RSE PUBLICATION MONITOR

Visualizing how much people write about software

26.10.2023 I JAKOB FRITZ

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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

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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)

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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

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FINDING PUBLICATIONS FROM FZJ

A look at JuSER – How entries are added

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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

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

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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

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THE RSE PUBLICATION MONITOR

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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Publications over time
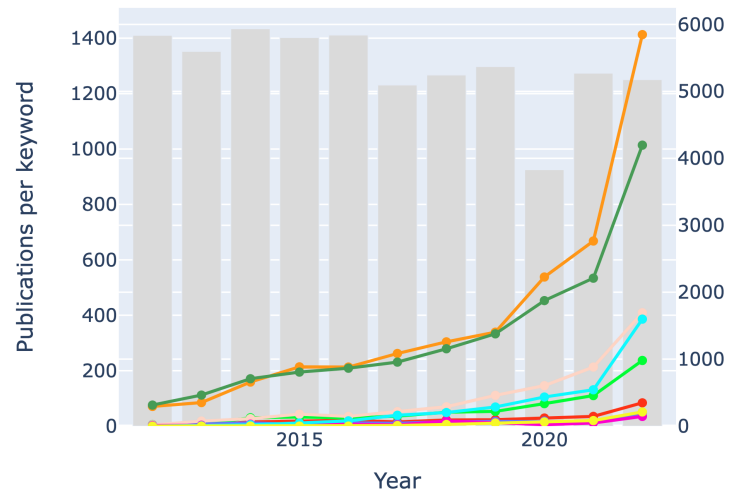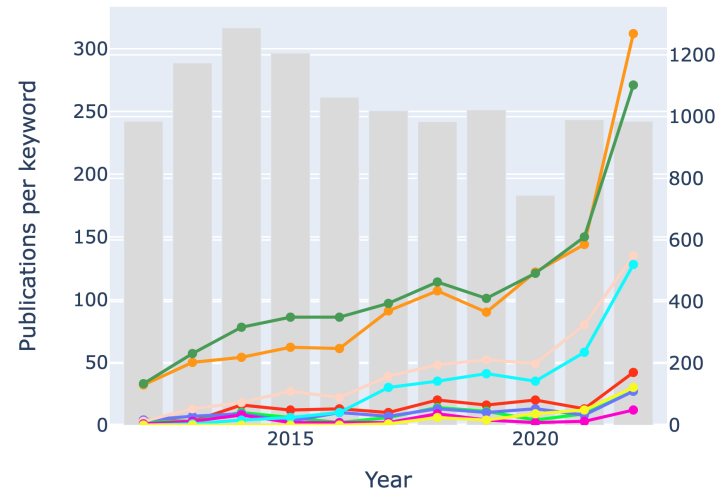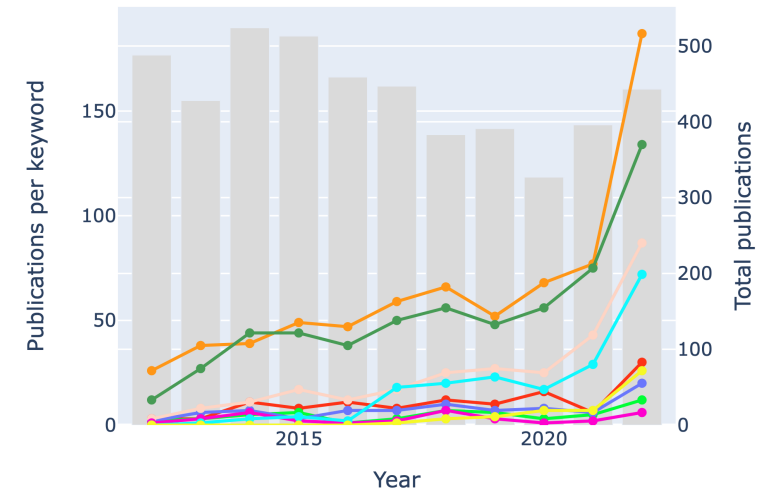
THE RSE PUBLICATION MONITOR

