Literaturrecherche

für das Seminar „Software Qualität“

im SS2014

Henning Femmer und Benedikt Hauptmann

Unter Verwendung von Material
von *Dr. Florian Deißenböck*
und *Prof. Dr. Stefan Wagner*

Lernziele und Inhalte

1. Strategie: Wissenschaftliche Arbeiten in einem Themengebiet suchen
2. Ein spezielles Papier suchen und pdf bekommen können
3. Grobe Qualitätsidee

Zwei Teile:

1. Einführung zu wissenschaftlichen Veröffentlichungen
2. Literaturrecherche hands-on

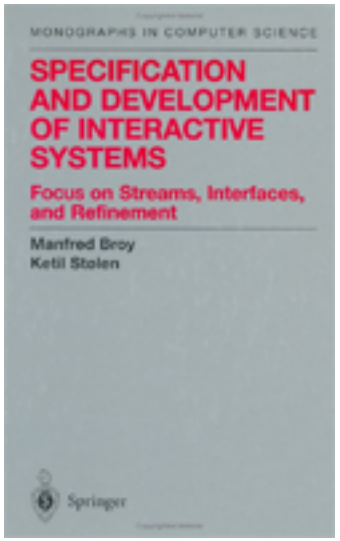
Wissenschaftliche Veröffentlichungen

(eine kleine Einführung)

Was und wie wird veröffentlicht?

- Monografie/Buch
  - meist ein Autor
  - 100 – 1000 Seiten
- Buchkapitel
  - 20 – 50 Seiten
- Journal-Artikel
  - 10 – 30 Seiten
- Proceedings-Artikel (Konferenz)
  - 3 – 15 Seiten
- Workshop-Artikel
  - 3 – 15 Seiten
- Technische Berichte
- Promotionen (Masterarbeiten/Bachelorarbeiten)
- Blogs
- ...

Proceedings-Artikel



Monografie

Conference on Systems Engineering Research (CSER'13)
Eds.: C.J.J. Paredis, C. Bishop, D. Bodner, Georgia Institute of Technology, Atlanta, GA, March 19-22, 2013.

A Literature Survey on International Standards for Systems Requirements Engineering

Florian Schneider[a]*, Brian Berenbach[b]

[a]*Chair for Applied Software Engineering, Technische Universität München, Boltzmannstr. 3, Garching, 85748, Germany*
Siemens Corporation, Corporate Technology, 755 College Road East, Princeton 08540, USA

