

SciKGT_EX: A LaTeX Package for FAIR-Annotated Publications

Oliver Karras, Alessio Ferrari, Davide Fucci, and Davide Dell'Anna

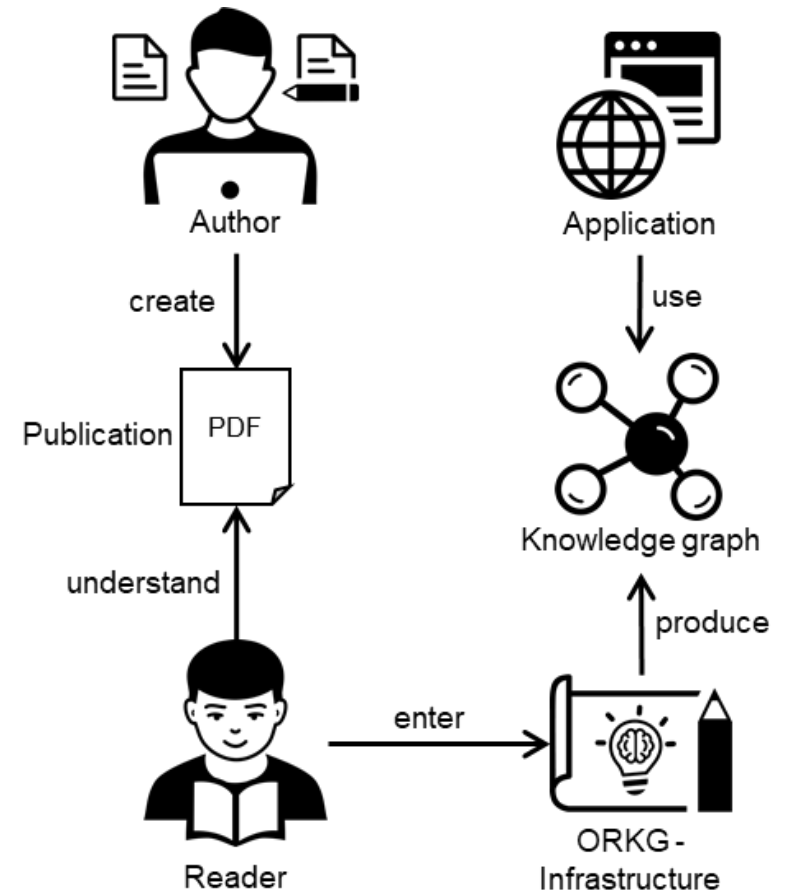
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32nd IEEE International Requirements Engineering 2024 Conference – Exploring New Horizons: Expanding the Frontiers of Requirements Engineering

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Problem: Making Publications FAIR is a Downstream Task

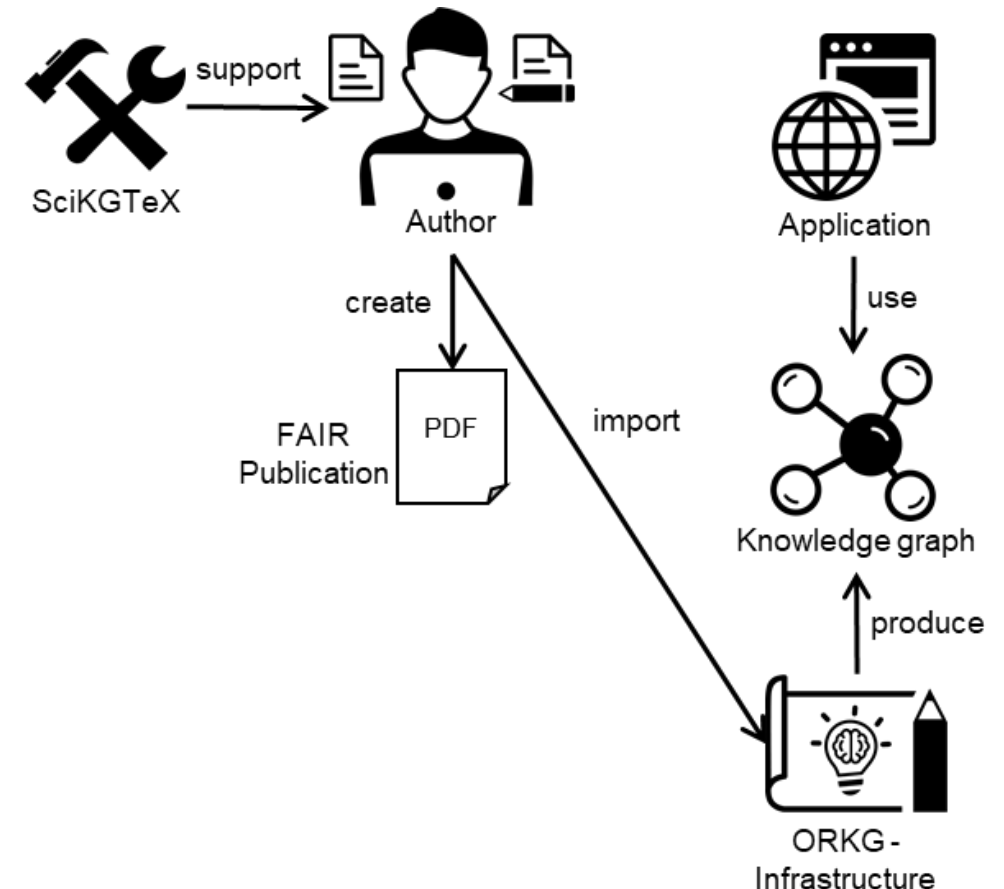
Problem: ORKG focuses on **published** articles, so making them **FAIR** is a **downstream task** and often **not done by the author**.



Solution: “FAIR-by-Design” Artifacts and SciKGTex^[8]

Solution: “FAIR-by-Design” Artifacts.
SciKGTex supports authors in making their publication **FAIR** at the time of **creation**.

- **Authors describe** their publication with FAIR information **only once** and **in parallel** at the time of **creation**
- **SciKGTex embeds** FAIR information into the **PDF metadata** as a knowledge graph
 - **Persistent** over PDF lifetime
 - **Available** for anyone
 - **Reusable**, e.g., import into ORKG



[8] Bless et al.: *SciKGTex – A LaTeX Package to Semantically Annotate Contributions in Scientific Publications*. 2023 ACM/IEEE Joint Conference on Digital Libraries (JCDL), DOI: [10.1109/JCDL57899.2023.00030](https://doi.org/10.1109/JCDL57899.2023.00030), 2023.

