Seminar Technische Informatik

Introduction to scientific writing
Friday, 23.04.2010

Prof. Dr. Mesut Güneş
Distributed, embedded Systems
Computer Systems and Telematics (CST)
FU Berlin
http://cst.mi.fu-berlin.de
Overview

• Seminar Goals
• Literature
• Preparation
• Telling a Story
• Structure
• Scientific Community
• Plagiarism
• Figures
• Literature
• Presentation
• Templates
• Summary
• Checklist
Seminar Goals

- Introduction of advanced topics based on **Telematics** and **Mobile Communications**
- Familiarization with a new topic
- Literature research, related work
- Critical review and discussion of publications
- Comparison of results and statements
- Filtering the essential from the unimportant
- Technical writing
- Learning and practicing giving a talk
Tasks of the seminarist

- Writing of a seminar article in IEEE conference style
  - Size of the report 6-8 pages
- Review of seminar articles of other seminarists
  - Peer review system
  - Double blind (single blind)
    - Author of article is not known to reviewer
    - Reviewer is not known to author
- Presentation of the seminar topic and discussion
  - Presentation time: 25 – 30 minutes
  - Advice: Test presentation with the supervisor
  - Seminaris should be able to answer questions
- Participation in all presentations
Literature

- William Strunk, Jr.: *The Elements of Style*, Ithaca, N.Y.: W.P. Humphrey, 1918
- Henning Schulzrinne: *Writing Technical Articles*, Link
- Harry S. Delugach: *How To Give A Terrible Talk*, Univ. of Alabama in Huntsville, Link
- Papers of good journals and conferences

Prof. Dr. Mesut Güneş • Introduction to scientific writing
Preparation

• Important questions regarding the topic:
  • What are the goals of the topic?
  • What is the focus?
  • What is the central problem and application scenario?
  • What is the common / standard approach for the problem?
  • Shall I give a survey or comparison of particular approaches?
  • Who is my target audience?
  • Which information has to be introduced for an understanding of the topic?
  • Are there novel and surprising results and findings?

• Notice: Discuss these issues early on!
Telling a Story

• The talk and report shall educate the audience
  • Present new information based on knowledge learned in classes
  • From ideas to results
  • Logical closure; answer all core questions and explicitly state remaining questions
  • Discuss advantages and disadvantages of published approaches; compare approaches
  • Use common scientific writing style: stick to facts, matter-of-fact

• Notice: Keep you reader interested
Scientific publications have a common structure
Seminar report basically have similar structure
Note: Sometimes related work is discussed after contribution
Abstract

• Paragraph of 50 to 200 words
• Reader should be able to evaluate relevance
• Summary of the problem, goals, contribution, and findings of the publications
• Should be concise and only mention important facts
• Shall motivate the reader to continue reading

• Notice: Do not start the abstract with “This paper ...”
Introduction

- Specifies topic and research domain
- Introduces important information vital to understand the rest
- States the problem
- Names and (shortly) explains common approaches
- Discusses limitations
- Proposes a novel solution, approach or finding that are focus of this report
- Seminar topic and goals are explicitly named
- Ends with a paragraph describing the structure of the report
Related Work

- Lists approaches to solve the central problem
- Gives in-detail information to understand the different approaches
- States deficiencies and open problems
- The specific application scenarios should be discussed
- Elaborates the methodology and results of experiments
- Should not contain a review or extensive comparison
Contribution

- Contribution part of the report
- Comparison and evaluation of the introduced approaches
- Discussion of the methodology and results of experiments
- Discussion whether the approaches are applicable in further/all scenarios
- Explicit summary of findings, e.g., as graphs, table, ...
- Statement of issues that have been not considered but are of importance
- The results of the tasks and requirements of the seminar topic should clearly visible
Conclusion

• Summary of the report
• Similar to abstract
• Explicit statement of the findings

Title
Authors, Institute, Contact

Abstract
Introduction
Related work
Contribution
Conclusion
Literature
Literature List

- List of all **used** publications
- Only “**real**” publications
  - Conference papers, journal articles, books, . . .
- Wikipedia is **not** a source of reference, as are links to other websites
- Every entry must have
  - author names, title, publication year, book/journal/proceedings title, publisher
- Use Bibtex
- **Example:**
  - John Doe: Meeting Miss Jane Doe, Proceedings of the 1st International Doe-Conference, Doe-City, Doe-Land, Doe-Publisher, Pages 1-5, 1999
Scientific Community

• Scientific community is built on trust. . .
  . . . but peer-reviews shall ensure high quality and prevent plagiarism

• Findings should not be published twice
• Results should be reproducible and plausible
• Scientific methodology should be sound
• Violation of common rules leads to exclusion
Plagiarism

“Use or close imitation of the language and thoughts of another author and the representation of them as one’s own original work.”

