Student Conference 2016

Publication Process

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Conference vs. Journal

• Journal
  – more (long-term) impact
  – wider target audience
  – deeper reviews, long review process
  – more space
  – typically research results of 1-5 years

• Conference Proceedings
  – faster process
  – 6-15 pages
  – direct contacts and discussion at conferences; community
  – audience: 30-200

• Workshop
  – discussions; community
  – work in progress, ideas, first results
  – audience: 10-20

Rankings:
http://people.engr.ncsu.edu/txie/seconferences.htm
http://core.edu.au/index.php/categories/conference%20rankings/1
http://www.cse.chalmers.se/~feldt/advice/isi_listed_se_journals.html
Rooms
Prepare for a large room
Prepare for a very large room
Workshop Room
Poster Session
Extracting Interactions in Component-Based Systems

Trevor Parsons, Adrian Mok, Mircea Trofin, Thomas Gschwind, Member, IEEE, and John Murphy, Senior Member, IEEE

Abstract—Monitoring, analyzing, and understanding component-based enterprise software systems are challenging tasks. These tasks are essential to sizing and preventing performance and quality issues. Obtaining component-level interactions that show the relationships between different software entities is necessary prerequisite for such efforts. This paper focuses on component-based Java applications, currently widely used by the industry. They pose specific challenges when raising interesting opportunities for component-level interaction extraction tools. We present a range of representative approaches for dynamically observing and using component interactions. For each approach, we detail the needed address and the technical requirements for building and implementing the approach. We also take a critical look at the different available implementations of the various techniques presented. We give performance and functional considerations and contrast them against each other by outlining their relative strengths and weaknesses. Based on the data, developers and system integrators can better understand the current state of the art and the implications of choosing or implementing different dynamic interaction extraction techniques.

1 INTRODUCTION

Current enterprise applications are very often large complex systems, made up of a multitude of different software components that communicate to service client requests. With such systems (which are commonly built using enterprise component frameworks), it can be difficult to understand how exactly particular components interact at runtime. This can lead to a lack of overall system understanding, which, in turn, can manifest itself in a range of problems, such as incorrect performance tuning, maintainability issues, etc.

Component-level interactions (CLIs), which capture component communication, can be recorded as the program executes (i.e., at runtime) or beforehand (statically). While dynamic traces can be limited by the input data, they have the advantage of recording the actual interactions that occur during execution. Static traces, on the other hand, can be used to determine all potential paths through the system. Thus, it is important that we have techniques available to developers, whereby they can record both static and dynamic traces [1].

The availability of an application’s CLIs or potential interactions is in fact important in many different situations, ranging from optimizing a simple program to reverse engineering or monitoring an entire application. For example, when performing program optimizations, we need to know at least how frequently a component is invoked and under what circumstances. For reverse engineering, it is imperative to know which component can be invoked from which other component. It is also common the case that this information would enhance data already provided by certain tools. For example, very often, performance profiles collect details on the different components that make up a system (e.g., resource consumption information). However, it is common that no contextual indication is given as to how the components work together to service the different user requests.

This paper covers dynamic techniques for collecting component interactions. It presents a number of different approaches for capturing CLIs, discussing when each one is most appropriate while at the same time giving the advantages and disadvantages of each. We believe the presented options cover the full range of the current state of the art for such techniques.

The remainder of the paper is structured as follows: Section 2 details applications of CLIs and a number of different ways in which CLIs can be represented, discussing the advantages and disadvantages of each representation. A prerequisite for dynamic interaction extraction is the ability to record intercomponent calls at runtime. This is achieved through instrumentation of the application and is discussed in Section 3. Sections 4.5 and 6 outline the various options available for dynamic CLI extraction (CIE). For each technique presented, we outline the various requirements that are needed in order to implement the approach for the Java component technology, the Java Enterprise Edition.
A Scientific Conference