SciKGT_EX – Scientific Knowledge Graph TeX

- Predefined commands for annotation
 - 3 commands for metadata
 - Title
 - Author
 - Research field
 - 5 commands for content
 - Research problem
 - Objective
 - Method
 - Result
 - Conclusion
- Support for own custom annotations
 - REFSQ'24 and REFSQ'25 ask for
 - Code repository
 - Dataset

```
\usepackage{scikgtex}
```

```
\begin{document}
```

The role of `\researchproblem{antibiotic therapy}` is controversial.
The purpose of this study was to `\objective{determine the effectiveness of high-dose amoxicillin/potassium clavulanate in the treatment of children}`.

This was a `\method{randomized, double-blind, placebo-controlled study}`.

`\result{Children receiving the antibiotic were more likely to be cured (50% vs 14%) than children receiving the placebo}`.

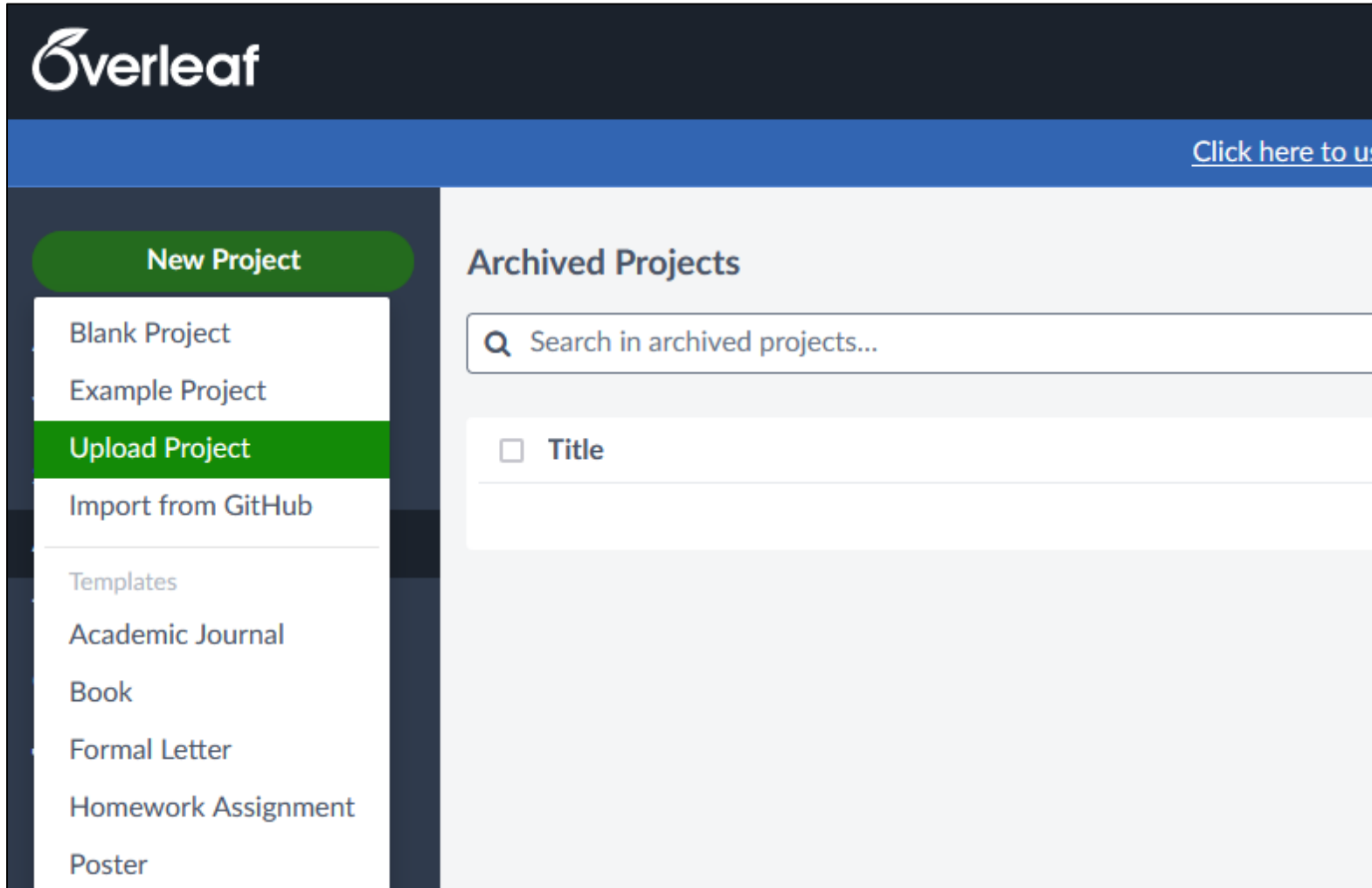
`\conclusion{Amoxicillin/potassium clavulanate results in significantly more cures and fewer failures than placebo}`.

```
\end{document}
```

Complete documentation and latest version:

<https://github.com/Christof93/SciKGT_EX>

Set up a LaTeX Project (using Overleaf)



1. Download Example.zip
<https://bit.ly/49RjRbO>
2. Open Overleaf
<https://www.overleaf.com/>
3. Upload Example.zip
New Project → Upload Project
4. Select or drag zip file

Remark:

We only use an abstract for the annotations as a simplified example. Annotations can be used **anywhere** (in one or more LaTeX files).

