers (e.g., Endnote, Zotero, ...) to download and organize your library

**Evaluating Relevance of Literature**

- Number of citations: People seem to have found the article useful
- Prefer peer-reviewed article over grey literature: More likely higher quality
- Focus on primary sources
- Look into author details: Specialist in this field?

**Snowballing**

- Forward snowballing
  - Identifying new papers based on those papers citing the paper examined
- Backward snowballing
  - Using reference list to identify new papers
- Use related articles feature of digital libraries
Examples of Survey Papers

Why to Write a Paper

• Communicate new findings
  – publication = ultimate result of scientific research
  – documents your results
  – research is never finished until it's published

• To let the community know about your work
  – Recognition
  – Contacts, fruitful collaborations

• Get feedback from peers
  – external, independent, frank (anonymous)

• Publication is the core process of research
Research Requires Writing

- Writing is fundamental part of research (do not underestimate!)
- > 30% of time spent on writing

- Writing is work, a profession (not talent, inspiration, ...)
- Writing can be learned
- Practice, practice, practice...

- Some publications are expected when submitting PhD thesis
- PhD students that never focus on writing within the first years, hardly finish their PhD
- Scientists are often evaluated based on publications
Peer Review

• Scientific quality control
• Experts in the field review submitted papers, recommend acceptance/rejection and suggest improvements
• Quality reviews require high effort
• Only peer reviewed publications count
Conference vs. Journal

• Journal
  – More (long-term) impact
  – Wider target audience
  – Deeper reviews, long review process
  – More space (15-50 pages)
  – Typically research results of 1-5 years

• Conference Proceedings
  – Faster process
  – 10-14 pages
  – Direct contacts and discussion at conferences; community
  – Audience: 30-200

• Workshop
  – Discussions; Community
  – Work in progress, ideas, first results, 4-8 pages
  – Audience: 10-20

• Technical Report
Ranking

• Different quality levels between conferences, workshop and journals
• Top-level conferences receive over 300 papers
  – Tough peer review, select only best (often <20%)
  – In CS often considered equivalent to journals
• Some local conferences and workshops accept almost everything
  – Little quality control, some for money
Ranking

Journal and conference rankings:
• http://web.engr.illinois.edu/~taoxie/seconferences.htm
• http://core.edu.au/index.php/categories/conference%20rankings/1
• http://www.cse.chalmers.se/~feldt/advice/isilisted_se_journals.html
• http://scholar.google.com/citations?view_op=top_venues&hl=en&vq=eng_softwaresystems
• http://www.cs.cornell.edu/andru/csconf.html

Ranking of institutes:
• http://academic.research.microsoft.com/RankList?entitytype=7&topdomainid=2&subdomainid=4&last=5&orderby=1
Tools

• Latex
• Word/Open Office with bibliography tool such as Endnote or Citavi (URZ!)

• Use a spell checker + grammar checker, e.g. in Word
  – Latex users: latex2rtf

• SVN -> https://faracvs.cs.uni-magdeburg.de/svnadmin/
• Defect or stolen computer is no excuse!
Literature

- Mary Jean Harrold, Axel van Lamsweerde - New Software Engineering Faculty Symposium, ICSE 2006 (Slides)
- Graham Horton – Schlüsselkompetenzen (Slides)
- William Cook – Academic Writing (Slides)
- Joseph M. Williams – Style: Toward Clarity and Grace, 1995
- Lyn Dupre – Bugs in Writing, 1998
- The Chicago Manual of Style