

RSE PUBLICATION MONITOR

Visualizing how much people write about software

26.10.2023 | JAKOB FRITZ

HOW MUCH SOFTWARE IS USED IN ACADEMIA

Survey in UK across universities (2014) [1]:

- **92%** use research software
- **56%** develop research software
- For **67%** it would not be practical to conduct their work without software

Survey in US across postdocs (2017) [2]:

- **95%** use research software
- **28%** develop research software
- For **63%** it would not be practical to conduct their work without software

[1]: Hettrick, S. et al. (2014). UK Research Software Survey 2014 [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.14809>

[2]: Udit Nangia, & Daniel S. Katz. (2017). Survey of National Postdoctoral Association - Dataset [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.843607>

WRITING ABOUT SOFTWARE

- Used software (sometimes/often?) is mentioned in text publications
- Citing an accompanying text publication (good) or the software itself (better)
- Idea: Count mentions of software in text publications from researchers
 - ➔ Can be done by scanning the full text for certain keywords
 - ➔ Find matches regardless if software is properly cited or only mentioned
 - ➔ From there: analyze these matches in more detail and monitor over time (WIP)

FINDING PUBLICATIONS FROM FZJ

A look at JuSER

- Publication database JuSER provided by ZB
- Own publications from employees need to be entered there
 - ➔ (rather) complete overview of publications from FZJ for the past years


FINDING PUBLICATIONS FROM FZJ

A look at JuSER – How entries are added

Journal Article

Import data ⓘ e.g. DOI, arXiv, PUBMED Import history Use the IMPORT field above to import from bibliographic resources or other records. Your imports will show up here. **Relevant for VDB** ⓘ ☐ yes ☐ no

Supported by FZJ-Employee ⓘ ☐ yes ☐ no

Institute(s) ⓘ
Type Name, Shortcut and select (e.g. IAS-1)...  **Participating institutes**

POF IV Topic ⓘ
Select from list or type ID, Name of POF-Topic...


Grant name ⓘ
e.g. EU project, FS proposal number (e.g. I-20120768)

Experiment ⓘ
e.g. KWS-1

MLZ: Grand Challenges ⓘ
Select from list or start typing...

MLZ: Scientific Areas ⓘ
Select from list or start typing...

Author(s) / Contributor(s) ⓘ
Start typing lastname and select...

Title ⓘ
 **Title**


Title preview:

Journal title ⓘ Type name, issn...; use "" for exact match or fields e.g. title:"nature"

DOI ⓘ Use Import data for automatic pr

Volume ⓘ **Issue** ⓘ **Pages / Article No.** ⓘ

Title of Special Issue ⓘ **ISBN of Special Issue** ⓘ

Publication Year ⓘ yyyy **Language** ⓘ Click to select...  **Year of publication**

Conference Name ⓘ e.g. The 10th International Conference on Supersymr **Acronym** ⓘ e.g. SUSY02 **Conference Place** ⓘ e.g. Hamburg

Conference Country ⓘ e.g. Germany **Begin** ⓘ Select from ca **End** ⓘ Select from cz

Publisher ⓘ e.g. Forschungszentrum **Place of publication** ⓘ e.g. Jülich

Abstract ⓘ

Abstract

FINDING PUBLICATIONS FROM FZJ

A look at JuSER – Overview about entries

- In JuSER Search is versatile
- Not only simple searches
(bad example here)
- But also searches in different fields
and with logic combinations

Publications database

Search: [Search Tips](#)

Search collections:

Sort by: Display results: Output format:

Publications database

7 records found

Publications database

Search: [Search Tips](#)

Search collections:

Sort by: Display results: Output format:

No phrase index available for fulltext yet, looking for word combination...

Publications database

639 records found 1 - 100 ►► jump to record: 1

FINDING PUBLICATIONS FROM FZJ

A look at JuSER – Known limitations

- Full text search returns result out of context
 - No certainty on whether Keywords are used in assumed way
 - E.g. "Code", "RSE"
 - No phrase search in full text; only words
 - No counting possible
 - Unknown, if a publications only briefly mentions it, or if it is central to the publication
 - Based on the indexed full text (done by JuSER); no direct access to the index
 - No check if software is properly cited
- ➔ Because of all those limitations, it is recommended to use the monitor for trends rather than precise numbers

THE RSE PUBLICATION MONITOR

Questions

- How many publications are there in JuSER?
- Overall and per year
- How many of those mention any keyword?
- Are there keywords that often appear together?
 - Can we even find a “direction” in this correlation?
- Do some institutes mention certain keywords more often than others?