0. Add SciKGT_EX Files to the Project

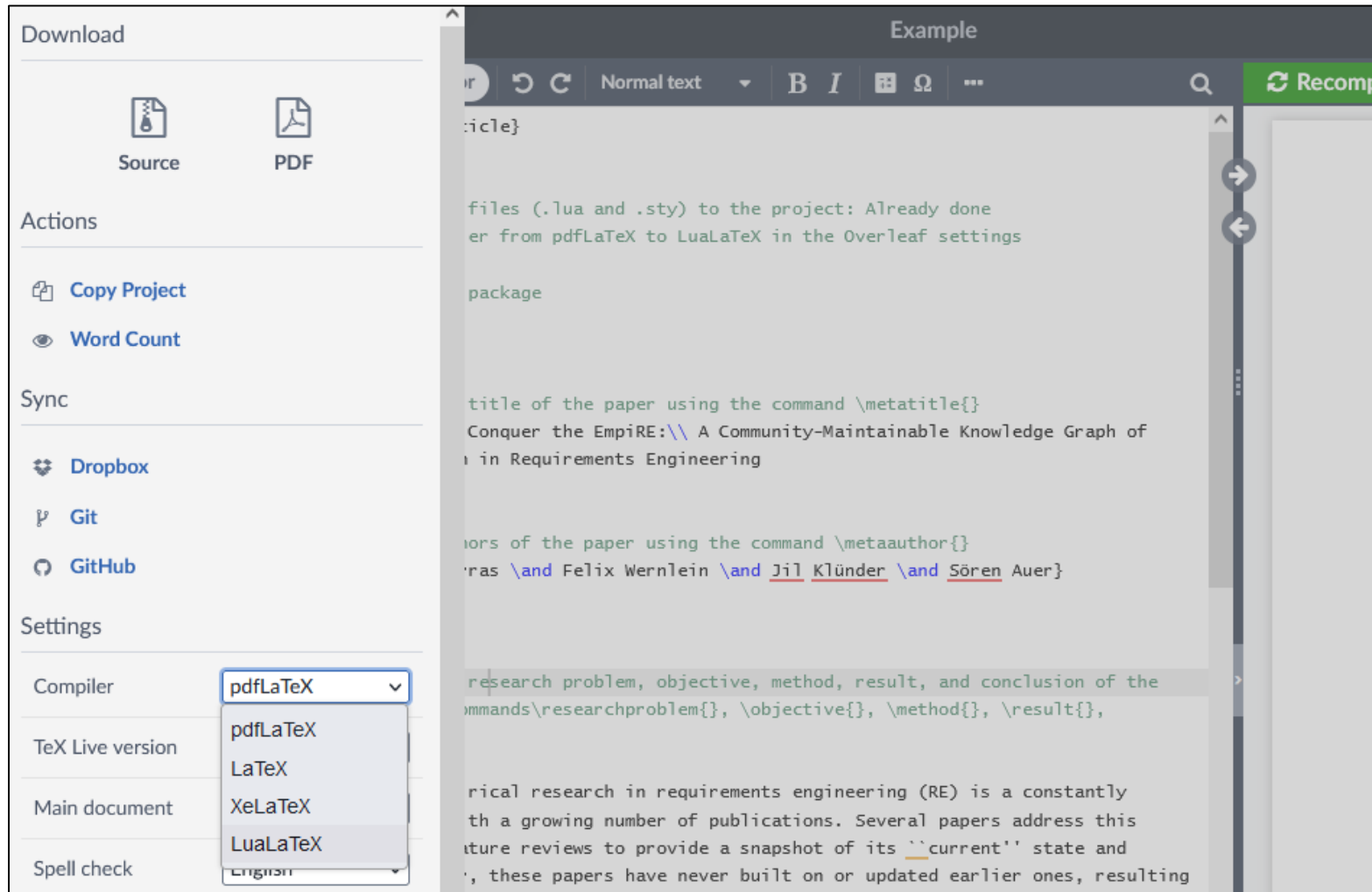
The screenshot displays the Overleaf online LaTeX editor interface. The top navigation bar includes options like Menu, Upgrade, Review, Share, Submit, History, Layout, and Chat. The left sidebar shows a file explorer with the following files: `example.tex`, `scikgtex.lua`, and `scikgtex.sty`. The main editor area is split into two panes. The left pane shows the LaTeX source code for `example.tex`, which includes comments for adding SciKGT_EX files and packages, and defines document metadata like title, authors, and abstract. The right pane shows a preview of the rendered document, which is a title page for "Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering" by Oliver Karras, Felix Wernlein, Jil Klünder, and Sören Auer, dated April 18, 2024. The preview also shows an abstract section.

```
1 \documentclass{article}
2 \usepackage{ur1}
3
4 % 0. Add scikgtex files (.lua and .sty) to the project: Already done
5 % 1. Change compiler from pdfLaTeX to LuaLaTeX in the Overleaf settings
6
7 % 2. Add SciKGTEX package
8
9 \begin{document}
10
11 % 3. Annotate the title of the paper using the command \metatitle{}
12 \title{Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph
13 of Empirical Research in Requirements Engineering}
14
15 % 4. Annotate authors of the paper using the command \metaauthor{}
16 \author{Oliver Karras \and Felix Wernlein \and Jil Klünder \and Sören Auer}
17
18 \maketitle
19
20 % 5. Annotate the research problem, objective, method, result, and conclusion of
21 the paper using the commands \researchproblem{}, \objective{}, \method{},
22 \result{}, \conclusion{}
23
24 \begin{abstract}
25 [Background.] Empirical research in requirements engineering (RE) is a constantly
26 evolving topic, with a growing number of publications. Several papers address this
27 topic using literature reviews to provide a snapshot of its "current" state and
28 evolution. However, these papers have never built on or updated earlier ones,
29 resulting in overlap and redundancy. The underlying problem is the unavailability
30 of data from earlier works. Researchers need technical infrastructures to conduct
31 sustainable literature reviews. [Aims.] We examine the use of the Open Research
32 Knowledge Graph (ORKG) as such an infrastructure to build and publish an initial
33 Knowledge Graph of Empirical research in RE (KG-EmpIRE) whose data is openly
34 available. Our long-term goal is to continuously maintain KG-EmpIRE with the
35 research community to synthesize a comprehensive, up-to-date, and long-term
36 available overview of the state and evolution of empirical research in RE.
37 [Method.] We conduct a literature review using the ORKG to build and publish KG-
38 EmpIRE which we evaluate against competency questions derived from a published
39 vision of empirical research in software (requirements) engineering for 2020 --
40 2025. [Results.] From 570 papers of the IEEE International Requirements
41 Engineering Conference (2000 -- 2022), we extract and analyze data on the reported
42 empirical research and answer 16 out of 77 competency questions. These answers
43 show a positive development towards the vision, but also the need for future
```

The following two files must be present:

- `scikgtex.lua`
- `scikgtex.sty`

1. Change Compiler from pdfLaTeX to LuaLaTeX



It is necessary to compile your LaTeX source with **LuaLaTeX** for the SciKGT_{EX} package to work.

