The State of Reproducibility Stamps for Visualization Research Papers

Tobias Isenberg

Motivation

- "A scientific result is not truly established
  until it is independently confirmed." [Boisvert, 2016]

- we need code & data **GitHub** **GitLab** **OSF**

- code & data not enough
  – is it documented? does it run?   [Bonneel et al., 2020]
  – does it produce the promised results?

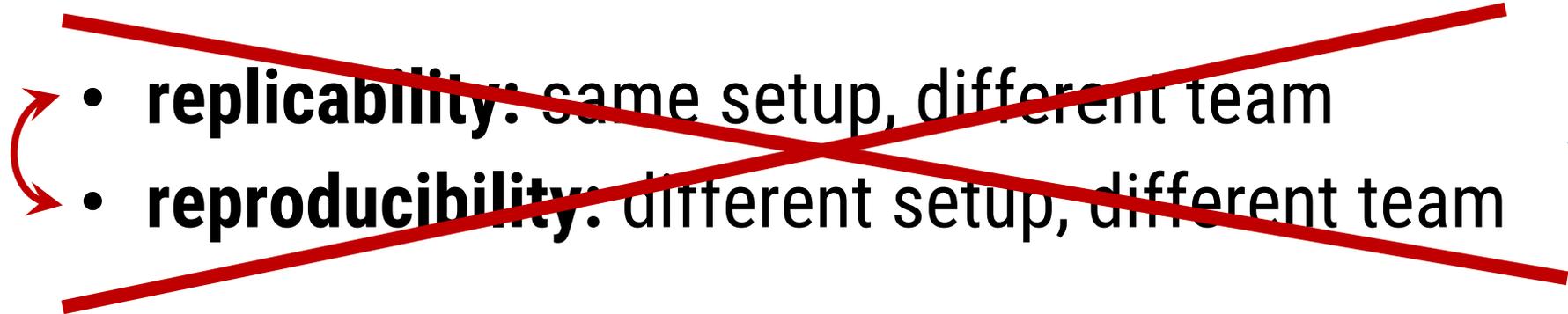- Graphics Replicability Stamp Initiative
  replicabilitystamp.org

Terminology

- **reproducibility:** same setup, different team
- **replicability:** different setup, different team

[Claerbout and Karrenbach, 1992]

- **replicability:** same setup, different team
- **reproducibility:** different setup, different team

(until 2020)

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(2020 onward)