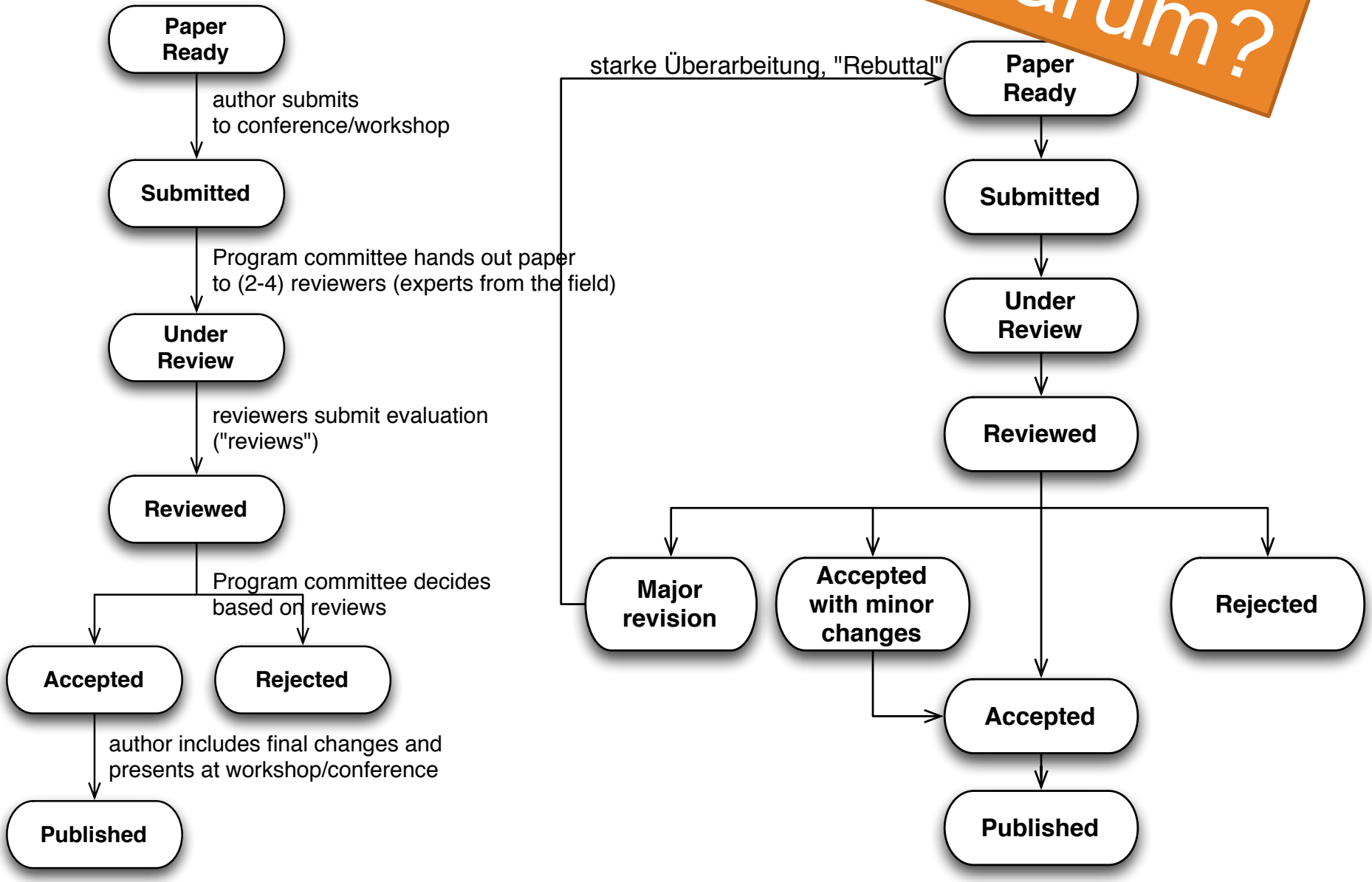
- Jackpot für die Literaturrecherche: Meta-Publikationen / Research Survey

[1] R. Wieringa, N. Maiden, N. Mead, and C. Rolland, "Requirements engineering paper classification and evaluation criteria: a proposal and a discussion," Requir. Eng., 2005.

Wie kommt man zu einer Veröffentlichung?

Das Peer-Review Verfahren: Konferenz und Journal

Warum?



Beispiel: Reviews für einen Workshop

Reale Beispiele…

---------- REVIEW 2 ----------
PAPER: 4
TITLE: Who is the Advocate? Stakeholders for Sustainability
AUTHORS: Birgit Penzenstadler, Henning Femmer and Debra Richardson

---------- REVIEW ----------
The paper attempts to devise a systematic process for identifying advocates of sustainability. The process leverages on well-established/classical requirements engineering processes for stakeholders identification.

+ The paper is well-written and presented. The examples are useful.
+ The use of the requirements techniques to identifying sustainability stakeholders looks to be plausible.

- Combining/contrasting the outcomes the four techniques look to be an expensive exercise. Furthermore, sustainability analysis may also require the identification of an equally important slice of stakeholders, who are the devils' advocates for sustainability. This could be important for promoting behavioral change, analyzing obstacles for the sustainability agenda, understanding their incentives, quantifying the risks to adoption and working on solutions for promoting acceptance.