2. Add the SciKGT_EX Package to the LaTeX File

```
1 \documentclass{article}
2 \usepackage{url}
3
4 % 0. Add scikgtex files (.lua and .sty) to the project: Already done
5 % 1. Change compiler from pdfLaTeX to LuaLaTeX in the Overleaf settings
6
7 % 2. Add SciKGTEX package
8
9
10 \begin{document}
11
```

Add the command to the preamble of the LaTeX file:

`\usepackage{scikgtex}`

2. Add the SciKGT_EX Package to the LaTeX File: Result

```
1 \documentclass{article}
2 \usepackage{url}
3
4 % 0. Add scikgtex files (.lua and .sty) to the project: Already done
5 % 1. Change compiler from pdfLaTeX to LuaLaTeX in the Overleaf settings
6
7 % 2. Add SciKGTEX package
8 \usepackage{scikgtex}
9
10 \begin{document}
11
```

Add the command to the preamble of the LaTeX file:

`\usepackage{scikgtex}`

3. & 4. Annotate Metadata of the Paper

```
10 ▾ \begin{document}
11
12 % 3. Annotate the title of the paper using the command \metatitle{}
13 ▾ \title{Divide and Conquer the Empire:\\ A Community-Maintainable Knowledge Graph of
    Empirical Research in Requirements Engineering
14 }
15
16 % 4. Annotate authors of the paper using the command \metaauthor{}
17 \author{Oliver Karras \and Felix Wernlein \and Jil Klünder \and Sören Auer}
18
19 \maketitle
20
```

1. Annotate the title

`\metatitle{}`

2. Annotate the authors

`\metaauthor{}`

Remark:

The command `\metaauthor{}` must be used individually **for each author**. With four authors, you need the command four times.

3. & 4. Annotate Metadata of the Paper: Result

```
10 ▾ \begin{document}
11
12 % 3. Annotate the title of the paper using the command \metatitle{}
13 ▾ \title{\metatitle{Divide and Conquer the EmpiRE:\\ A Community-Maintainable Knowledge
    Graph of Empirical Research in Requirements Engineering}
14 }
15
16 % 4. Annotate authors of the paper using the command \metaauthor{}
17 \author{\metaauthor{Oliver Karras} \and \metaauthor{Felix Wernlein} \and
    \metaauthor{Jil Klünder} \and \metaauthor{Sören Auer}}
18
19 \maketitle
20
```

1. Annotate the title

`\metatitle{}`

2. Annotate the authors

`\metaauthor{}`

Remark:

The command `\metaauthor{}` must be used individually **for each author**. With four authors, you need the command four times.

5. Annotate Content of the Paper

```
21 % 5. Annotate the research problem, objective, method, result, and conclusion of the
    paper using the commands\researchproblem{}, \objective{}, \method{}, \result{},
    \conclusion{}
22 \begin{abstract}
23 [Background.] Empirical research in requirements engineering (RE) is a constantly
    evolving topic, with a growing number of publications. Several papers address this
    topic using literature reviews to provide a snapshot of its ``current'' state and
    evolution. However, these papers have never built on or updated earlier ones, resulting
    in overlap and redundancy. The underlying problem is the unavailability of data from
    earlier works. Researchers need technical infrastructures to conduct sustainable
    literature reviews. [Aims.] We examine the use of the Open Research Knowledge Graph
    (ORKG) as such an infrastructure to build and publish an initial Knowledge Graph of
    Empirical research in RE (KG-EmpIRE) whose data is openly available. Our long-term goal
    is to continuously maintain KG-EmpIRE with the research community to synthesize a
    comprehensive, up-to-date, and long-term available overview of the state and evolution
    of empirical research in RE. [Method.] We conduct a literature review using the ORKG
    to build and publish KG-EmpIRE which we evaluate against competency questions derived from
    a published vision of empirical research in software (requirements) engineering for
    2020 -- 2025. [Results.] From 570 papers of the IEEE International Requirements
    Engineering Conference (2000 -- 2022), we extract and analyze data on the reported
    empirical research and answer 16 out of 77 competency questions. These answers show a
    positive development towards the vision, but also the need for future improvements.
    [Conclusions.] The ORKG is a ready-to-use and advanced infrastructure to organize data
    from literature reviews as knowledge graphs. The resulting knowledge graphs make the
    data openly available and maintainable by research communities, enabling sustainable
    literature reviews.
24 \end{abstract}
```

1. Annotate the research problem
`\researchproblem{}`
2. Annotate the objective
`\objective{}`
3. Annotate the method
`\method{}`
4. Annotate the result
`\result{}`
5. Annotate the conclusion
`\conclusion{}`

5. Annotate Content of the Paper

21 % 5. Annotate the research problem, objective, method, result, and conclusion of the

Remark:

- All commands can be used **multiple** times.
- The annotated text elements should be as **short** as **possible** and as **long** as **necessary**.
- Definitions:
 - **Research problem:** Issue or gap in existing knowledge addressed by the paper.
 - **Objective:** Goal that the paper aims to achieve.
 - **Method:** Systematic approach, technique, or action plan used in the paper to achieve a goal and result.
 - **Result:** Outcome from a systematic approach, technique, or action plan used in the paper.
 - **Conclusion:** Findings from the analysis of the research results in the paper.

24 \end{abstract}

1. Annotate the research problem
`\researchproblem{}`
2. Annotate the objective
`\objective{}`
3. Annotate the method
`\method{}`
4. Annotate the result
`\result{}`
5. Annotate the conclusion
`\conclusion{}`

5. Annotate Content of the Paper: Result

```
21 % 5. Annotate the research problem, objective, method, result, and conclusion of the
    paper using the commands\researchproblem{}, \objective{}, \method{}, \result{},
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22 \begin{abstract}
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    Engineering Conference (2000 -- 2022), we extract and analyze data on the reported
    empirical research} and \result{answer 16 out of 77 competency questions}. These
    answers show a positive development towards the vision, but also the need for future
    improvements. [Conclusions.] \conclusion{The ORKG is a ready-to-use and advanced
    infrastructure to organize data from literature reviews as knowledge graphs}. The
    resulting knowledge graphs make the data openly available and maintainable by research
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1. Annotate the research problem
`\researchproblem{}`
2. Annotate the objective
`\objective{}`
3. Annotate the method
`\method{}`
4. Annotate the result
`\result{}`
5. Annotate the conclusion
`\conclusion{}`

6. Annotate Content of the Paper with Invisible Markup

```
21 % 5. Annotate the research problem, objective, method, result, and conclusion of the
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    resulting knowledge graphs make the data openly available and maintainable by research
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24 \end{abstract}
```

What can I do, if the text is not suitable for annotation?

Example:

“... \method{evaluate against competency questions} ...”

Solution:

\method*{evaluation against competency questions}

Remark:

This text is added to the PDF metadata, but **not rendered** in the text of the PDF.

6. Annotate Content of the Paper with Invisible Markup: Result

```
21 % 5. Annotate the research problem, objective, method, result, and conclusion of the
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    enabling sustainable literature reviews.
24 \end{abstract}
25
26 % 6. If written text is not suitable for annotation, we can also annotate invisible
    text using the *-notation
27 \researchproblem*{unavailability of the extracted and analyzed data from literature
    reviews}
28 \method*{evaluation against competency questions}
```

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Example:

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Solution:

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Remark:

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Comparison of Annotated Paper Versions