Data Collection

vispubdata.org

GRSI-certified papers by journal*

Tobias Isenberg – The State of Reproducibility Stamps for Visualization Research Papers
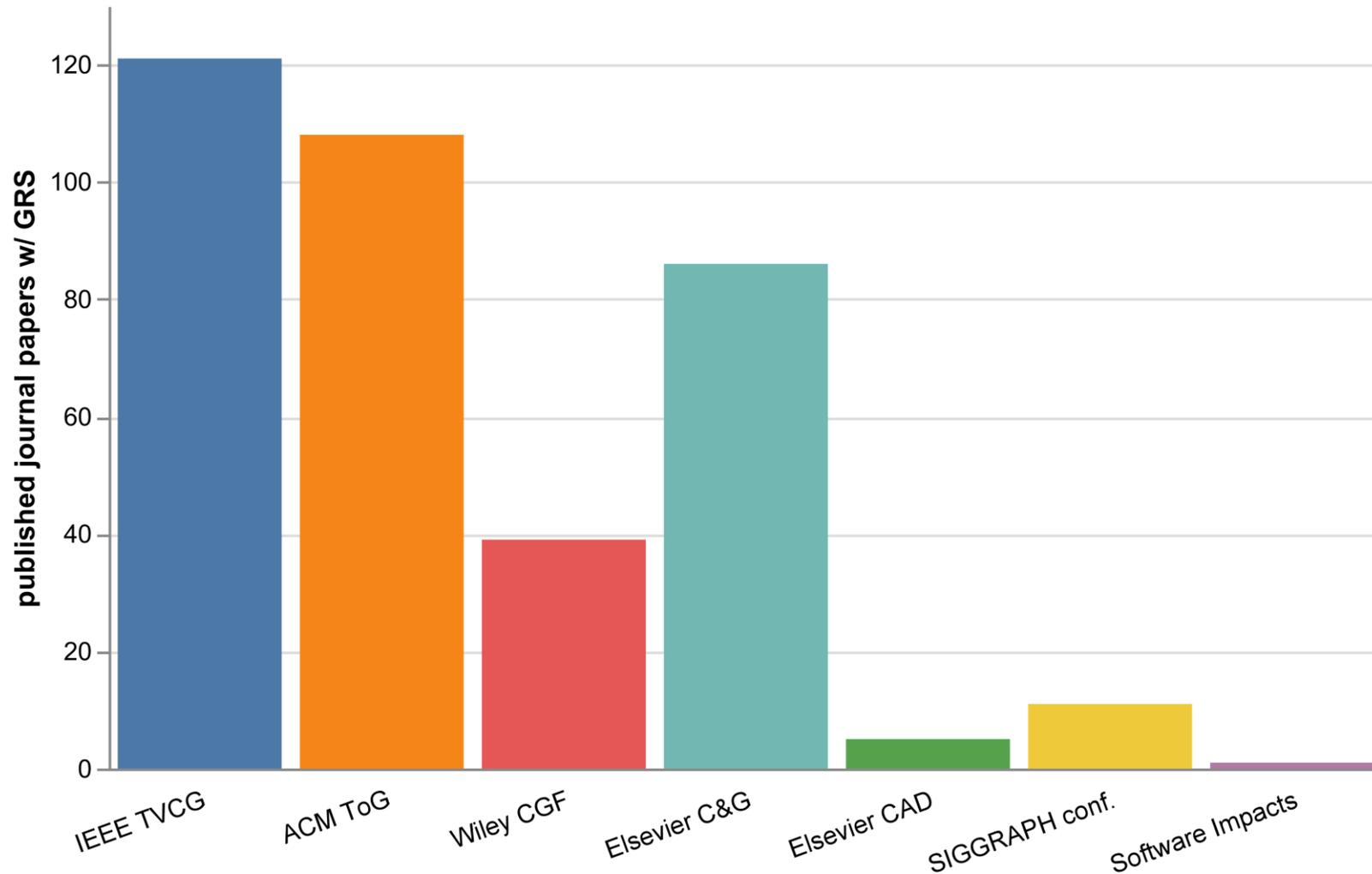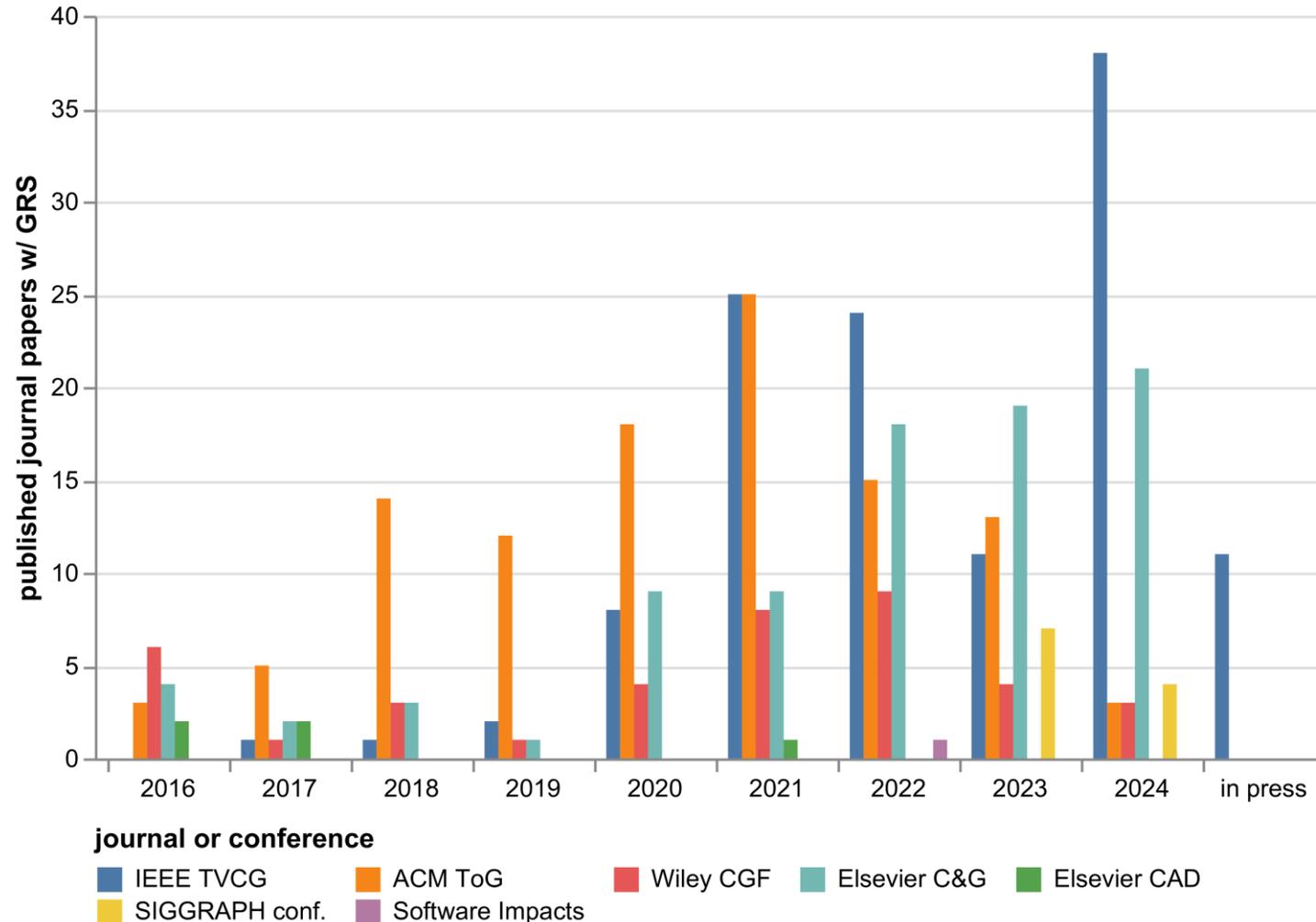
* in 2024 SIGGRAPH conference papers were added as a venue

