



TECHNISCHE
UNIVERSITÄT
DRESDEN



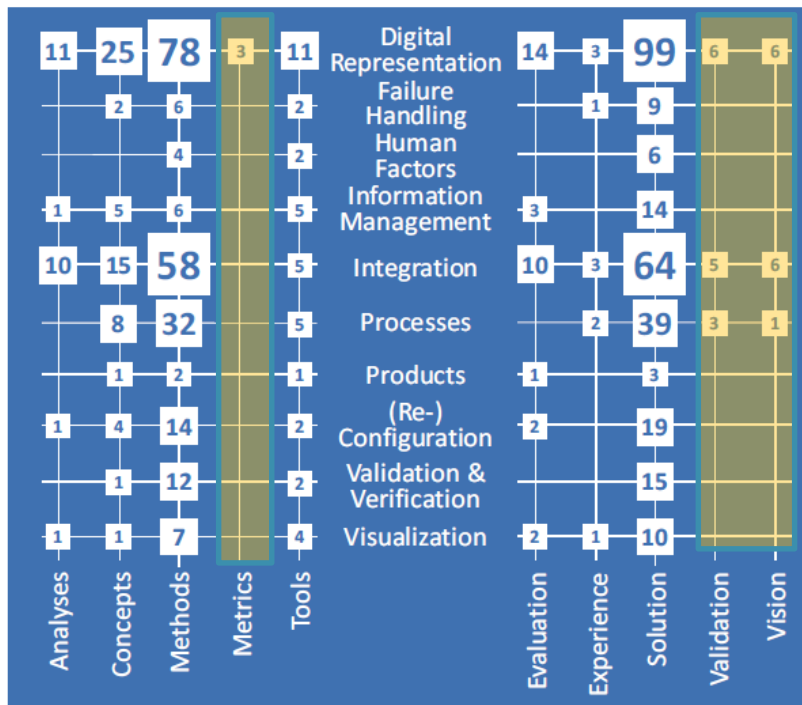
Komplexpraktikum: Tool Support for Systematic Literature Reviews

SLR-Toolkit

Dr. Sebastian Götz

Dresden, 9.10.2017

- Goal: get an overview of a research area
 - Identify relevant literature
 - Organize literature (i.e., determining classes/a taxonomy)
 - Classify relevant literature
 - Analyze classified literature to identify „open spots“



[Andreas Wortmann, Benoit Combemale, Olivier Barais:
 A Systematic Mapping Study on Modeling for Industry
 4.0. In: Proceedings of 2017 ACM/IEEE 20th International
 Conference on Model Driven Engineering Languages and
 Systems.]

Fig. 2. Industry 4.0 concerns by research type and contribution type.

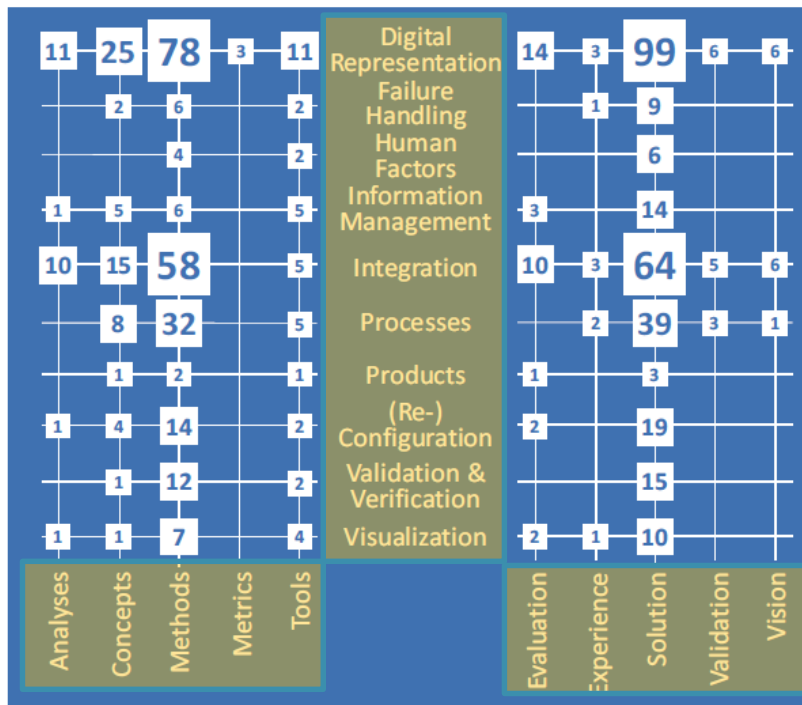
1. Set topic (e.g., bi-directional model-transformations)
2. Read into the topic, to identify characteristic keywords
 - E.g., „transformation“, „trafo“, etc.
3. Specify in- and exclusion criteria
 - E.g., „exclude non-peer reviewed literature“
4. Use keywords to search standard libraries
 - Google Scholar, DBLP, ACM DL, SpringerLink, IEEE Express, etc.
5. Often you`ll get a high number of papers (#initial)
 - Apply in-/exclusion criteria to filter this list (#filtered)
6. Extend #filtered list by for- and backward snowballing
 - Look for papers cited by those you found
 - Look for papers, which cite the papers you found
7. Now you have your literature corpus