• Organization, Chairs, Proposal, Finances, Sponsors
• Conference vs. Workshop vs. Posters
• Call for Papers
• Program Committee, Reviews, Program
• Camera Ready Paper, Proceedings
• Conference, Travel, Venue, Registration, Sessions, Social Events
Call for Paper (CfP)

- Topic/Theme of the conference
- Date and location
- Topics of interest
- How to submit
  (when, which format, how many pages)
- Review process and evaluation criteria
  (program committee)
SIGMOD 2016 – CfP (excerpt)

SIGMOD 2016 CALL FOR RESEARCH PAPERS
June 26 – July 1, 2016, San Francisco

The annual ACM SIGMOD conference is a leading international forum for database researchers, practitioners, developers, and users to explore cutting-edge ideas and results, and to exchange techniques, tools, and experiences. We invite the submission of original research contributions relating to all aspects of data management defined broadly, and particularly encourage submissions on topics of emerging interest in the research and development communities.

First Submission Deadlines
July 9, 2015 : Research paper abstracts due
July 16, 2015: Research paper submissions due
September 18, 2015 : Notification
October 19, 2015: Revised Submission
November 13, 2015 : Notification
February 9, 2016: Camera-ready due

Topics of interest include but are not limited to the following:
- Benchmarking and performance evaluation
- Crowd sourcing
- Data models, semantics, query languages
- Data provenance
- Data visualization
- ...
SIGMOD 2016 – CfP (cont.)

SUBMISSION GUIDELINES

All aspects of the submission and notification process will be handled electronically. Submissions must adhere to the paper formatting instructions. Research papers will be judged for quality and relevance through double-blind reviewing, where the identities of the authors are withheld from the reviewers. Thus, author names and affiliations must not appear in the papers, and bibliographic references must be adjusted to preserve author anonymity. Submissions should be uploaded at https://cmt.research.microsoft.com/SIGMOD2016/.

Length: All submitted research papers must be formatted according to the instructions below. The main content of that paper must be no more than 12 pages in length, although we will allow up to an additional 4 pages for the bibliography and appendices describing additional material, as described below.

Appendix: In addition to the bibliography, papers may optionally include an appendix with additional material relevant to the paper. The total length of the additional appendix and bibliography must not exceed 4 pages. The paper should stand alone without the appendix, and reviewers should not be required to consult the appendix to understand the key ideas, algorithms, results, experiments, or conclusions of the paper. Instead, the appendix should be used for additional material, such as proofs or non-essential experimental results, that the authors wish to convey should the reviewers choose to read them. Reviewers will be instructed to judge the paper on the merits of the material in the main body of the paper (including the references) and will not be required to read or review the material in the appendix.

File type: Each research paper is to be submitted as a single PDF file, formatted for 8.5" x 11" paper and no more than 5 MB in file size. (Larger files will be rejected by the submission site.) Submitted papers must print without difficulty on a variety of printers, using Adobe Acrobat Reader. It is the responsibility of the authors to ensure that their submitted PDF file will print easily on simple default configurations.

Formatting: Research papers must follow the ACM Proceedings Format, using one of the templates provided at https://www.acm.org/publications/proceedings-template for Word and LaTeX (version 2e). (For LaTeX, both Option 1 and Option 2 are acceptable.) The font size, margins, inter-column spacing, and line spacing in the templates must be kept unchanged.
ANONYMITY REQUIREMENTS FOR DOUBLE‐BLIND REVIEWING

Every research paper submitted to SIGMOD 2016 will undergo a "double-blind" reviewing process: the PC members and referees who review the paper will not know the identity of the authors. To ensure anonymity of authorship, authors must prepare their manuscript as follows:

• Authors' names and affiliations must not appear on the title page or elsewhere in the paper.
• Funding sources must not be acknowledged on the title page or elsewhere in the paper.
• Research group members, or other colleagues or collaborators, must not be acknowledged anywhere in the paper.
• The paper's file name must not identify the authors of the paper. It is strongly suggested that the submitted file be named with the assigned submission number. For example, if your assigned paper number is 352, then name your submission file 352.pdf.
• Source file naming must also be done with care, to avoid identifying the authors' name in the paper's associated metadata. For example, if your name is Jane Smith and you submit a PDF file generated from a .dvi file called Jane-Smith.dvi, your authorship could be inferred by looking into the PDF file.
Our Conference – CfP – Summary

- 7th Student Conference 2016
- July 15, 2016 in Magdeburg, Germany
- Overview Papers: Current state and future challenges in a topic of (1) Database Research, (2) Software Engineering Research, or (3) Computer Science in general
- Submission Deadline #1: May 19, 2016 (firm!)
- Notification #1: June 7, 2016
- 4-8 pages, ACM SIG Template, Two-Column Format
- At least 3 reviews per submission
Conference Organization

- Steering Committee
- General chair
- Program Committee chairs
  - Program Committee (Research Track, Industrial Track)
- Finance Chair
- Conference Sponsorship
- Local Organization and Hotel
- Student Volunteers
- Publications
- Publicity
- Research Demos, Tutorials, Workshops, Panels, Doctorial Symposium, ...
Review Process

• Assigning Papers to PC members
• Reviews
• PC Meeting
• Program
Review

• Summary (~ 50-200 words)
• Evaluation, pros & cons (~ 100-1000 words)
• Rating
  – A: Good paper. I will champion it at the PC meeting.
  – B: OK paper, but I will not champion it.
  – C: Weak paper, though I will not fight strongly against it.
  – D: Serious problems. I will argue to reject this paper.
• Confidence
  – X: I am an expert in the subject area of this paper.
  – Y: I am knowledgeable in the area, though not an expert.
  – Z: I am not an expert. My evaluation is that of an informed outsider.
Evaluation Criteria (examples)

• Does the paper match the topic of the conference?
• Do title and abstract reflect the content of the paper?
• Is the paper well structured?
• Is the contribution of the paper clear?
  Or: Is the motivation clear?
• Do sections contain the content promised in section titles?
• Is there a consistent recurring theme or does the author jump from idea to idea?
• Are all background information necessary for understanding the paper provided?
• Are there any unnecessary information/sections?
• Are arguments well supported by references?
  Or: Are references complete and suited?
• Are examples/figures/tables used adequately to support understanding the paper?
• Is the reasoning of the paper correct?
• Is the paper well written (language, style)?
Typical comment patterns

• “the objectives are unclear”
• “too little beef”
• “the authors seem to ignore ...”
• “... so what?”
• “the paper fails to deliver what is promises”
• “unsubstantiated claims”
• “opinion paper...”
• “premature...”
• “the paper provides little evidence that the results do apply in real settings”, “scaleability is questionable”, etc
• “evaluation is weak”
Example Review

>>> Summary of the submission <<<
The paper presents a formal approach for X. The approach determines whether one X is Y with regard to Z. A formalization is used. The comparison is performed using a SAT solver. The approach does not enforce Y to contain Z.

>>> Evaluation <<<

Pros:
• The paper is well written.
• The problem is easy to understand, and the solution is elegant.
• The solution is shown to scale to large models.

Cons:
• The practical value of the approach is not demonstrated. One could get the impression that the paper is only a theoretical exercise.
• The paper neglects state-of-the-art comparison with other X algorithm for similar models.

Overall, the paper addresses an important problem. The idea of doing X with Y is novel. The related work focuses on Y. Unfortunately, it does neglect X. For example, similar work has been proposed for Y. It remains unclear, whether the results produced by the approach correspond with the modeller's intuition (or the real changes) in most of the cases.

Section X explains the algorithm, but X is not clear. Wouldn’t Y be Z?

In conclusion ...

Suggestions for improvement:
I suggest to explain X in more detail in this section as this is a central point for your paper (partly, you do this in Section 4). Only X is illustrated. You should present examples of Y and Z as well.