```

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26 % 6. If written text is not suitable for annotation, we can also annotate invisible
    text using the *-notation
27 \researchproblem*{unavailability of the extracted and analyzed data from literature
    reviews}
28 \method*{evaluation against competency questions}

```

7. (Optional) Annotate Research Field

Remark:

1. A paper in the ORKG is assigned to a research field based on the DFG classification. All research fields: <https://orkg.org/fields>.
2. URI of the ORKG semantic web resource for Software Engineering: <https://orkg.org/resource/R140>.
3. Use the command `\uri{"URI"}{"Label"}` inside an annotation to refer to resources in the semantic web. The first argument is the **URI** to the semantic resource and the second is an optional **Label**.
4. The term "Software Engineering" does not appear in the abstract, so we need an **invisible** annotation and we also use the `\uri{}` command to create a reference to the semantic resource.

1. Annotate the research field

`\researchfield{}`

2. Refer to the ORKG semantic web resource [Software Engineering](https://orkg.org/resource/R140)

`\uri{"URI"}{"Label"}`

7. (Optional) Annotate Research Field: Result

```
29 % 7. Optional: Annotate research field of the paper
30 \researchfield*{\uri{https://orkg.org/resource/R140}{Software Engineering}}
```

Remark:

1. A paper in the ORKG is assigned to a research field based on the DFG classification. All research fields: <https://orkg.org/fields>.
2. URI of the ORKG semantic web resource for Software Engineering: <https://orkg.org/resource/R140>.
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4. The term "Software Engineering" does not appear in the abstract, so we need an **invisible** annotation and we also use the `\uri{}` command to create a reference to the semantic resource.

1. Annotate the research field

`\researchfield{}`

2. Refer to the ORKG semantic web resource [Software Engineering](https://orkg.org/resource/R140)

`\uri{"URI"}{"Label"}`

8. Use Custom Annotations of REFSQ'24 and REFSQ'25

```
33 % 8. Optional: Using REFSQ'24 and REFSQ'25 annotations
34 \contribution*{code repository}{\url{https://github.com/okarras/EmpIRE-Analysis}}
35 \contribution*{dataset}{\url{https://orkg.org/api/rdf/dump}}
36
37 \end{document}
```

Remark:

1. Use the command `\contribution{"Property name"}{"Label"}` to add a custom annotation for your domain. The first argument is the **Property name** of the property from the ORKG you want to use, and the second is an optional **Label**. SciKGT_{EX} checks if a property with the provided exact **Property name** exists and replaces it with the internal property ID in the ORKG namespace.
2. All ORKG properties can be found here: <https://orkg.org/properties>.

1. Annotate the code repository

`\contribution{code repository}{}`

2. Annotate the dataset

`\contribution{dataset}{}`

9. Generate FAIR-Annotated PDF of the Paper

The screenshot displays the Overleaf online LaTeX editor interface. The left sidebar shows the file explorer with files: `example.tex`, `scikgtex.lua`, and `scikgtex.sty`. The main editor area shows the LaTeX source code for `example.tex`, with line numbers 1 to 23. The code includes package declarations, title and author annotations, and a research problem statement. The right sidebar shows the compiled PDF output. The PDF title is "Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering". The authors are Oliver Karras, Felix Wernlein, Jil Klünder, and Sören Auer. The date is April 19, 2024. The abstract is visible in the PDF output.