- I would also expect more justification of the exercise in terms of long term benefits and influences on various software artifacts. The motivation is bit weak to justify the effort.

---------- REVIEW 1 ----------
PAPER: 8
TITLE: Detecting Inconsistencies in Wrappers - A Case Study
AUTHORS: Henning Femmer, Dharmalingam Ganesan, Mika

---------- REVIEW ----
= Paper overview =

The paper addresses
in software abstractio
underlying implement

The authors propose
equivalence of severa
and modification of pa
neither complete nor

The solution propose
learning. The static a
given implementation
extractors" driving the
differences in return c
produce some false n
case study). These w
the solution also integ
phase. Finally, the ma
information of the stat
to keep the "best" dat

The methodology is t
code composed of 10
revealed 84 issues, o
failures. Each type of issue is explained in detail a
the industrial team is given.

= Detailed feedback =

- abstract - typo: "instead of to the" -> "instead of the"

- p2 - typo: "an SAL" -> "a SAL"

- p3 - typo: "an analysts" -> "an analyst"

- p3: "The tool detects differences in the function pair and highlights the important ones to the user." -> at this stage we don't understand how the "important ones" are defined. It is also unclear at this stage that the training set starts empty (all functions unclassified) and is incrementally defined/increased. I would suggest to be more explicit when describing step (1) and (3).

- p3 - fig 2: the "very light-red background" is very hard to see; I would strongly recommend to find a better way to highlight.

- p3 - fig 2: why are "uint32" and "free" highlighted although they are identical in both implementations?

- p5: "304 pairwise comparisons": can't thing be optimized here? Eg: if f1 and f2 are equivalent and f2 and f3 too, we don't really need to check for f1 and f3, do we?

- p7- fig 6: I would suggest to repeat (at least in the label) which OS which side corresponds to (as in "VxWorks on the left and RTEMS on the right")

= Overall opinion =

It's a pleasure to read such a self-contained paper that answers
pretty much every questions the readers raises while reading. It's
ck and provides both detailed
g theory and insightful

easant to read, with
s clearly stated
nts, assumptions and
commented,
ail, with very
es used, and

f 2 technologies; it
grated, and
f false positives

dustrial team,
om using the tools
hodology is applied
, with promising

e target language is
of the methodology
ch could it be applied
to another language?

Beispie

Reale Bei

Reviewer: 1

Recommendation

Comments:

First some genera
Sorry to be hard c
not want to demot
To me, it looks to
categories to clas
I wound it confusi
I would evaluate it
might be my fault
I. Your aim is to re
Mine, too, I consic
Therefore, the cor
When I think back
paper. Then I rem
the contribution of

It should be more
If one keeps in mi
the paper is easie
evaluating the qua
It might still be int
distracting/annoyi
that the classificat

One more genera
Is green software
I have the feeling
enough knowledg

p1 l58
4 dimensions vs. views
Btw., why is the technical dimension important? For me it is simply a subset of the economic 'dimension'. Keeping a system sustainable from a technical perspective makes it more profitable from the economic point of view. If it is not 'technically sustainable', it is also not in the economically way.

p1 l 44
example of green software code are mobile apps
Why are they green?

#It is esse

p2 l4
conflicts b ts.
?- Are reb
?- Arent th

How do th as as quality requirements for
Software?

p2 l10
What is th y? How does it help to account for this in
GSW?
I think the sentence should be reformulated to avoid misunderstandings.

----Sidebar section

Sec 2 Related Work and its Quality

p2 l22
Attention in SW Engineering only recently.
- depends on whether SW E is something different than the production of software
SW that is now classifiyd as greening (Green by) has been produced since many years in environmental sciences, and there has been environmental informatics for a while. There is the conference series of EnviroInfo (Environmental Informatics) (27th this year). I had a lectures how to design environmental software in 1994. Early (german) names are e.g. R Grützner, B Page, V. Wohlgemuth. At least since 2003 there is a Journal on Environmental Informatics (methodologies, applications, and policy considerations, the needs for environmental systems analysis, the challenges of environmental systems modeling, and the impacts of environmental informatics are discussed etc., btw., IF 3.619, not that I like Impact Factors).