Following examples for JSC, but also available for other institutes and institute-sections

THE RSE PUBLICATION MONITOR

RSE Publication Monitor

Welcome

ER-C

>

IAS

>

IBG

>

IBI

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IEK

>

IKP

>

INM

>

INW

>

JCNS

>

PGI

>

ZEA

>

Overview

Own analysis

Disclaimer

Welcome

On the pages linked here, you can find multiple statistics on publications with RSE topics from the Forschungszentrum Jülich (FZJ)

Total number of publications included in this monitor: 127603

Total number of publications since 2012 that are included in this monitor: 60949

Last update of the RSE-Monitor: 26.10.2023

What is the RSE Publication Monitor about?

The RSE Publication Monitor is an online tool to show how much and in which context people at FZJ write about software. For this, the RSE Publication Monitor queries the [JuSER database](#) to find publications that mention certain keywords related to software. Based on this information, it is now possible to browse through correlations of keywords mentioned in these publications. It is also possible to find out how often different keywords are used in publications from different institutes. This tool can be easily extended to cover other keywords of interest and everyone is encouraged to design their own analysis. The code is publicly available and we are always open for collaborations and further ideas.

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What is the RSE Publication Monitor about?

Recommended usage

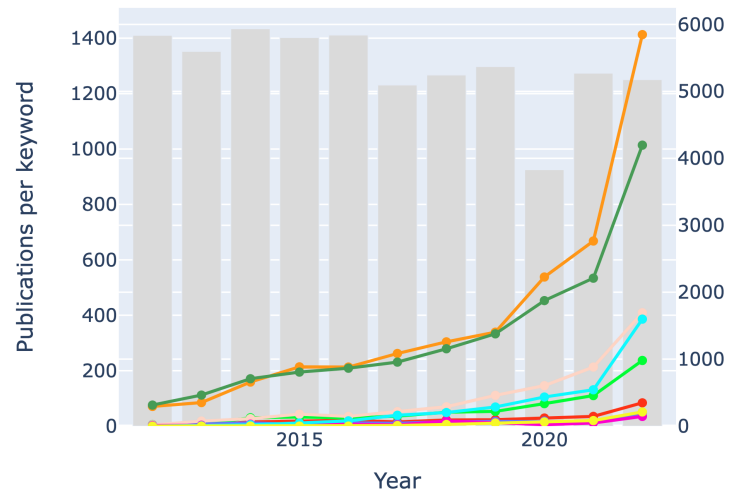
Limitations

Contact

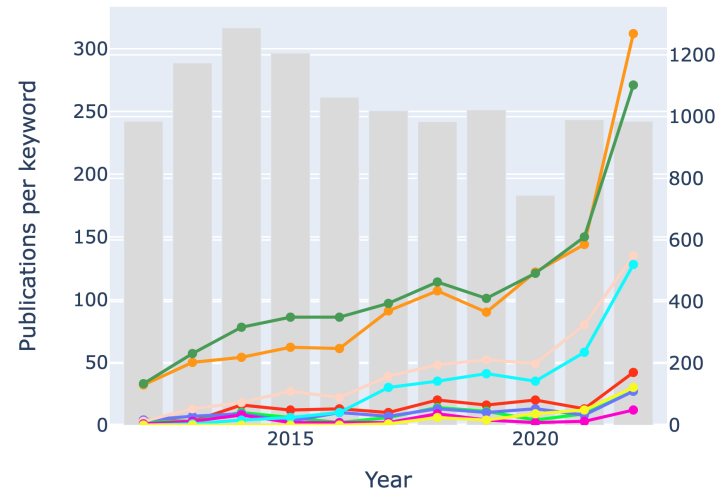
THE RSE PUBLICATION MONITOR

Publications over time

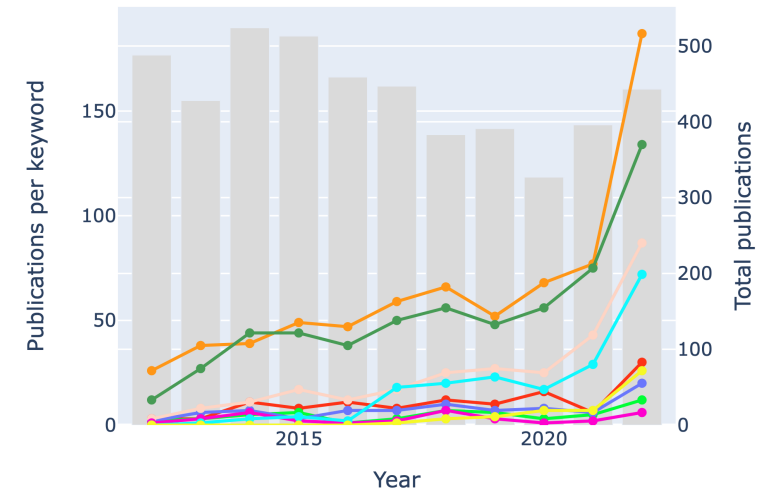
FZJ



IAS



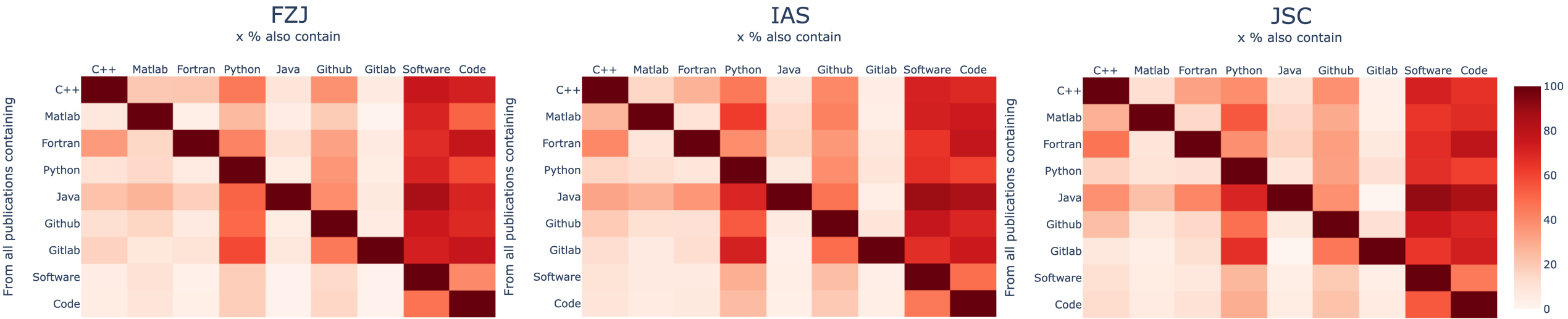
JSC



- C++
- Matlab
- Fortran
- Python
- Java
- Github
- Gitlab
- Software
- Code

THE RSE PUBLICATION MONITOR

Correlation of keywords

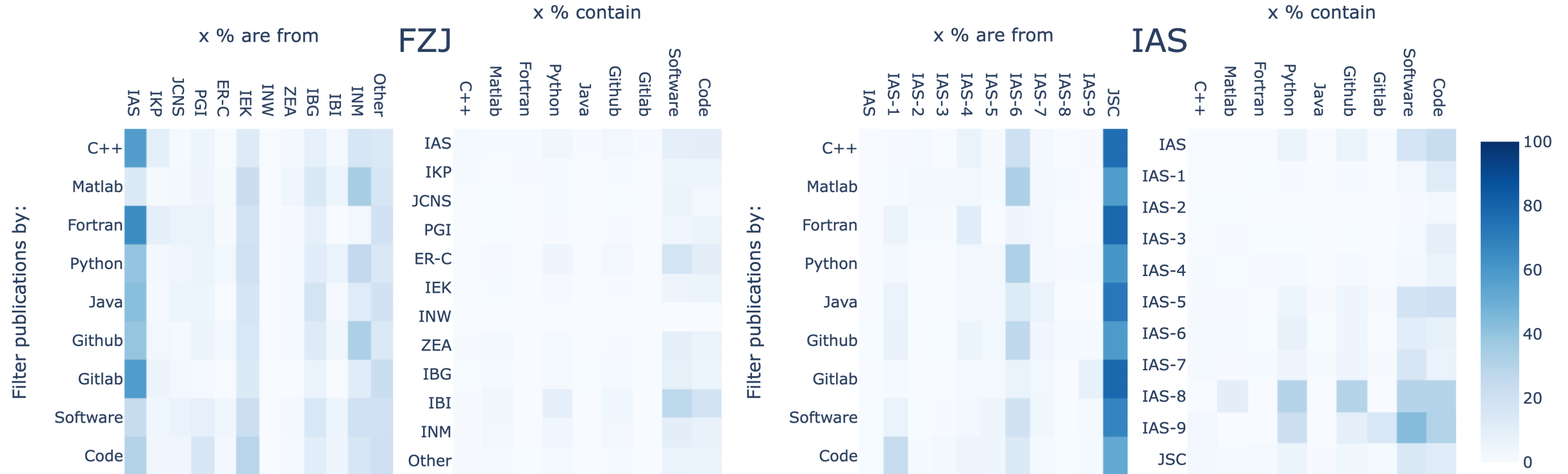


Correlation of institutes and keywords



THE RSE PUBLICATION MONITOR

Correlation of institutes and keywords



SUMMARY

- Using JuSER as basis for data
- Using search for keywords in full text and metadata
- RSE Publication Monitor helps to visualize trends
- It shows correlations between used keywords
- It shows correlations between institutes and used keywords

Journal Article

Import data (e.g. DOI, arXiv, PUBMED) Import history Use the IMPORT field above to import from bibliographic resources or other records. Your imports will show up here. Relevant for VDS ☐ yes ☒ no

Supported by FZJ-Employee ☐ yes ☒ no

Institute(s)

Type Name, Shortcut and select (e.g. IAS-1)

PDF 2V Topic

Select from list or type ID, Name of PDF-Topic

Grant name

e.g. EU project, FS proposal number (e.g. +20120768)