8. While reading the literature corpus, identify classes and build a taxonomy

- In the example below, three dimensions are shown: contribution type, research type, domain-specific concerns

9. Classify all found papers according to the taxonomy

10. Compare the classes with each other to find „open spots“

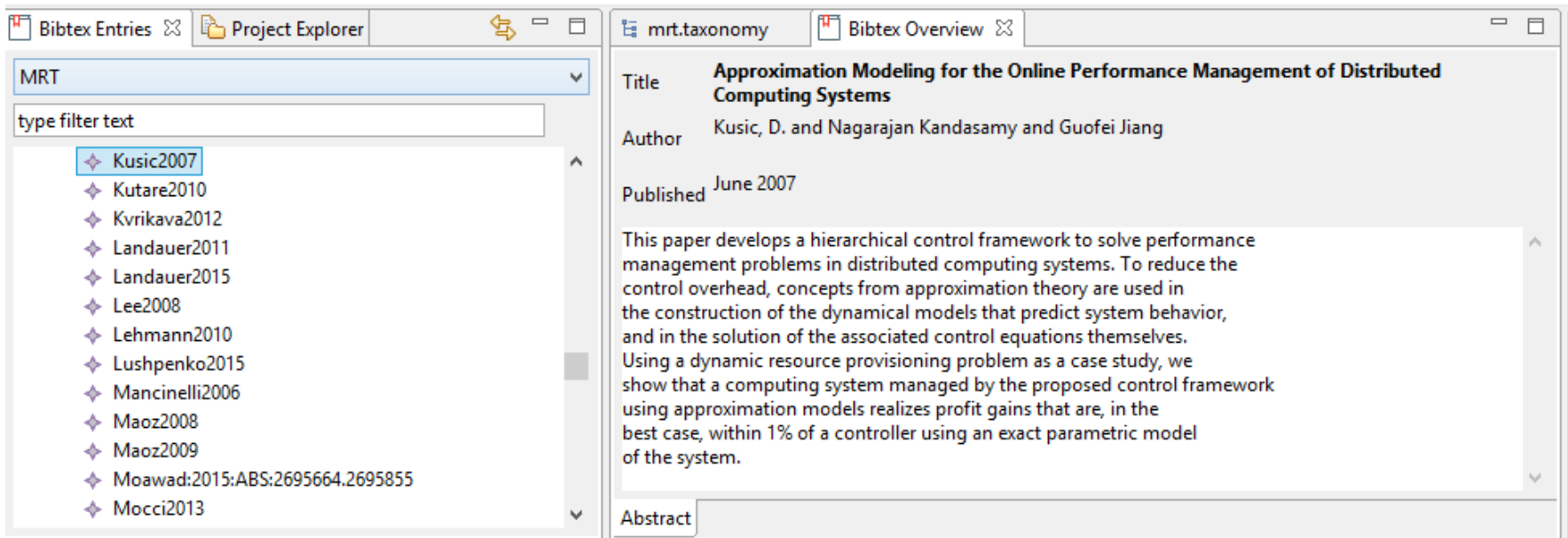


[Andreas Wortmann, Benoit Combemale, Olivier Barais: A Systematic Mapping Study on Modeling for Industry 4.0. In: Proceedings of 2017 ACM/IEEE 20th International Conference on Model Driven Engineering Languages and Systems.]