+ 4 more pages
+ “please see the attached file for more detailed notes”

Wie ist die Qualität einer wissenschaftlichen Publikation?

Qualität einer wissenschaftlichen Publikation lässt sich unterteilen in:

- Relevance
- Novelty
- Validity
- Rigor
- ...

Was man schneller bewerten kann:

- Peer-reviewed?
- Anzahl der Zitationen
- Qualität der Venues/Journale:
  - Impact factor
  - Acceptance rate

So… Engineering-Quellen*

Schätzfrage: Acceptance Rate

Top General SE Conferences	ICSE	FSE/ESEC	ASE	SPLASH/ OOPSLA	ECOOP	ISSTA	FASE
2013	85/461(18%)	51/251(20%)	?	?	?	32/124(26%)	26/112(23%)
2012	87/408(21%)	34/201(17%)	?	?	?	31/108(29%)	33/134(25%)
2011	62/441(14%)	34/203(17%)	37/252(15%)	61/166(37%)	?	35/121(29%)	29/99(29%)
2010	52/380(14%)	34/169(20%)	34+31/191(18%)	?(28%)	?(23%)	24/105(23%)	24/96(25%)
2009	50/405(12%)	32+7/217(15%)	38+33/222(17%)	25/144(17%)	25/117(21%)	25/93(27%)	30/124(24%)

J… …TOSEM)

- Wile…
- Springer Empi…

Konferenzen (Proceedings)

- International Conference on Software Engi…
- Foundations of Software Engineering (FSE)
- International Conference on Automated Software Engineering (…
- OO Programming, Systems, Languages and Applications (OOPSLA)
- International Symposium on Software Testing and Analysis (ISSTA)
- International Conference on Software Maintenance (ICSM)

- http://web.engr.illinois.edu/~taoxie/seconferences.htm

*ungeordnet

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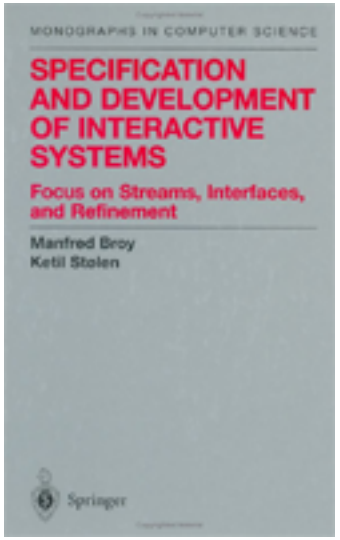
- Proceedings-Artikel (Konferenz)
  - *Peer-Review*
- Workshop-Artikel
  - *Peer-Review*
- Technische Berichte (Tech Reports)
  - *KEIN Peer-Review*
- Internetseiten/Blogs
  - *KEIN Peer-Review*

Proceedings-Artikel



Monografie

Hands-on: Suche nach Publikationen

Warum Literaturrecherche?

- Kein Selbstzweck, sondern Teil des Jobs! Warum?

Ziele der Literaturrecherche:

- Stand der Wissenschaft herausfinden, (aktuelle Fragen bestimmen)
- Relevanz belegen

- Abgrenzung zu anderen Arbeiten (inklusive Begründung)
- Einordnung in Forschungegebiet