Plagiarism

- Consequences of plagiarism in the seminar
  - Exclusion from the seminar
  - Grade of 5.0
  - Several other “disadvantages”
  - Seminar can be failed even after you got your degree!!

Notice: We use tools to automatically detect plagiarism; translation is also easily detected.

"Dear Mr. Trent: Since you only pretended to write this paper, I only pretended to grade it!"
Plagiarism

• Preventing plagiarism
  • Read literature and tell with your own words
  • Do not use verbatim copies of text ...
  • . . . or make citation distinguishable from your contribution, reference original publication
  • Use quotation marks
  • Similar rules for figures and tables
  • Create your own figures
  • Pure translations also violate rules
Figures

- Avoid using figures from publications
  - Often low quality copy
- Use vector-based format
  - SVG, PDF, EPS
- Use same/similar font type and size as in text
- Colors will be lost when printed b/w
- Caption has to describe what you should see
- Use figures to “loosen up” text
- Invest time in figures: used in report and on slides
Literature

- Publishers
  - Association for Computing Machinery, Digital Library
  - Springer Verlag, SpringerLink
  - Elsevier, ScienceDirect
  - IEEE computer society, Digital Library

- Databases
  - CiteSeer
  - CiteSeerX

- Have a look at our link section for more

- Notice: Very often the publishers provide Bibtex entries
Presentation

- As general rule: 1 slide per minute
- Focus on particular aspects
  - You cannot tell everything
- Do not under- or overestimate your audience
- Know what you are talking about
- Rehearse your talk (time!)
- Discuss slides with supervisor
- Prepare additional slides as appendix for the discussion
- Prepare to skip some slides when short on time
Presentation

• No sentences but headwords, use common abbreviations
• 5+/-2 item rule
• Enumerations with few levels
  • Usually more than one item per level
• Few colors, fonts types, and font sizes
• Serif-less font, black font on white background
• Few formulas and source/pseudo code
• Use tables and figures
Presentation

- Colors will look different on beamer, use high contrast colors
- No slide animations
- Look at the audience and not the screen
- Avoid using a laser pointer
- Show on projection not with mouse pointer
- Speak at moderate pace, include short breaks (drink something)
- Note: Don’t worry, everyone is nervous
Prof. Dr. Mesut Güneş • Introduction to scientific writing

IEEE Transactions template for report
LaTeX
MS Word
FU Corporate Design presentation template
MS Powerpoint
LaTeX Beamer
Read and follow IEEE Transactions author rules

Note: Templates are mandatory to be used
Summary

- Talk to your supervisor
- Discuss issues early on
- Do not start late; finish early
- Meet deadlines
- Read your own writing, let others review your writing
- Use a spellchecker
- Show dedication
- Consider seminar report as trial master/ diploma thesis
- Have a look at our link section: link
Schedule

  - [15.04] Organizational Meeting
  - [16.04] Send a list with your five preferred topics in the order of declining preference to seminar-agtech@inf.fu-berlin.de
  - [18.04] You will receive your topic via email
  - Please read the literature linked on the homepage of the course!

- **Part II: Preparation (19.04. - 23.04.2010)**
  - Meet your advisor to discuss content and structure of your report
  - [23.04] Participate in "Introduction to scientific writing", Mandatory!

- **Part III: Write Seminar Article (19.04. - 18.06.2010)**
  - Read, discuss, write, discuss, re-write your seminar article in tight communication with your advisor
  - [18.06] Submit your seminar article per email

- **Part IV: Review (14.06. - 02.07.2010)**
  - [21.06] You will get 3 seminar articles for review
  - Read the seminar article and write a review for each
  - [25.06] Submit your reviews per email
  - Incorporate the comments from the reviews into your seminar article
  - [02.07] Submit your final seminar article per email

- **Part V: Presentation (05.07. - 09.07.2010)**
  - Present, listen, and discuss during presentations
Questions?