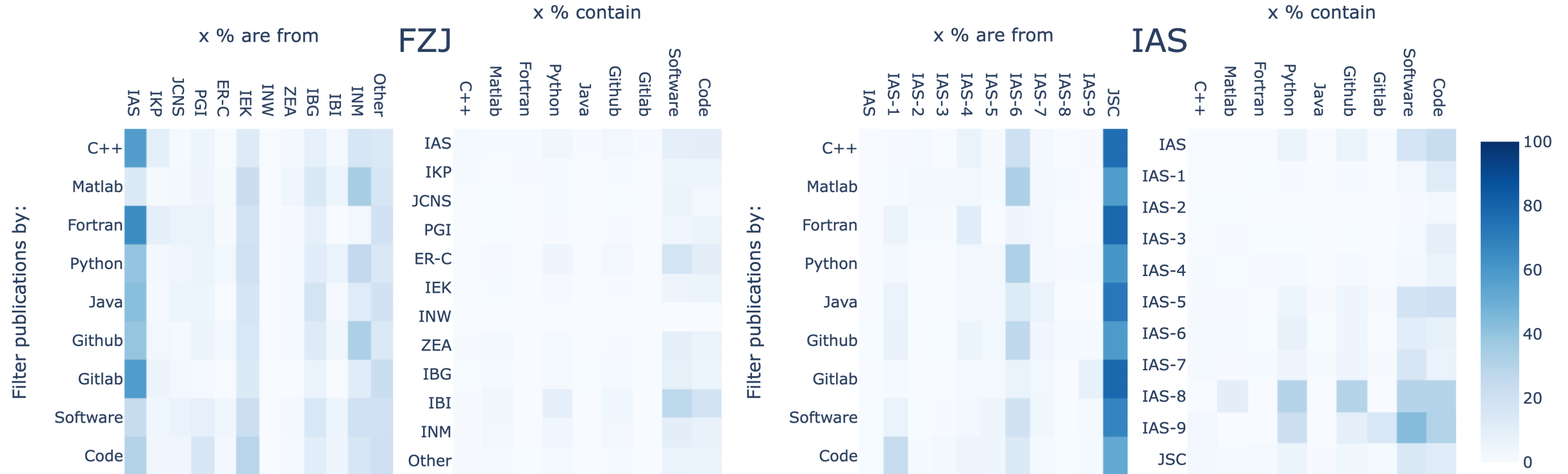**Correlation of keywords**

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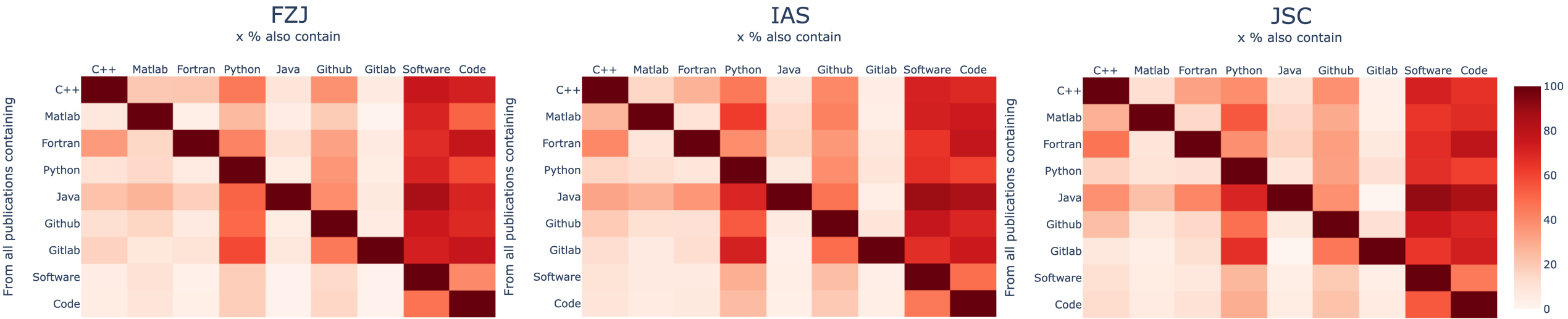
Correlation of institutes and keywords

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

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

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