- Behauptungen über *Common Knowledge* belegen können

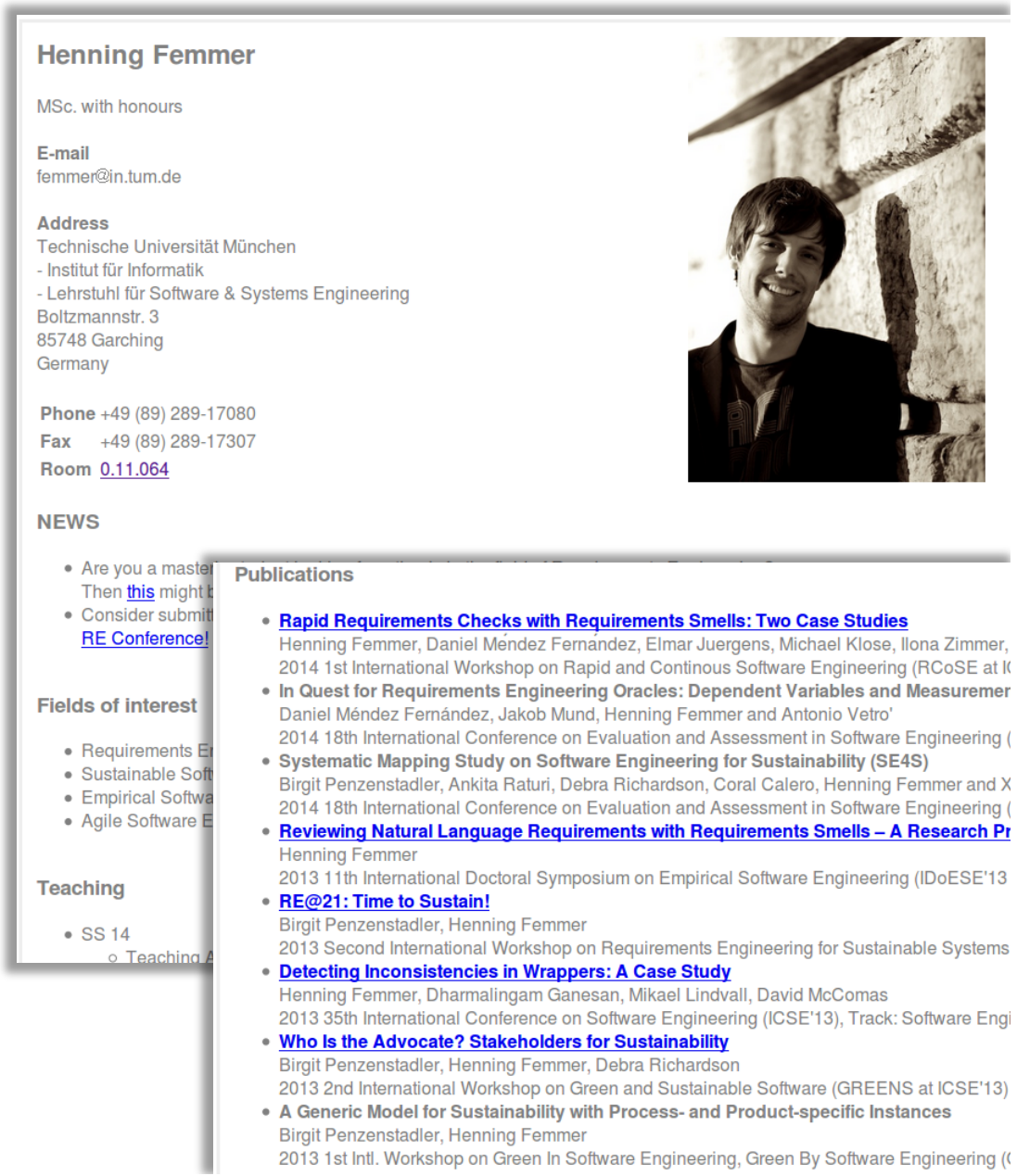
- ...

Wo finde ich Papiere?

Quellen:
- ACM Digital Library
- IEEE Xplore
- Springer Link
- Elsevier

- Lehrstuhl/Mitarbeiterseiten
- scholar.google.com
- Bibliothek ...