(data and plots current as of today)

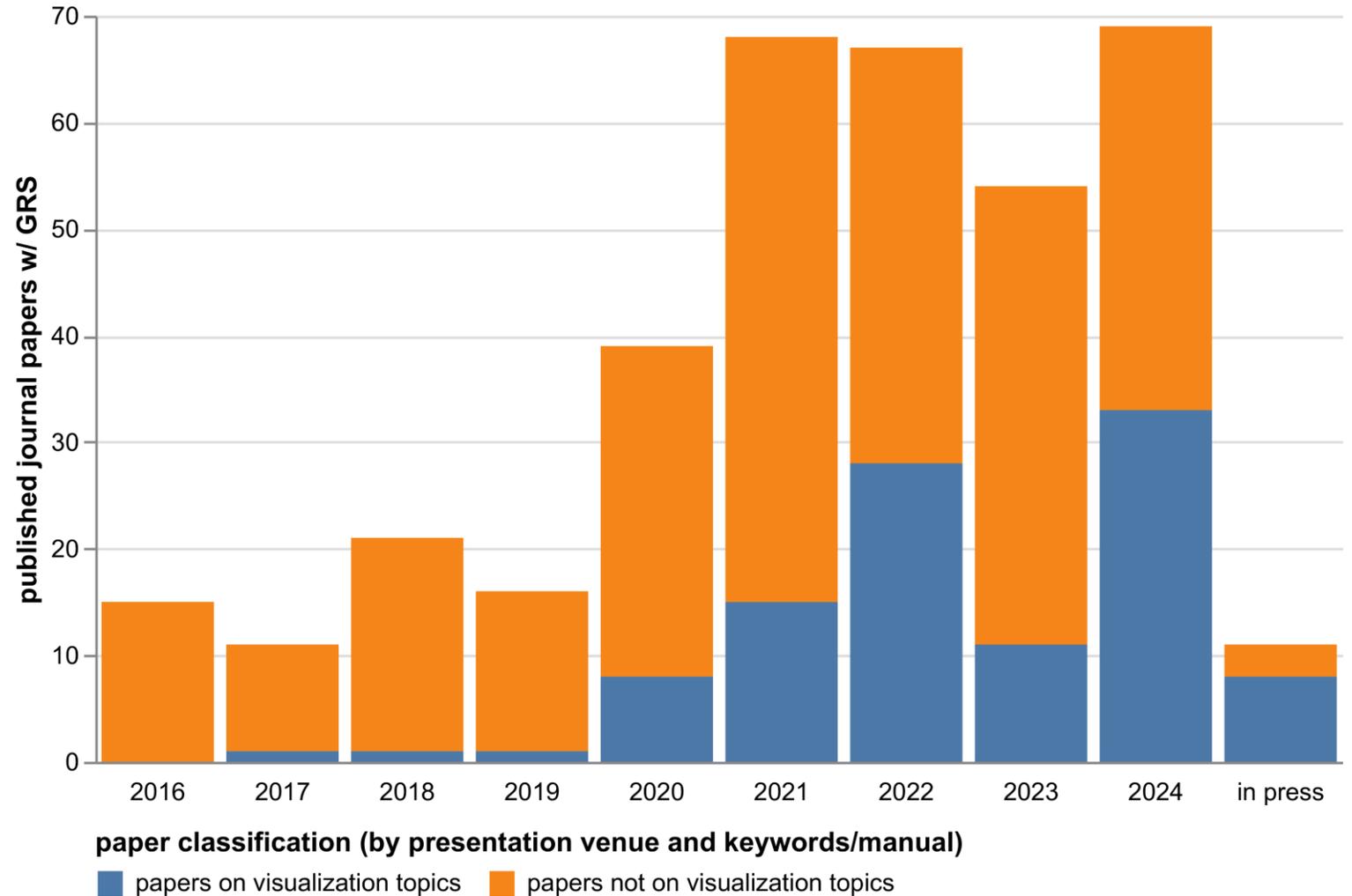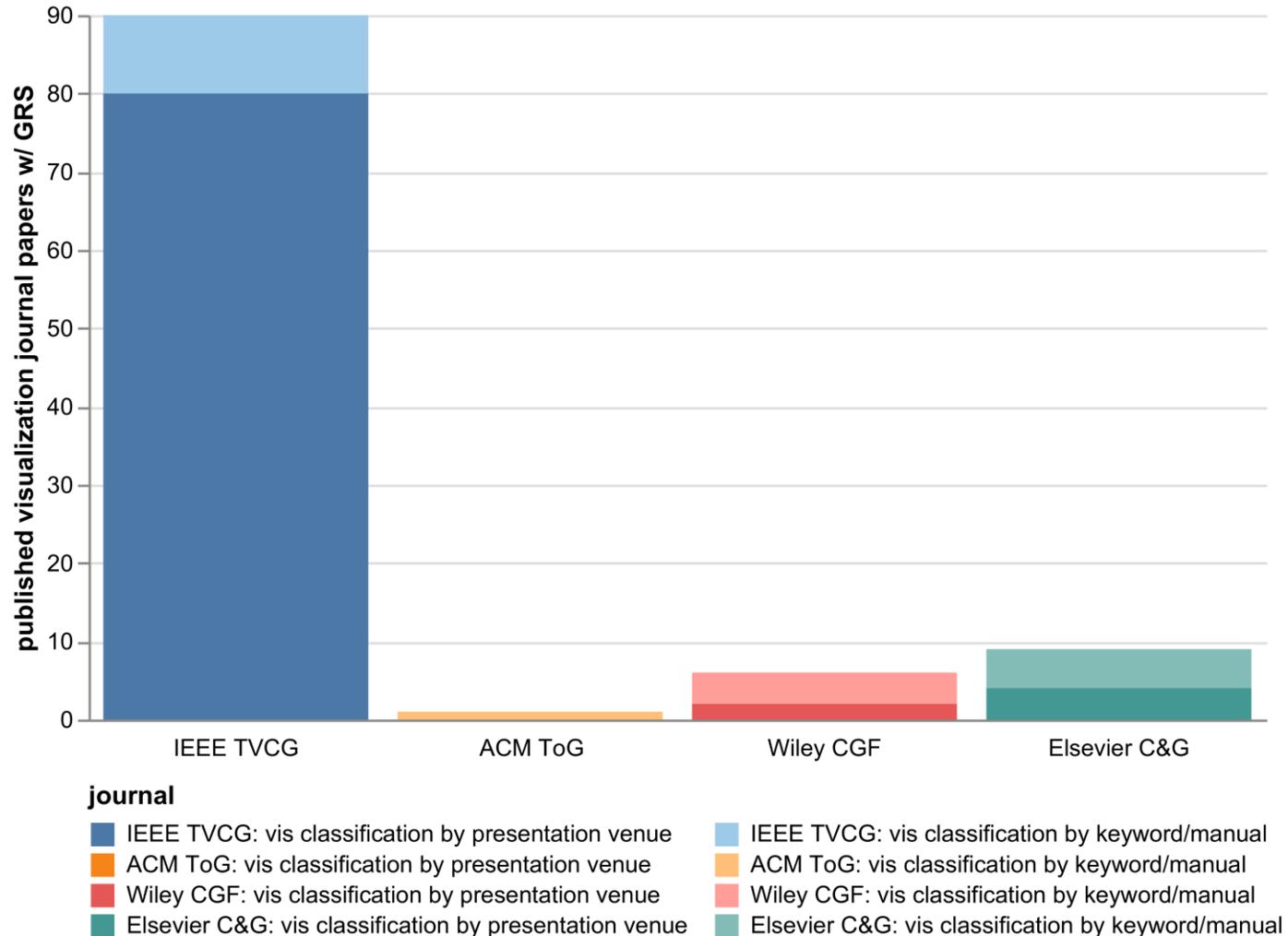# GRSI-certified papers by year

Visualization or not?