```
1 \documentclass{article}
2 \usepackage{url}
3
4 % 0. Add scikgtex files (.lua and .sty) to the project: Already done
5 % 1. Change compiler from pdfLaTeX to LuaLaTeX in the Overleaf settings
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7 % 2. Add ScikGTEx package
8 \usepackage{scikgtex}
9
10 \begin{document}
11
12 % 3. Annotate the title of the paper using the command \metatitle{}
13 \title{\metatitle{Divide and Conquer the EmpiRE: A Community-Maintainable
14 Knowledge Graph of Empirical Research in Requirements Engineering}
15 }
16
17 % 4. Annotate authors of the paper using the command \metaauthor{}
18 \author{\metaauthor{Oliver Karras} \and \metaauthor{Felix Wernlein} \and
19 \metaauthor{Jil Klünder} \and \metaauthor{Sören Auer}}
20
21 \maketitle
22
23 % 5. Annotate the research problem, objective, method, result, and conclusion of
24 the paper using the commands \researchproblem{}, \objective{}, \method{},
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26 \begin{abstract}
27 [Background.] Empirical research in requirements engineering (RE) is a constantly
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31 resulting in overlap and redundancy. The underlying problem is the unavailability
32 of data from earlier works. Researchers need technical infrastructures to conduct
33 sustainable literature reviews. [Aims.] We examine the \objective{use of the Open
34 Research Knowledge Graph (ORKG) as such an infrastructure to build and publish an
35 initial Knowledge Graph of Empirical research in RE (KG-EmpIRE) whose data is
36 openly available}. Our long-term goal is to continuously maintain KG-EmpIRE with
37 the research community to synthesize a comprehensive, up-to-date, and long-term
38 available overview of the state and evolution of empirical research in RE.
39 [Method.] We conduct a \method{literature review using the ORKG} to build and
40 publish KG-EmpIRE which we evaluate against competency questions derived from a
41 published vision of empirical research in software (requirements) engineering for
42 2020 -- 2025. [Results.] \result{From 570 papers of the IEEE International
43 Requirements Engineering Conference (2000 -- 2022), we extract and analyze data on
```

Simply...
recompile

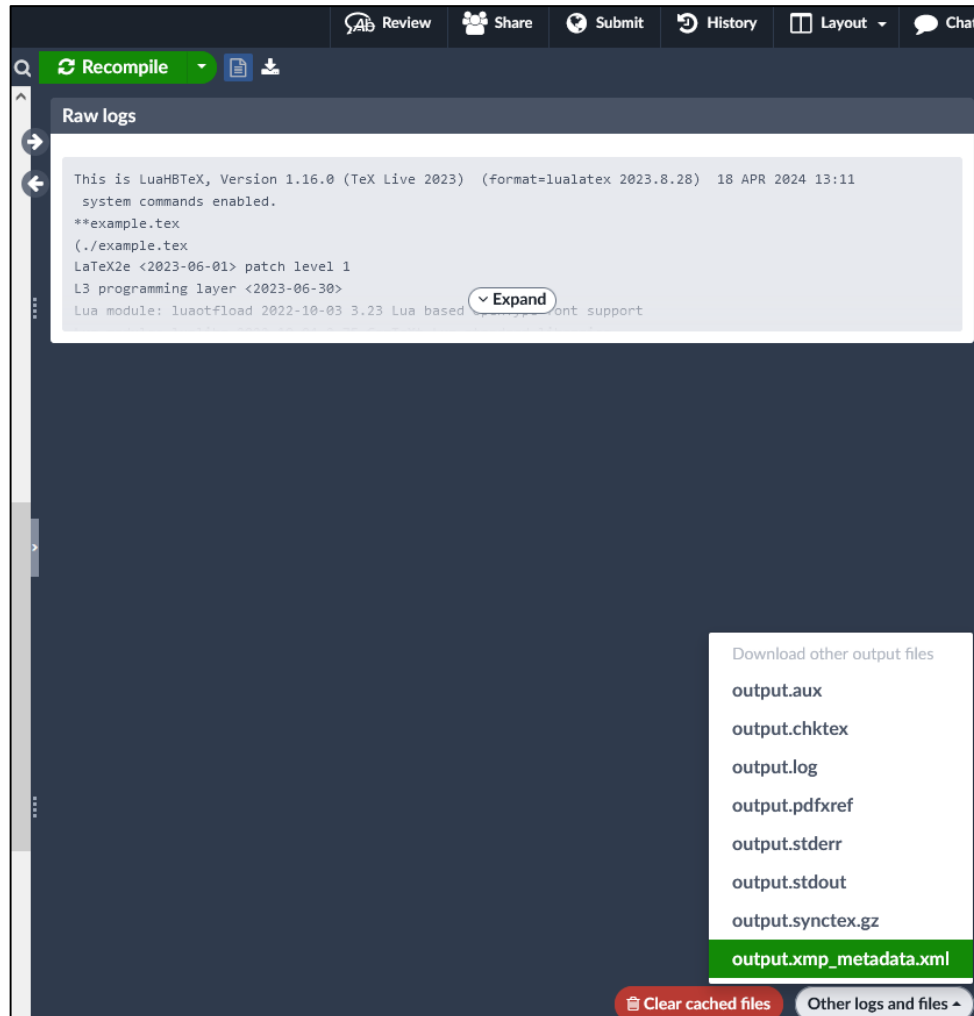
Remark:
Each recompile
adds the
annotations to the
metadata of the
generated PDF.

9. Generate FAIR-Annotated PDF of the Paper

The screenshot shows the SciKGTex web interface. On the left, a file explorer shows 'example.tex', 'scikgtex.lua', and 'scikgtex.sty'. Below it, a 'File outline' section states: 'We can't find any sections or subsections in this file. Find out more about the file outline'. The main area is a code editor showing LaTeX code for a document class, package loading, and annotations for a paper titled 'Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering'. The code includes annotations for authors (Oliver Karras, Felix Wernlein, Jiri Klunder, Soren Auer) and a detailed abstract. On the right, a 'Warnings' panel displays five orange messages from Package SciKGTex, each asking if the user wants to mark an entity with a specific command (researchproblem, objective, method, result, conclusion). Below the warnings is a 'Raw logs' section showing the LuaHBTeX version and system commands. At the bottom right, there are buttons for 'Clear cached files' and 'Other logs and files'.

For the 5 predefined commands for content, SciKGTex also provides **warnings** if an annotation is missing.

10. Check the FAIR information embedded in the PDF



1. Open “Logs and outputs files”
2. Select “Other logs and files”
3. Download “output.xmp_metadata.xml”
4. Open “output.xmp_metadata.xml”

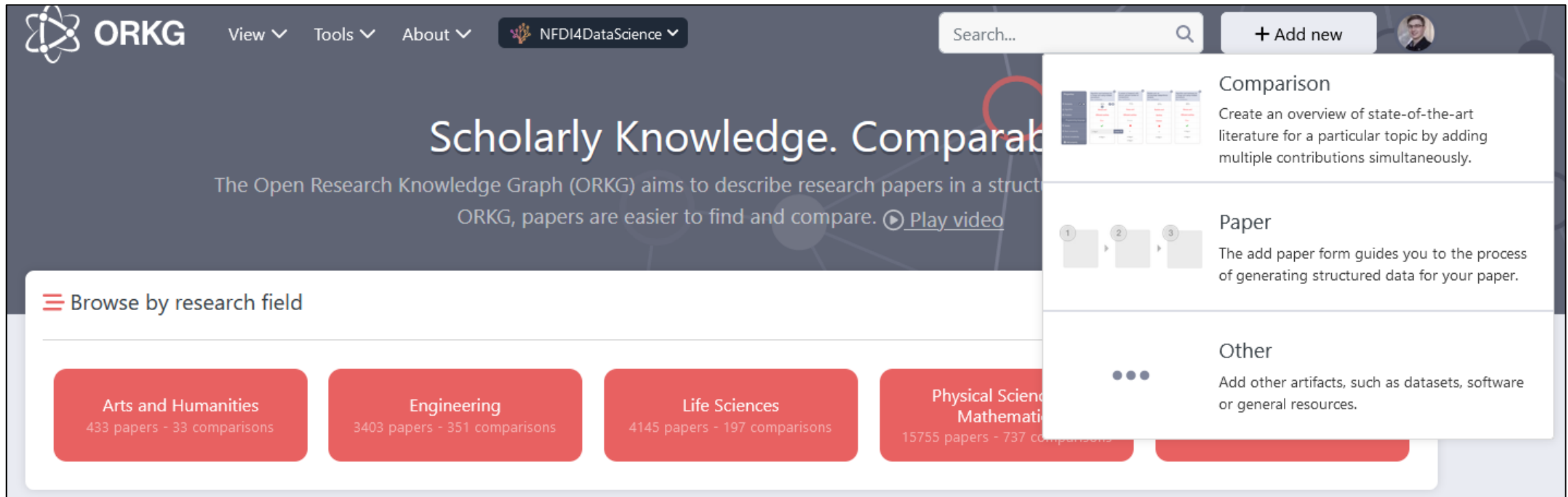
Remark:

We only use an abstract for the annotations as a simplified example. Annotations can be used **anywhere** (in one or more LaTeX files).

10. Check the FAIR information embedded in the PDF