Fig. 2. Industry 4.0 concerns by research type and contribution type.

- Open source project mainly implemented by students
- <https://github.com/sebastiangoeztz/slr-toolkit>
- Supports full process, except for searching literature
- All other steps supported
 - Import Bibtex File
 - Filtering
 - Creating a taxonomy
 - Classifying Literature
 - Analyzing Literature
 - Refactoring the taxonomy

Filtering (using Del-Key)



The screenshot displays the SLR-Toolkit interface. On the left, the 'Bibtex Entries' window shows a list of entries filtered by 'MRT'. The 'Project Explorer' window is also visible. On the right, the 'Bibtex Overview' window shows the details for the selected entry 'Kusic2007'.

Bibtex Entries

MRT

type filter text

- ◆ Kusic2007
- ◆ Kutare2010
- ◆ Kvrikava2012
- ◆ Landauer2011
- ◆ Landauer2015
- ◆ Lee2008
- ◆ Lehmann2010
- ◆ Lushpenko2015
- ◆ Mancinelli2006
- ◆ Maoz2008
- ◆ Maoz2009
- ◆ Moawad:2015:ABS:2695664.2695855
- ◆ Mocchi2013

mrt.taxonomy **Bibtex Overview**

Title **Approximation Modeling for the Online Performance Management of Distributed Computing Systems**

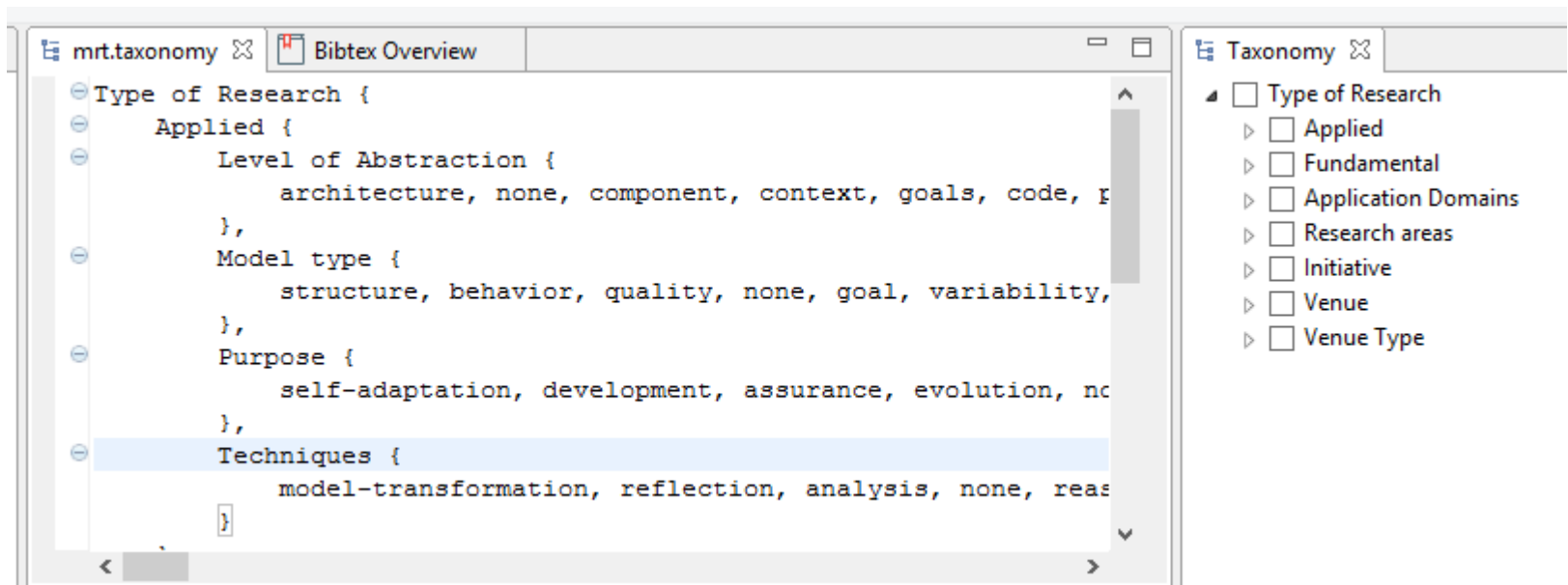
Author Kusic, D. and Nagarajan Kandasamy and Guofei Jiang