Wir verwenden meistens Google Scholar!
- Pro
  - Alle Ergebnisse zusammengefasst
  - Zitationen direkt angezeigt
  - Tw. Direktlink zum PDF
  - Autorensuche
- Con
  - Kein Qualitätsfilter
  - Schlechte Suchfilteroptionen



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MSc. with honours

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Room 0.11.064

NEWS

- Are you a master
  Then this might b
- Consider submitt
  RE Conference!

Fields of interest

- Requirements Er
- Sustainable Soft
- Empirical Softwa
- Agile Software E

Teaching

- SS 14
  - Teaching A

Publications

- **Rapid Requirements Checks with Requirements Smells: Two Case Studies**
  Henning Femmer, Daniel Méndez Fernández, Elmar Juergens, Michael Klose, Ilona Zimmer,
  2014 1st International Workshop on Rapid and Continous Software Engineering (RCoSE at I
- **In Quest for Requirements Engineering Oracles: Dependent Variables and Measuremer**
  Daniel Méndez Fernández, Jakob Mund, Henning Femmer and Antonio Vetro'
  2014 18th International Conference on Evaluation and Assessment in Software Engineering (
- **Systematic Mapping Study on Software Engineering for Sustainability (SE4S)**
  Birgit Penzenstadler, Ankita Raturi, Debra Richardson, Coral Calero, Henning Femmer and X
  2014 18th International Conference on Evaluation and Assessment in Software Engineering (
- **Reviewing Natural Language Requirements with Requirements Smells – A Research Pr**
  Henning Femmer
  2013 11th International Doctoral Symposium on Empirical Software Engineering (IDoESE'13
- **RE@21: Time to Sustain!**
  Birgit Penzenstadler, Henning Femmer
  2013 Second International Workshop on Requirements Engineering for Sustainable Systems
- **Detecting Inconsistencies in Wrappers: A Case Study**
  Henning Femmer, Dharmalingam Ganesan, Mikael Lindvall, David McComas
  2013 35th International Conference on Software Engineering (ICSE'13), Track: Software Engi
- **Who Is the Advocate? Stakeholders for Sustainability**
  Birgit Penzenstadler, Henning Femmer, Debra Richardson
  2013 2nd International Workshop on Green and Sustainable Software (GREENS at ICSE'13)
- **A Generic Model for Sustainability with Process- and Product-specific Instances**
  Birgit Penzenstadler, Henning Femmer
  2013 1st Intl. Workshop on Green In Software Engineering, Green By Software Engineering (

Ich kenne ein Papier und suche das pdf-File…

Zwei Optionen:

- https://EACCESS.ub.tum.de und nach den Zeitschriften suchen
- Proxy-Server einrichten

Details stehen hier:
https://www.lrz.de/services/netzdienste/proxy/zeitschriftenzugang/

