

Requirements Engineering Seminar

Introduction

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Requirements
Engineering
Research
Group



Goal

Analyse and present scientific work in the field of requirements engineering

- Do not just read and present the assigned papers, but work on a number of papers, and derive knowledge
- Master students are expected to present a more elaborate analysis than bachelor students (e.g. include more references).

Organization

3 credits ECTS

Tasks - Examination

- Seminar paper (15 pages Springer style)
- Reviewing (2 papers)
- Own presentation (20 minutes)
- Participation on presentation day

Grading

- 2/3 seminar paper, 1/3 presentation

Seminar Theme

Managing the evolution of
software requirements and
documentation

Keeping the requirements up-to-date during software evolution

- Why is it important to keep software documentation and requirements specifications up-to-date?
- What approaches are there to keep the requirements specification consistent with the implementation when the system evolve?
- How to keep documentation written in natural language up-to-date when the system evolve?
- References:
 - Eya Ben Charrada, and Martin Glinz. "An automated hint generation approach for supporting the evolution of requirements specifications." Proceedings of the Joint ERCIM Workshop on Software Evolution (EVOL) and International Workshop on Principles of Software Evolution (IWPSE). 2010.
 - Eya Ben Charrada, Anne Koziolk, and Martin Glinz. Supporting requirements update during software evolution. Journal of Software: Evolution and Process. 2015.

Traceability for managing software evolution

- What is requirements traceability?
- How can one establish and maintain traces?
- How can traceability be used for managing change?
- References:
 - Orlena Gotel and Anthony Finkelstein. An analysis of the requirements traceability problem. *International Conference on Requirements Engineering*, 1994.
 - Jane Huffman Hayes, Alex Dekhtyar, and Senthil Karthikeyan Sundaram. 2006. Advancing Candidate Link Generation for Requirements Tracing: The Study of Methods. *IEEE Transactions on Software Engineering*, 2006.

Traceability-based approaches for propagating changes among artifacts

- How to automatically identify the impact of a change on the various software artifacts using traceability?
- References:
 - Cleland-Huang, Jane, Carl K. Chang, and Mark Christensen. Event-based traceability for managing evolutionary change. *IEEE Transactions on Software Engineering*, 29.9 (2003): 796-810.
 - von Knethen, Antje, and Mathias Grund. QuaTrace: a tool environment for (semi-) automatic impact analysis based on traces. *International Conference on Software Maintenance*, 2003.

Co-evolution of software artifacts

- How to ensure the co-evolution of the different software artifacts?
- To what extent can the co-evolution be automated?
- References
 - Yskout, Koen, Riccardo Scandariato, and Wouter Joosen. "Change patterns: Co-evolving requirements and architecture." *Software System Model*. Springer 2012
 - Mens, Kim, et al. "Co-evolving code and design with intensional views: A case study." *Computer Languages, Systems & Structures* 32.2 (2006): 140-156.

Evolution of requirements sketches and models

- How do sketches and models evolve in requirements and software engineering?
- Compared to (semi-formal) models (e.g., UML models), is it harder to include sketches in the evolution process? Why?
- How do software tools support the evolution of sketches and models?
- References:
 - Walny, J.; Haber, J.; Dörk, M.; Sillito, J. & Carpendale, M. Follow that sketch: Lifecycles of diagrams and sketches in software development. Proc. VISSOFT 2011, IEEE, 2011, 1-8.
 - Dekel, U. & Herbsleb, J. D. Notation and Representation in Collaborative Object-oriented Design: An Observational Study SIGPLAN Not., ACM, 2007, 42, 261-280
 - Wüest, D.; Seyff, N. & Glinz, M. FlexiSketch: A Mobile Sketching Tool for Software Modeling Proc. MobiCASE 2012, Springer, 2013, 225-244

Requirements elicitation and volatile requirements

- What does the requirements elicitation activity consist of?
- What are the existing techniques for requirements elicitation?
- What are volatile requirements?
- How can the existing elicitation methods handle volatile requirements?

- References:
 - Jane Coughlan and Robert D. Macredie. Effective Communication in Requirements Elicitation: a Comparison of Methodologies, in Requirements Engineering, vol. 7, Springer-Verlag, 2002, pp. 47-60.
 - Neil A. M. Maiden and Gordon Rugg. ACRE: Selecting Methods for Requirements Acquisition, Software Engineering Journal, vol. 11, no. 3, 1996, pp. 183-192.
 - Toshihiko Tsumaki and Tetsuo Tamai. Framework for Matching Requirements Elicitation Techniques to Project Characteristics, in Software Process: Improvement and Practice, vol. 11, no. 5, 2006, pp. 505-519.

Plan

Day	Appointment
16.02.	First meeting
~ 02.03., by appointment or email	Q&A seminar topic, paper structure, main storyline
~ 16.03., by appointment or email	Review and discussion of draft
06.04. 23:59 CET	Paper submission deadline
20.04. 23:59 CET	Peer Review submission deadline
10.05. 23:59 CET	Camera-ready submission deadline
~ 11.05. by appointment or email	Review and discussion of presentation
TBD (mid May)	Seminar Presentations Day

Q&A Seminar Topic

Next Meeting

- By appointment
- Prepare the meeting
 - Plan the story line of your paper
- Draft an outline
- Send draft at least 2 days before the meeting

Review and Discussion of Draft Meeting

- Read the material on writing before starting to write
- Send draft 7 days *before* your appointment

Peer Reviews

- Adhere to the reviewer forms (will be provided)
- Be constructive:
 - When filling in the form, put yourself in the authors place: Formulate constructive criticism that helps the author.
- Concrete suggestions for improvement
 - Name weaknesses of the paper and describe ideas how to improve these aspects. Try to make concrete suggestions. For example, the remark „In section X and Y the term A is defined differently“ is more concrete that the remark „Some terms in the text are inconsistently used“ or, even worse, „there are inconsistencies“.
- Check for plagiarism
 - If the writing style of sections differs, the texts might be copied from other sources. Compare the outline of the paper and parts of the paper with the original, using online search engines. Let the seminar supervisors know if you find plagiarism.

Seminar Presentations Day

- Presentations of the seminar topics
- Each participant
 - 20 minutes presentation
- Participation on presentation day compulsory
- Prepare presentation well, will be part of your grade!
- Train your presentation with a peer beforehand

News and info

- Visit these web pages:
 - <http://www.ifi.uzh.ch/serg/courses/fs15/sem-re-bsc.html>
 - <http://www.ifi.uzh.ch/serg/courses/fs15/sem-re-msc.html>