Published June 2007

This paper develops a hierarchical control framework to solve performance management problems in distributed computing systems. To reduce the control overhead, concepts from approximation theory are used in the construction of the dynamical models that predict system behavior, and in the solution of the associated control equations themselves. Using a dynamic resource provisioning problem as a case study, we show that a computing system managed by the proposed control framework using approximation models realizes profit gains that are, in the best case, within 1% of a controller using an exact parametric model of the system.

Abstract

Specifying a Taxonomy



The screenshot displays a software interface with two main panels. The left panel, titled 'mrt.taxonomy', shows a code editor with a Bibtex Overview tab. The code defines a taxonomy structure with the following elements:

```
Type of Research {  
  Applied {  
    Level of Abstraction {  
      architecture, none, component, context, goals, code, p  
    },  
  },  
  Model type {  
    structure, behavior, quality, none, goal, variability,  
  },  
  Purpose {  
    self-adaptation, development, assurance, evolution, no  
  },  
  Techniques {  
    model-transformation, reflection, analysis, none, reas  
  }  
}
```

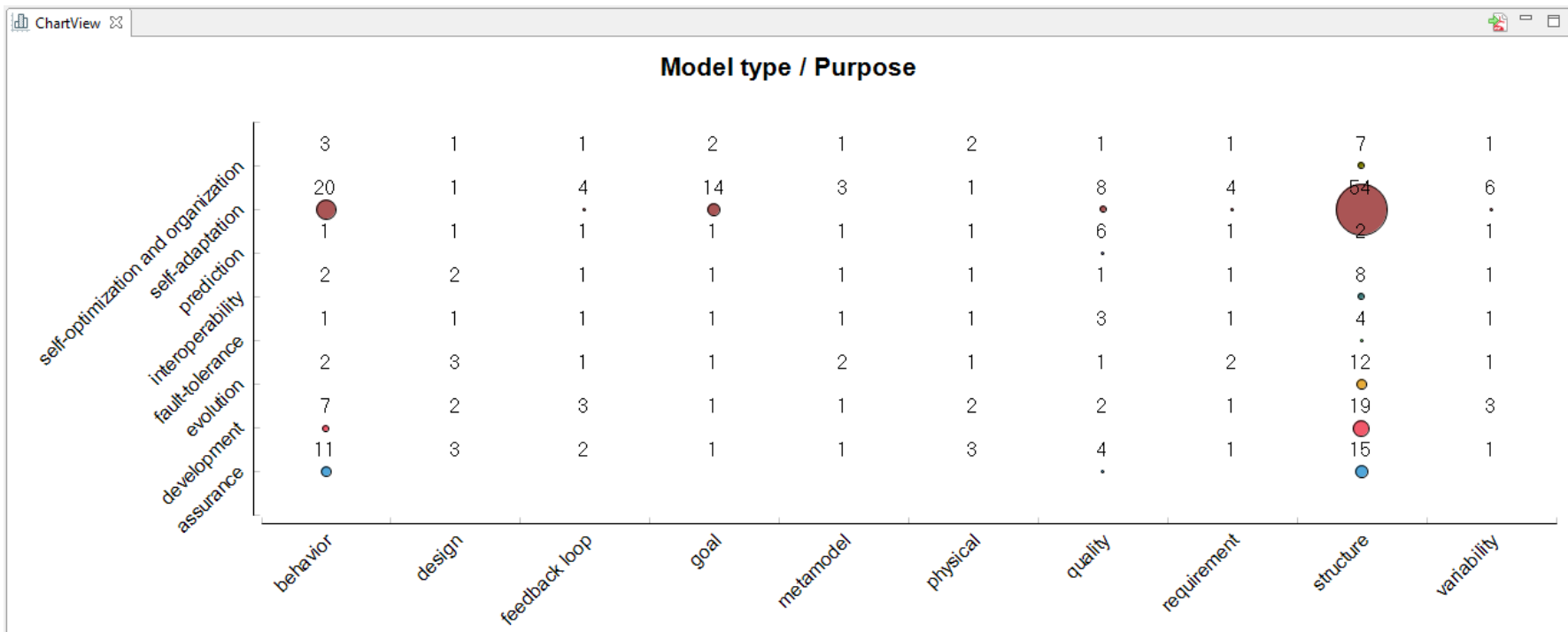
The right panel, titled 'Taxonomy', shows a tree view of the same structure. The root node is 'Type of Research', which is expanded to show its children: 'Applied', 'Fundamental', 'Application Domains', 'Research areas', 'Initiative', 'Venue', and 'Venue Type'. Each child node is currently unchecked.

