

Bibliographical research

Allen Dutoit

dutoit@in.tum.de

Technische Universität München

Institut für Informatik

Lehrstuhl für Angewandte Softwaretechnik (Prof. Bruegge)

Overview

- Organization
 - Schedule
- Presentation
 - Structure
 - Focus
- Bibliographical research
 - Typical publication process
 - Finding references
 - Evaluating a reference
 - Citing a reference
- Summary

Tentative schedule

- 24.11.1999 *Bibliographical methods (Dutoit)*
- 1.12.1999 *Security vulnerabilities in computer programs(Schraegle)*
- 1.12.1999 *Evaluation of Intrusion Detection Tools (Borgwardt)*
- 1 or 8.12.1999 *Intrusion detection website (Dutoit)*
- 8.12.1999 *Network Security Monitor (Rost)*
- 15.12.1999 *Distributed Intrusion Detection (Koukouchkine)*
- 22.12.1999 *Pattern Matching (Löhr)*
- 12.1.2000 *Intrusion Detection Using Statistical Methods (Wilm)*
- 19.1.2000 *Rule-Based Approach*
- 26.1.2000 *Specification-Based Approach*
- 2.2.2000 *Genetic algorithms for ID*
- 9.2.2000 *Real-time intrusion detection (Stan)*

Organization: infrastructure

- Web site
 - <http://www.bruegge.in.tum.de/teaching/ws99/ese/>
- Digital library
 - <http://computer.org/epub/>
 - <http://acm.org/dl/>
- Library access (Institut für Informatik)
- Beamer/Powerbook available for presentations
- Office hours: Mondays 14-16 in -1207
- Otherwise, send email (<mailto:dutoit@in.tum.de>) or call (x22384)

Presentation

Presentation goal:

- Present a narrow topic, including its relevant literature and ***your*** constructive criticism of the topic.
- Audience: the rest of us.

Presentation structure:

- Paper summary (15 min.)
- Overview of relevant literature (15 min.)
- Criticism (15 min.)
 - Open issues and their rationale
 - Future directions
- Bibliography (1 sec.)

Presentation: paper summary

- What is the problem?
- Why is it relevant?
- What is the approach?
- What is the solution?
- How good is the solution (from the authors' perspective)?

Tips

- Use a neutral perspective or the perspective of the author. You are not in critic mode (yet).
- “This is not an article” by Carsten Sørensen

Presentation: overview of relevant literature

- What else has been done to solve the same problem?
- What other problems have the same solution?
- What other problems have been addressed with the same approach?
- What are the related problems in the problem domain?

Tips

- Focus on a small set of good references that you will use in your criticism.
- You are still in neutral at this point.

Presentation: criticism

- Is this a good problem (is it relevant)?
- Does the solution work?
- Is the approach sound?
- Are there other approaches?
- Are there other results?
- What should be done in the future?

Tips

- Now, you are not neutral.
- Express your own opinion.
- Support it with relevant literature and argument.
- Be constructive.

Presentation: bibliography

- What are the references you used for your presentation?
- What are the references you would have used but did not find?

Tips

- There is always more out there than what you think.
- See next slides to find how to locate what you need.

Research publication (1)

- Research publication enables researchers:
 - To communicate results of their work (positive or negative)
 - To evaluate their work
 - To learn more about other researcher's work
- Avenues for publication:
 - Book
 - Compendium
 - Journal
 - Conference
 - Workshop
 - WWW

Research publication (2)

- Archival publication
 - Long term memory of research results
 - Material has been thoroughly reviewed by peers and selected by an editor
 - Book (~ 5 years)
 - Compendium & Journal (~ 2-3 years)
- Proceedings
 - Quick dissemination of results, possibly incomplete
 - Material is reviewed by peers and selected by a committee
 - Conference (3-6 months)
 - Workshop (weeks)
- WWW
 - Instantaneous dissemination of results, possibly flawed
 - Marketing

Research publication (3)

Typical publication process:

- Technical report (internal or external)
- Workshop or conference paper
- Expanded journal paper
 - Combination of several conference papers, or
 - Elaboration of a single conference paper
- Compendium chapter
 - Collection of significant journal papers, or
 - Elaboration on workshop proceedings
- Book
 - Professional or textbook

Research publication example

Technical report (13 pp, first draft, no reviewers):

B. Bruegge & A. Dutoit (1996), “Software metrics for distributed development,” Tech. Report CMU-CS-96-190, Carnegie Mellon University.