Section 3:
Your approach to declare X as Y appears overly simplistic to me and may produce results that are counterintuitive. Consider, for instance, ... see paper Z by Y.

Minor comments:
A different kind of evaluation would be more important here than the performance evaluation. You should provide...
Multi-Round Review

- Grades
  - Accept - Needs Minor Revision - Needs Major Revision – Reject
- Author resubmits paper after improvement
  - Add a letter responding to the reviewers comments
- Same reviewers check improvements

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**REQUEST:**

It is critical that you address the relation to other work that both reviewers have mentioned, especially Reviewer 1. How do you distinguish your work from your own other work, the TOSEM submission, etc.? Your casual remark of the other being the “flip side of the coin” is both unenlightening and too informal.

**RESPONSE:**

We have extended the related work section to explain in detail the difference between FFJ_PL and our parallel line of work on CFJ. (In a nutshell, FFJ_PL models feature-oriented product lines more directly, and it is more expressive with regard to alternative features.) At the end of Section 1, we provide an overview of the most significant related work, including the work on CFJ.

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**REQUEST:**

Furthermore, always in the formalism return a list of features, whereas in the implementation it is stated as a predicate returning a true/false value. Please clarify.

**RESPONSE:**

In Section 4, we show a simplified version of always that covers only case one of the case distinction. The complete definition is too verbose to be discussed at that point. The reader can have a look at the Haskell implementation for more details. Anyway, we added a note that this is only a simplified version, whose absence was presumably the reason for confusion.
Common Mistakes in StudConf Reviews

• Review in different language than the paper
• No summary of the paper
• Mixing points in favor and points against the paper
• Starting with minor points instead of major points
• Proposals for whole sentences (they authors cannot use them when the reviewer is anonymous)
• Evaluation only in bullet points (lack of full sentences, descriptions, explanations)
• Evaluation for each section separately
• Review too short (e.g., paragraph only)
• Feedback too detailed (you will not get co-authorship)
Mistakes in StudConf Reviews

• „Please consider to use MS Word's spellchecker before submitting any paper to anyone.“
• „Please summarize the results […]“
• „Can you extend the future work part of this section?“
• „Insgesamt hat das Papier [...] viel Potential, benötigt aber noch ein bis 2 Iterationen.“
• „Mir war nicht klar warum du das brauchst.“
• „Allerdings MUSS bei empirischen studien immer eine Section Threads to validity drin sein“
• „Proceedings of the 6th international conference on -> Proc. Int'l. Conf. on ... “
Mistakes in StudConf Reviews

• „locations can be omitted, such as New York, NY, USA“
• „When presenting a tool and its website, a footnote is more convenient than a real citation.“
• „there are some citations that don't seem to be published on a conference. Those citations should be avoided.“
• „the presented work shows pretty relevant results“
• „it looks better, if you write the references in one bracket. [2],[3] -> [2,3]“
• „Please get in mind, if this is beneficial“
• „Can you write the word ‘viewframe’ in italic style, because it is very important“
Mistakes in StudConf Reviews

• „given in figure 2“, „and equation 6“
• „This section could be shortened.“
• „the author give a short overview“
• „is missing [...] a textual reference to the next section“
• „References are ordered as they are mentioned in the text, not alphabetically.“
• „The paper is incomplete [...] !!!“
• „Very often, authors put a comma after the “e.g.,” or “i.e.,”. As far as I know, that is not correct.“
• „I would combine sections: future work and conclusion.“
• „Useless, missing, and duplicate content“
Mistakes in StudConf Reviews

• „related work würde ich vorne besser finden“

• Example of a whole review:

• „viele wortwiederholungen
gutes Englisch nur kleine Fehler
w.l.o.g. oder w.r.t. ??
bisschen mehr auf die formeln eingehen
gute Struktur und gute Recherche in Verbindung
mit einer guten Beschreibung“
How to Select a Conference/Workshop