Classifying Literature

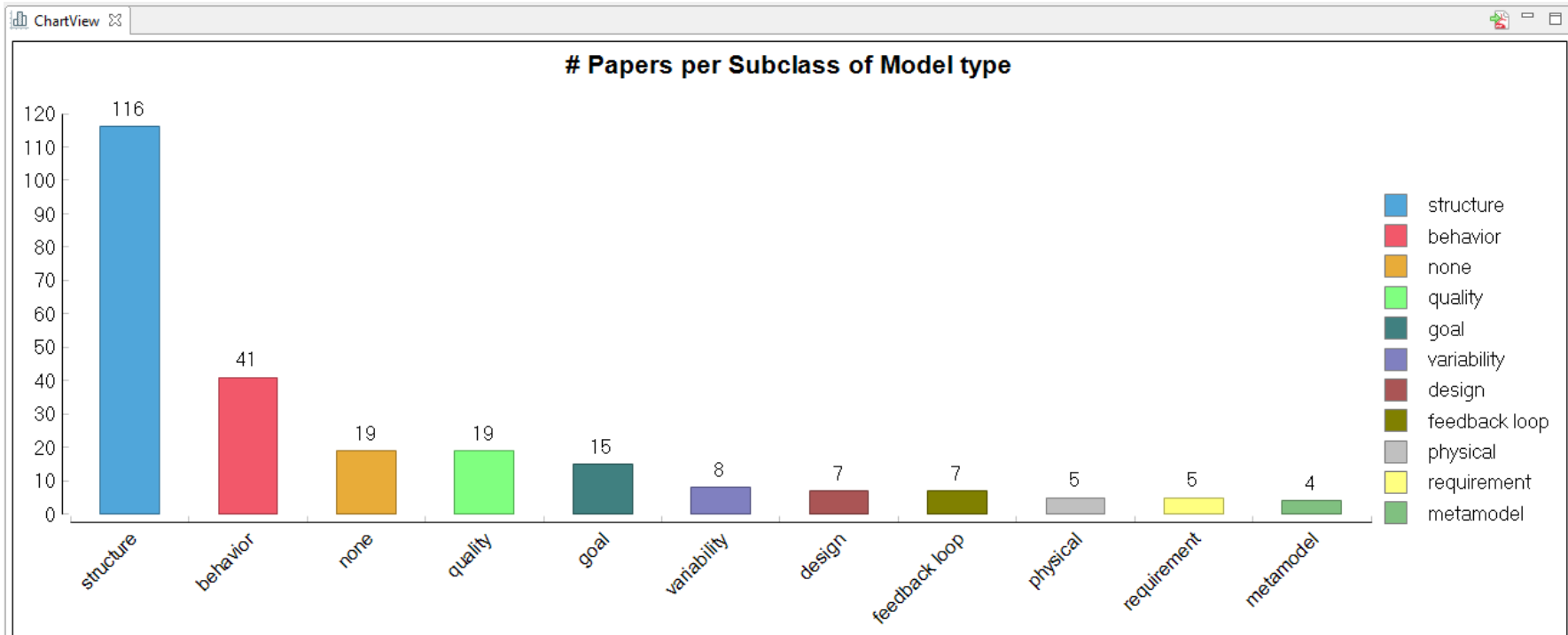
The screenshot displays the SLR-Toolkit interface. On the left, the 'Bibtex Entries' window shows a list of literature entries under the 'MRT' filter. The 'Project Explorer' window shows a search filter 'type filter text'. On the right, the 'Taxonomy' window shows a tree structure for 'mrt.taxonomy' with the following categories and sub-categories:

- Type of Research
 - Applied
 - Level of Abstraction
 - architecture
 - none
 - component
 - context
 - goals
 - code
 - process
 - requirements
 - gui
 - Model type
 - structure
 - behavior
 - quality
 - none

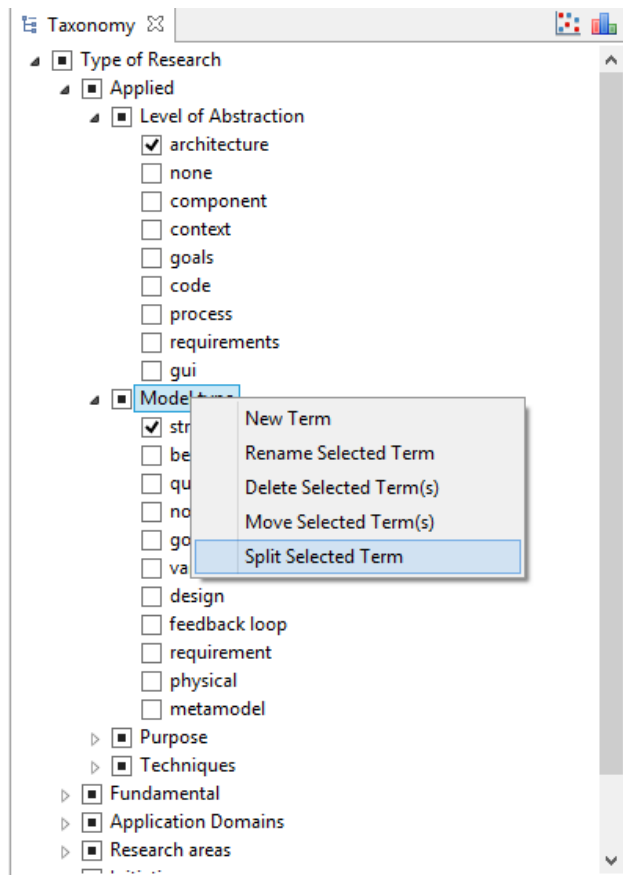
Analysis



Analysis



Refactoring the taxonomy



- Build process based on Maven
- Continuous Delivery using Travis CI

README.md

Latest release

0.0.8

07104e7

[gitter](#) [join chat](#) [issues](#) **28 open** [license](#) [EPL](#) [build](#) **passing**

slr-toolkit

A Toolkit for Systematic Literature Reviews

Releases

Latest release: [here](#)

SLR-Toolkit v0.0.8

 StephanPirnbaum released this on 20 Mar

Made default term field in split term dialog required to prevent failures

Downloads


 [slr-toolkit.201703200847-linux.gtk.x86.tar.gz](#)

 [slr-toolkit.201703200847-linux.gtk.x86_64.tar.gz](#)

 [slr-toolkit.201703200847-macosx.cocoa.x86_64.tar.gz](#)

 [slr-toolkit.201703200847-win32.win32.x86.zip](#)

 [slr-toolkit.201703200847-win32.win32.x86_64.zip](#)

 [Source code \(zip\)](#)

 [Source code \(tar.gz\)](#)

- What's left todo?
 - Better and more types of analysis
 - Integration with search tooling (gsresearch)
 - <https://github.com/Eden-06/gresearch>
 - Integration with literature management tools
 - Zotero
 - Mendeley
 - JabRef
 - User's manual
 - Developer's guide
 - Test suite

- Get your task today
- Finish your task until 1st week of February 2018
- Presentation in chair's student seminar (Thursday 14:50, APB/2101) in 2nd week of February 2018
- Progress meeting every 2 weeks
- Use issue tracker on github to document your progress