Proceedings (11 pp, cleaned up, 4 reviewers):

B. Bruegge & A. Dutoit (1997), “Communication metrics for software development,” In *Proceedings of the ICSE-19*, Boston, MA.

Journal paper (23 pp, added background, 2 reviewers):

A. Dutoit & B. Bruegge (1998), “Communication metrics for software development,” *IEEE Transactions on Software Engineering*, August.

Book :^)

A. Dutoit & B. Bruegge (2010), “Communication metrics for the rest of us”

Finding references

- Library catalog
 - Lists every holding the library has
 - Usually contains title, authors, and keyword
 - Often inconsistent with reality
 - Usually lists items, not articles
- Thematic indices
 - Lists every article of a collection of journals
 - Usually contains title, authors, keywords, and ***abstract***
 - Does ***not*** indicate whether the item is held by the library
- Web search engines

Finding references in the library

“Bibliothek der Fakultäten Mathematik und Informatik”

- You need to register before you use the library
- Fill the registration form “Benutzeranmeldung” (distributed at the lecture)
- Go to the library (S3419) during opening hours (9:00-17:00, M-F)
- Bring your blue library card and your student identification (Studentenausweis)
- If you need a signature, stop by or bring the form at the lecture time.

Finding references: library catalog

Library catalog

- <http://omnis.informatik.tu-muenchen.de/>
- Catalog for all of the libraries in TUM
- Searchable via the web
- Contains sometimes abstract information for proceedings held by the library
- Good for finding random articles quickly

Finding references: thematic indices

CD ROM indices at TUM

- Browser:
 - <http://www.biblio.tu-muenchen.de/bib/silverpl.html>
- List of databases:
 - <http://www.biblio.tu-muenchen.de/bib/cdlstfac.html>
- INSPEC
- MathSci
- ...

Necessary for a complete search

If the library does not cover enough material

Finding references: web search engines

There are many of them (www.yahoo.de,
www.altavista.com, www.snap.com, etc.)

Many authors maintain a bibliography with abstracts
and sometimes downloadable papers.

Disadvantages

- Hard to find the “right” keywords
- Material not always peer reviewed

Advantages

- Good for locating people, conferences, and orgs

Finding references: digital libraries

<http://computer.org/epub/>

- IEEE Computer Society digital library
- Spans most CS publications between 1995 and present
- Full text search
- Requires account

<http://acm.org/dl/>

- ACM digital library
- Full text search
- Free access for TUM
- Includes ACM sponsored conference proceedings

IEEE CS digital library (1)

Netscape: Collection Top Level

CS home All titles This title Expand this view Collapse this view Previous hit Next hit Clear search

design rationale Expand Search Search

Collection Top Level

- 69 [IEEE Intelligent Systems](#)
(formerly *IEEE Expert*)
- 22 [IEEE Software](#)
- 22 [IEEE Transactions on Software Engineering](#)
- 7 [Computer](#)
- 5 [IEEE MultiMedia](#)
- 3 [IEEE Internet Computing](#)
- 3 [IEEE Micro](#)
- 2 [IEEE Transactions on Knowledge and Data Engineering](#)
- 1 [IEEE Computer Graphics and Applications](#)

IEEE CS digital library (2)

The screenshot shows a Netscape browser window with the title "Netscape: IEEE Expert: Intelligent Systems & Their Applications 1997". The browser's toolbar includes buttons for Back, Forward, Reload, Home, Search, Netscape, Images, Print, Security, and Stop. The address bar contains the text "design rationale". Below the address bar, there are several navigation buttons: "CS home", "Show frames", "All titles", "This title", "Expand this view", "Collapse this view", "Previous hit", "Next hit", and "Clear search". A search box with the text "design rationale" and a "Search" button is visible. The main content area displays the following text:

IEEE EXPERT 0885-9000/97/\$10.00 © 1997 IEEE
Vol. 12, No. 3: MAY/JUNE 1997, pp. 78-85

«Design Rationale» Systems: Understanding the Issues

Jintae Lee *University of Hawaii*

Most current «design rationale» systems fail to consider practical concerns, such as cost-effective use and smooth integration. The author identifies seven technical and business issues and describes their implications.