Experiment

e.g. KWS-1

ML2: Grand Challenge

Select from list or start typing...

ML2: Scientific Area

Select from list or start typing...

Author(s) / Contributor(s)

Start typing lastname and select...

Title

Title preview:

Journal title

Type name, ISSN, use "" for exact match or fields e.g. title:"nature"

DOI

Use Import data for automatic pr

Volume

Issue

Pages / Article No.

Title of Special Issue

ISSN of Special Issue

Publication Year

yyyy

Language

Click to select...

Conference Name

e.g. The 10th International Conference on Software

Acronym

e.g. SUSTO3

Conference Country

e.g. Germany

Begin

Select from ci

End

Select from ci

Conference Place

e.g. Hamburg

Publisher

e.g. Forschungszentrum

Place of publication

e.g. Bochum

Abstract

Publications database

Search:

year:"2022->2023" AND ("Python" OR fulltext:"Python") any field

Search Tips

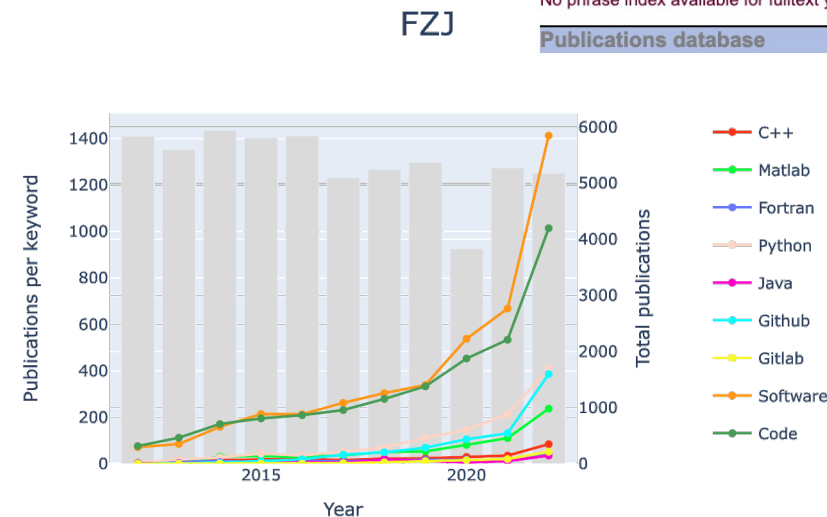
Search collections:

Publications database

Sort by: latest first desc - or rank by - 100 results split by collection Output format: HTML Brief

No phrase index available for fulltext yet, looking for word combination...

Publications database 639 records found 1 - 100 jump to record: 1



ENOUGH OF PRESENTING IT

Explore yourself!

Go to go.fzj.de/rsemonitor



Feel free to send questions & feedback
to me: j.fritz@fz-juelich.de