```
<?xpacket begin="?" id="a7c48312-233b-400b-c0f3-0c296941c6"?>
▼<x:xmpmeta xmlns:x="adobe:ns:meta/">
▼<rdf:RDF xmlns:orkg="http://orkg.org/core#" xmlns:orkg_property="http://orkg.org/property/" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#">
▼<rdf:Description rdf:about="https://www.orkg.org/orkg/paper/a7c48312-233b-400b-c0f3-0c296941c6">
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  <orkg:hasTitle>Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering</orkg:hasTitle>
  <orkg:hasAuthor>Oliver Karras</orkg:hasAuthor>
  <orkg:hasAuthor>Felix Wernlein</orkg:hasAuthor>
  <orkg:hasAuthor>Jil Klünder</orkg:hasAuthor>
  <orkg:hasAuthor>Sören Auer</orkg:hasAuthor>
▼<orkg_property:P30>
▼<rdf:Description rdf:about="https://orkg.org/resource/R140">
  <rdfs:label>Software Engineering</rdfs:label>
  </rdf:Description>
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▼<orkg:hasResearchContribution>
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  <orkg_property:P15051>use of the Open Research Knowledge Graph (ORKG) as such an infrastructure to build and publish an initial Knowledge Graph of Empirical research in RE (KG-EmpIRE) whose data is openly available</orkg_property:P15051>
  <orkg_property:P1005>literature review using the ORKG</orkg_property:P1005>
  <orkg_property:P1006>From 570 papers of the IEEE International Requirements Engineering Conference (2000 -- 2022), we extract and analyze data on the reported empirical research</orkg_property:P1006>
  <orkg_property:P1006>answer 16 out of 77 competency questions</orkg_property:P1006>
  <orkg_property:P15419>The ORKG is a ready-to-use and advanced infrastructure to organize data from literature reviews as knowledge graphs</orkg_property:P15419>
  <orkg_property:P32>unavailability of the extracted and analyzed data from literature reviews</orkg_property:P32>
  <orkg_property:P1005>evaluation against competency questions</orkg_property:P1005>
  <orkg_property:P49000>https://github.com/okarras/EmpiRE-Analysis</orkg_property:P49000>
  <orkg_property:P2005>https://orkg.org/api/rdf/dump</orkg_property:P2005>
  </orkg:ResearchContribution>
</orkg:hasResearchContribution>
</rdf:Description>
</rdf:RDF>
</x:xmpmeta>
<?xpacket end="r"?>
```


11. Import the FAIR information into the ORKG

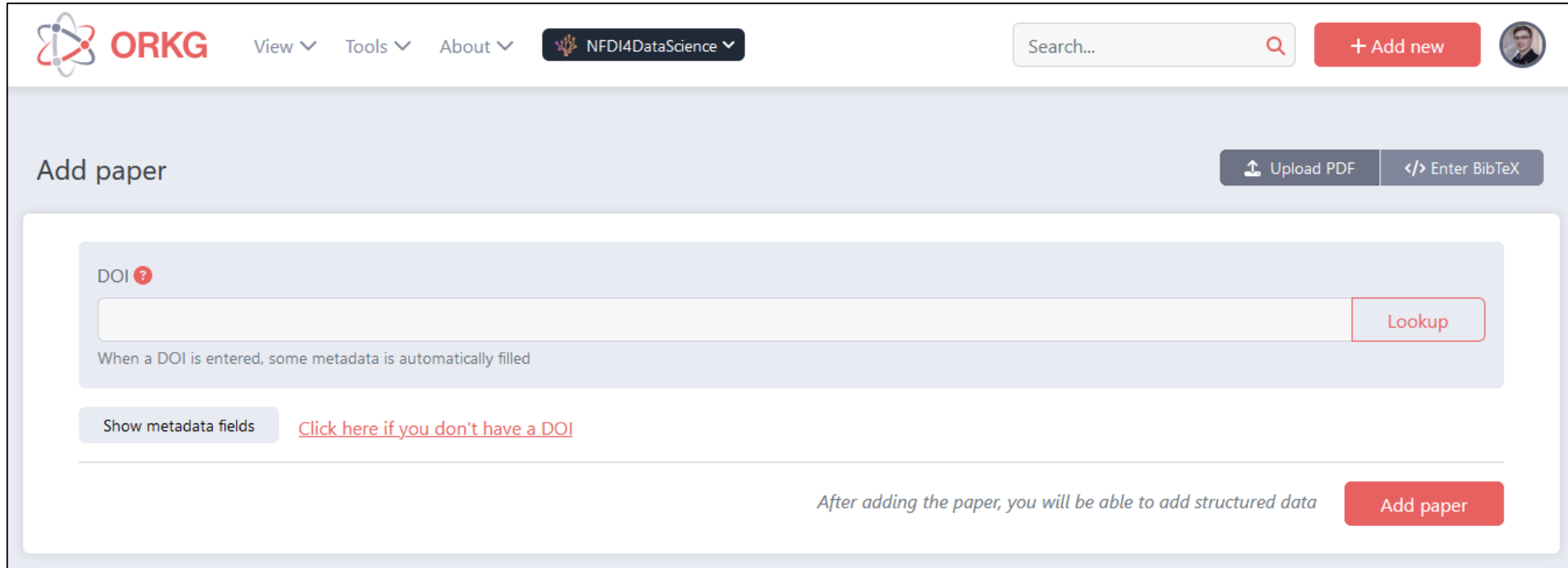


1. Log in with your credentials
2. Click “+ Add new”
3. Select “Paper”

Remark:

ORKG does **not save** the uploaded PDF. It **only extracts** the FAIR annotations embedded in the PDF metadata.

11. Import the FAIR information into the ORKG



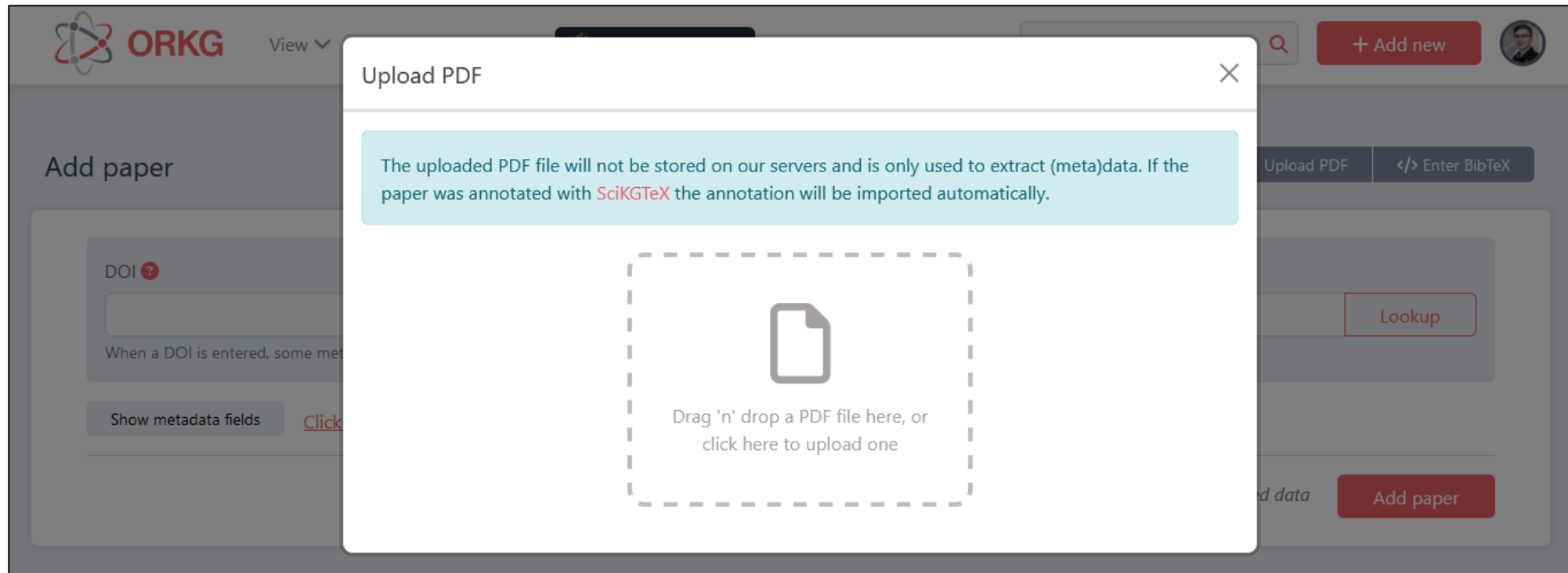
The screenshot shows the ORKG (Open Research Knowledge Graph) interface for adding a new paper. The header includes the ORKG logo, navigation links (View, Tools, About), a dropdown menu for 'NFDI4DataScience', a search bar, and a '+ Add new' button. The main section is titled 'Add paper' and contains two buttons: 'Upload PDF' and 'Enter BibTeX'. Below these is a form for entering a DOI, with a 'Lookup' button. A note states: 'When a DOI is entered, some metadata is automatically filled'. There is also a link to 'Click here if you don't have a DOI'. At the bottom, a message says 'After adding the paper, you will be able to add structured data' next to an 'Add paper' button.