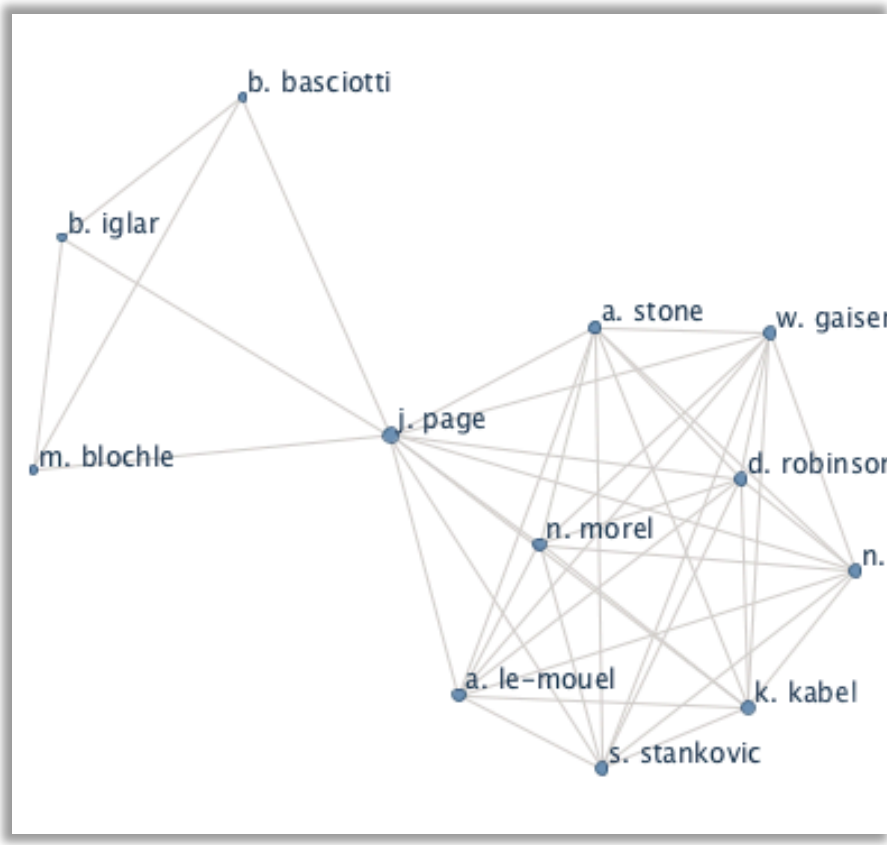
DEMO-Time

Suchverfahren und -strategien

- Manuelle Suche über die Suchmaschinen
- (Literatur-) Snowballing

Systematisches Vorgehen (formal):

- Systematic Mapping Studies
- Systematic Literature Reviews



REFERENCES

[1] B. Hauptmann, M. Junker, S. Eder, E. Juergens, and R. Vaas, "Can Clone Detection Support Test Comprehension?" in *ICPC'12*, 2012.

[2] M. Fowler and K. Beck, *Refactoring: improving the design of existing code*. Addison-Wesley, 1999.

[3] A. van Deursen, L. Moonen, A. van den Bergh, and G. Kok, "Refactoring Test Code," in *XP'01*, 2001.

[4] G. Meszaros, S. Smith, and J. Andrea, "The test automation manifesto," in *XP'03*, 2003.