• Difficult decision
• Ask experienced co-authors
• Quality indicators:
  – submissions and acceptance rate
  – age and tradition
  – proceedings (no/online proceedings, ACM/IEEE/Springer, ...)
  – Who is organizer and PC members?
  – conference rankings (e.g. CORE Ranking)
  – experience from attendees

<table>
<thead>
<tr>
<th>Year</th>
<th>ICSE</th>
<th>FSE/ESEC</th>
<th>ASE</th>
<th>SPLASH/OOPSLA</th>
<th>ECOOP</th>
<th>ISSTA</th>
<th>FASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>99/496(20%)</td>
<td>61/280(22%)</td>
<td>55/276(20%)</td>
<td>52/186(28%)</td>
<td>27/101(27%)</td>
<td>36/128(28%)</td>
<td>28/125(22%)</td>
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<td>2013</td>
<td>85/461(18%)</td>
<td>51/251(20%)</td>
<td>43/254(17%)</td>
<td>50/189(26%)</td>
<td>29/116(25%)</td>
<td>32/124(26%)</td>
<td>26/112(23%)</td>
</tr>
<tr>
<td>2012</td>
<td>87/408(21%)</td>
<td>34/201(17%)</td>
<td>21+/261/38(15%)</td>
<td>59/228(26%)</td>
<td>30/140(21%)</td>
<td>31/108(29%)</td>
<td>33/134(25%)</td>
</tr>
<tr>
<td>2011</td>
<td>62/441(14%)</td>
<td>34/203(17%)</td>
<td>37/252(15%)</td>
<td>61/166(37%)</td>
<td>26/100(26%)</td>
<td>35/121(29%)</td>
<td>29/99(29%)</td>
</tr>
<tr>
<td>2010</td>
<td>59/390(14%)</td>
<td>34/162(20%)</td>
<td>21+/24/281/30(17%)</td>
<td>45/183(27%)</td>
<td>25/140(23%)</td>
<td>31/105(26%)</td>
<td>24/86(25%)</td>
</tr>
</tbody>
</table>
Ratings

• Top Level General Conferences (ICSE, SIGMOD, VLDB, ICDE)
• Other General Conferences (FASE, APSEC, ICSoft, CIKM)
• Subfield Conferences (AOSD, ICSM, GPCE, MODELS, SPLC, SSDBM, ER, EDBT)
• Local Conferences (SE, BTW, BALTICDB)
• Workshops

• Top Level Journals
• Other Journals

• Paid Conferences
Aim High

• Write the best paper you can
  – completed work
  – sound evaluation
• Submit to good conference
• Experienced co-authors very valuable

• Gain experience with small and mid-level conferences
• Use workshops to discuss early ideas/results and to foster collaborations/community

• Don’t submit premature/unfinished work just for feedback!
Deadlines

• Plan ahead. Know when important conference deadlines are
  – SIGMOD: July/November
  – VLDB: every month
  – ICSE: August/September
  – FSE: February/March
• Start writing early (plan >2 month ahead)
• Don’t rush deadlines
  – write a good paper instead, complete the evaluation
  – alternative venues will come
• (Even the best scientists won’t write a top level conference paper in a week anyway)
Publications may take time

• Example: SPLC’09 paper
  – Ideas formed during Master’s thesis (Early 2007)
  – Version 2: Not submitted June 2007 (not finished in time)

• Paper changed significantly over time (dropped about 50%, reset focus, added new discussions, explained problem more)
• Today's viewpoint: paper was incomplete, rejections justified
• Much better/clearer paper at the end
Do Research with Publication in Mind

• When starting with an idea -> already think of evaluation
• For whom is this relevant?
• Be general
  – Solve problem for company X -> Underlying problem is Y, can be solved generally with method Z
  – Company X as case study
• What conference / workshop could be interested?
• Prototypes instead of commercial quality tools