1. Select “Upload PDF”

Remark:

ORKG does **not save** the uploaded PDF. It **only extracts** the FAIR annotations embedded in the PDF metadata.

11. Import the FAIR information into the ORKG



1. Select or drag your PDF file

Remark:

ORKG does **not save** the uploaded PDF. It **only extracts** the FAIR annotations embedded in the PDF metadata.

11. Import the FAIR information into the ORKG

ORKG View Tools About NFDI4DataScience Search... + Add new

Add paper Upload PDF Enter BibTeX

DOI ? Look up

When a DOI is entered, some metadata is automatically filled

Hide metadata fields

Paper title (required) ? Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering

Research field (required) ? Software Engineering Choose

Paper authors ?

- Oliver Karras
- Felix Wernlein
- Jil Klünder
- Sören Auer

+ Add author

Publication month ? Month Year

Publication year ?

Published in ?

Paper URL ?

After adding the paper, you will be able to add structured data Add paper

1. ORKG shows imported metadata
2. Optional: Edit the metadata
3. Select “Add paper” at the bottom

Remark:

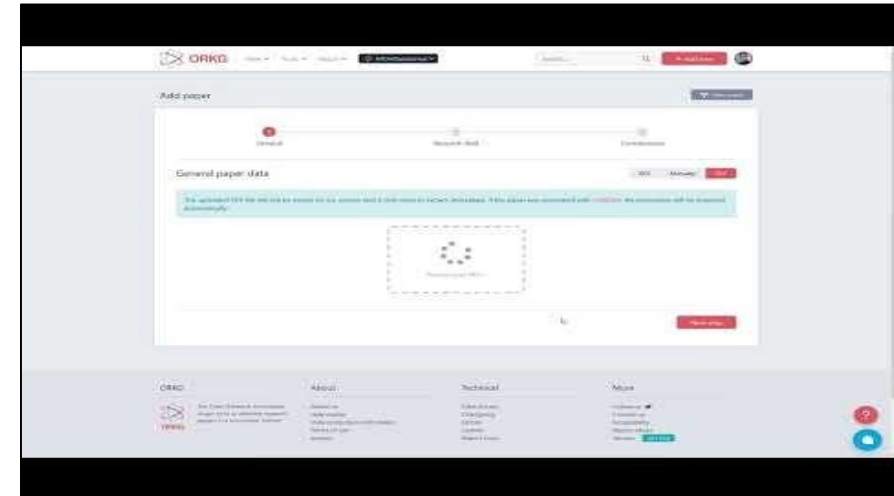
ORKG does **not save** the uploaded PDF. It **only extracts** the FAIR annotations embedded in the PDF metadata.

11. Import the FAIR information into the ORKG: Result

The screenshot shows the ORKG (Open Research Knowledge Graph) interface. The top navigation bar includes the ORKG logo, a search bar, and a '+ Add new' button. The breadcrumb trail indicates the path: Physical Sciences & Mathematics >> Computer Sciences >> Software Engineering. The main content area displays a paper titled 'Divide and Conquer the EmpiRE: A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering' by Oliver Karras, Felix Wernlein, Jiri Klunder, and Sören Auer. The paper is categorized under 'Software Engineering'. The 'Contribution 1' section is expanded, showing a table of metadata:

Field	Value
code repository	https://github.com/okarras/EmpiRE-Analysis
Conclusion	The ORKG is a ready-to-use and advanced infrastructure to organize data from literature reviews as knowledge graphs
dataset	https://orkg.org/api/rdf/dump
method	evaluation against competency questions literature review using the ORKG
Objective	use of the Open Research Knowledge Graph (ORKG) as such an infrastructure to build and publish an initial Knowledge Graph of Empirical research in RE (KG-EmpiRE) whose data is openly available
research problem	unavailability of the extracted and analyzed data from literature reviews
result	answer 16 out of 77 competency questions From 570 papers of the IEEE International Requirements Engineering Conference (2000 -- 2022), we extract and analyze data on the reported empirical research

On the right side of the contribution table, there is a 'Provenance' section showing the paper was added on 27 May 2024 by Oliver Karras. There is also an 'Add to comparison' checkbox and an 'Assign to observatory' button.



https://www.youtube.com/watch?v=ZzrQ_YCKVsYa

Remark:

ORKG does **not save** the uploaded PDF. It **only extracts** the FAIR annotations embedded in the PDF metadata.