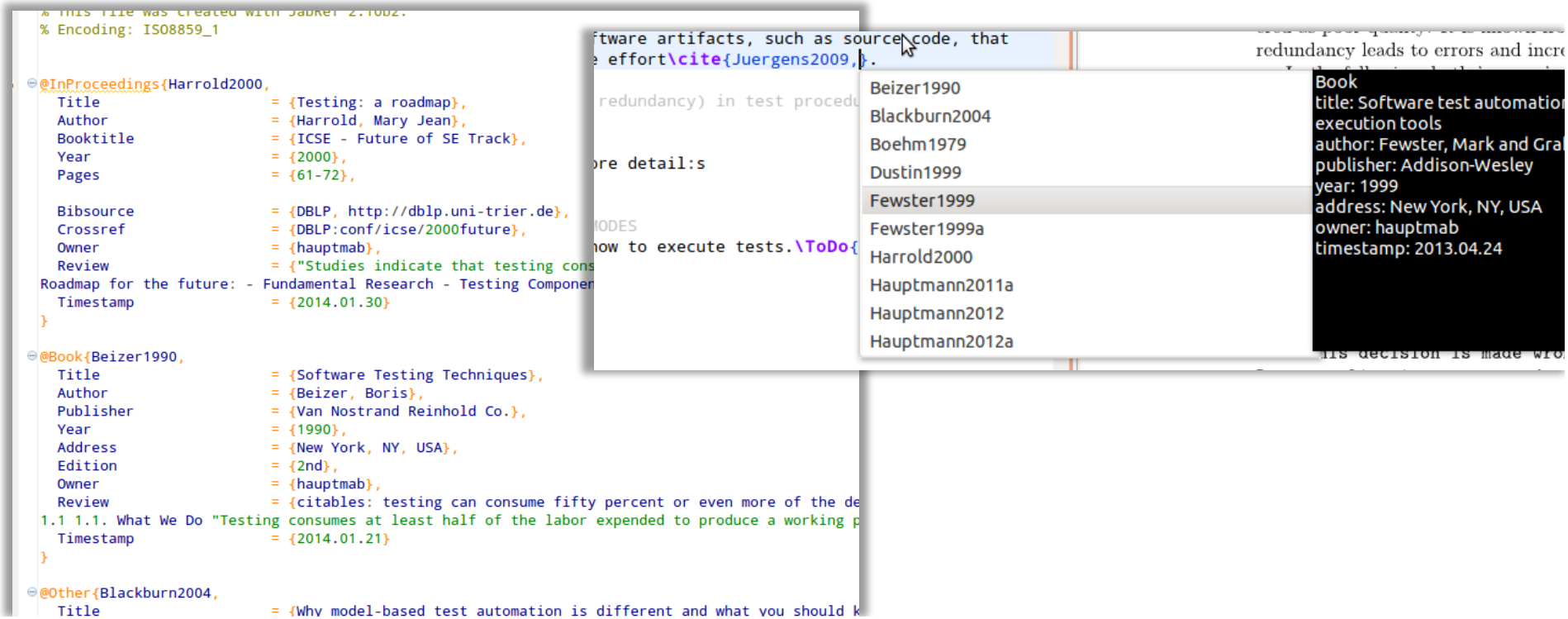
[5] G. Meszaros, *xUnit Test Patterns: Refactoring Test Code*. Addison-Wesley, 2007.

[6] M. Abbes, F. Khomh, Y.-G. Gue andhe andneuc, and G. Antoniol, "An empirical study of the impact of two antipatterns, blob and spaghetti code, on program comprehension," in *CSMR'11*, 2011.

[7] F. Khomh, M. Di Penta, and Y.-G. Gueheneuc, "An exploratory study of the impact of code smells on software change-proneness," in *WCRE'09*, 2009.

Papierverwaltung

- BibTeX (+LaTeX)
  - bewährtes, universelles Format für LaTeX-Nutzer
  - wird auf vielen Literaturrecherche-Webseiten angeboten
  - wichtig: Verwendung der richtigen Typen: `@article`, …



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- JabRef
  - Plattform-unabhängiges Literaturverwaltungs-Programm (Java)
  - verwendet BibTeX als natives Datenformat
  - Verknüpfung mit PDF
  - Dynamische Gruppen
- Mendeley
  - “moderner”
  - Kooperative Verwaltung
  - Verwaltung von Notizen
- Papers (Mac only)
- …

Lernziele und Inhalte

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3. Grobe Qualitätsidee

Zwei Teile:

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2. Literaturrecherche hands-on

Nachlese

- B. Kitchenham and S. Charters, “Guidelines for performing Systematic Literature Reviews in Software Engineering,” 2007.
- S. Keshav, “How to Read a Paper”, 2013
  http://blizzard.cs.uwaterloo.ca/keshav/home/Papers/data/07/paper-reading.pdf
- Kent Beck: How to get a paper accepted at OOPSLA:
  http://plg.uwaterloo.ca/~migod/research/beckOOPSLA.html
- A. Zeller and T. Zimmermann, “Failure is a Four-Letter Word – A Parody in Empirical Research”
  and the corresponding presentation:
  https://www.youtube.com/watch?v=NM3CIIbuVoM
- Zugang zu Wissenschaftlichen Publikationen für Mitarbeiter und Studierende der TUM
  https://www.lrz.de/services/netzdienste/proxy/zeitschriftenzugang/
- Paper-Verwaltung:
  http://www.mendeley.com
  http://jabref.sourceforge.net
  …