In the last few years, interest in design rationales has grown. Design rationales are important tools because they can include not only the reasons behind a design decision but also the justification for it, the other alternatives considered, the tradeoffs evaluated, and the argumentation that led to the decision. The use of a «design rationale» system—a tool for capturing and making design rationales easily

The browser's status bar at the bottom shows various system icons and a taskbar.

ACM digital library

The screenshot shows a Netscape browser window titled "Netscape: ACM: Digital Library". The browser's address bar is empty. The page features a navigation bar with links for "home", "feedback", "join", "go shopping", and "search". Below this is the ACM logo and the text "ACM Digital Library" with the tagline "ACM brings you the world of computing." The main content area is titled "Search Results" and indicates "Page 1" with "1-24 of 176 articles matching your query". There are three buttons: "Search the Results", "New Search", and "Next Page". Below the buttons is a table of search results with columns for "Score", "Article", "Full-Text", "Abstract", and "Review". Two results are shown, both with a score of 100. The first result is "Change analysis in an architectural model a design rationale based approach" by Prasanta Bose, and the second is "Extending the Potter and Evans model for recording design rationale" by Jintae Lee. Both results have a checked checkbox in the "Full-Text" column.

home feedback join go shopping search

acm
ACM Digital Library
ACM brings you the world of computing.

Search Results

Page 1
1-24 of 176 articles matching your query

Search the Results New Search Next Page

	Score	Article	Full-Text	Abstract	Review
1)	100	Change analysis in an architectural model a design rationale based approach ; prasanta Bose; <i>Proceedings of the third international workshop on Software architecture</i> , 1998, Pages 5 - 8 [Find Related Articles]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2)	100	Extending the Potter and Evans model for recording design rationale ; Jintae Lee; <i>Proceedings of the 13th international conference on Software engineering</i> , 1991, Page 114 [Find Related Articles]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Finding a reference

- Check if it is worth it (I.e., ‘how bad do you want that specific reference?’)
- Ask the librarian about inter-library loans & services
- Check the Bayerische Staatsbibliothek
<http://www.bsb.baw-luebeck.de/index2.htm>
- Look up the main author on the web
 - Does s/he have a homepage?
 - Is the publication downloadable?
- Send her/him email
 - authors like being read; most will send you their paper
- Find a more recent publication, an older technical report related to the publication, or a compendium

Evaluating a reference

- Read at least the abstract, the introduction, and the references
 - Is it relevant to your topic?
 - Does it cite works relevant to your topic?
 - Is it an archival paper?
- Read the paper
 - Is the research approach described?
 - Are the results credible?
 - Is the paper objective?
- Discuss with the author
 - S/He may be able to clarify points not described in the paper

Constructing a bibliography

- Keep a database of the articles you have read with notes about the articles
- When writing a paper or developing a talk, select 15-30 references that are relevant to your topic
 - Select good and solid papers (in your opinion)
 - Select papers that are easily accessible
 - Select a broad spectrum of authors and works
- For your seminar presentation, 3 good references will suffice

Citing a reference

- **Always** cite your sources
- Look at a journal for exact format, e.g.:
 - B. Bruegge & A.H. Dutoit. “Communication Metrics for Software Development,” *Proceedings of the 19th International Conference on Software Engineering (ICSE’19)*, IEEE, Boston, MA, May 1997.
- Should include at least
 - Authors
 - Exact title of article
 - Exact title of item
 - Publisher (name and location)
 - Date
- Tip: always write the citation on the first page of the article when copying it.

Summary

- Find a large number of potentially relevant references
 - Library catalog
 - Thematic indices
 - WWW
 - Email
 - Family & friends
- Keep the promising ones
 - Examine title, keywords, and abstract, if available
- Find as many as you can
- Evaluate them
- Focus on a small set of interesting ones
- Use them (cite them, compare them, criticize them)