VIS

PACIFIC VIS

Computers & Graphics

VCBM
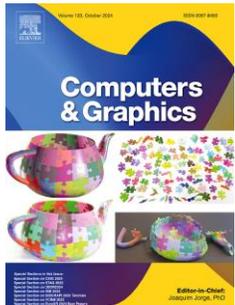
MolVA   EuroVA

EnvirVis

+ keywords (10.4%) + manual (8.5%)

published journal papers w/ GRS

paper classification (by presentation venue and keywords/manual)
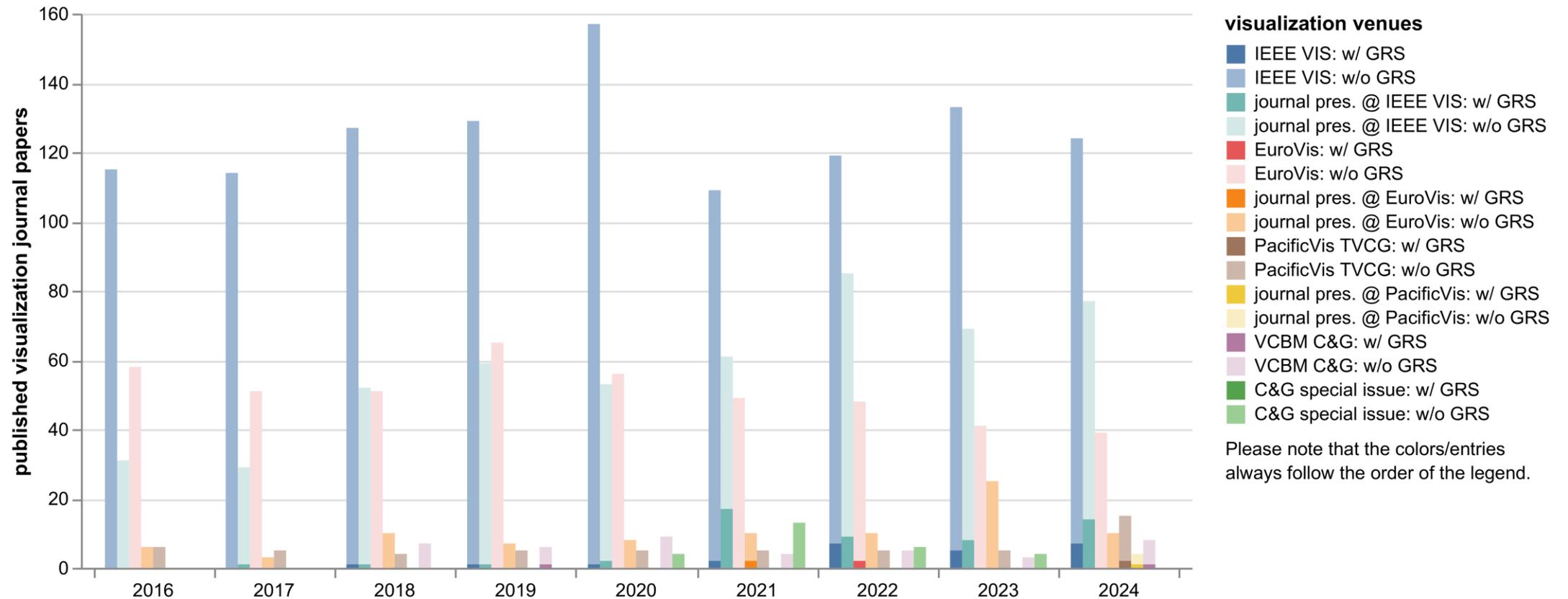
■ papers on visualization topics   ■ papers not on visualization topics

Where do VIS GRSI papers come from?

Where do VIS GRSI papers come from?

published visualization journal papers w/ GRS

journal

- IEEE TVCG: vis classification by presentation venue
- IEEE TVCG: vis classification by keyword/manual
- ACM ToG: vis classification by presentation venue
- ACM ToG: vis classification by keyword/manual
- Wiley CGF: vis classification by presentation venue
- Wiley CGF: vis classification by keyword/manual
- Elsevier C&G: vis classification by presentation venue
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VIS GRSI contributions by presentation venue

VIS GRSI proportions by presentation venue

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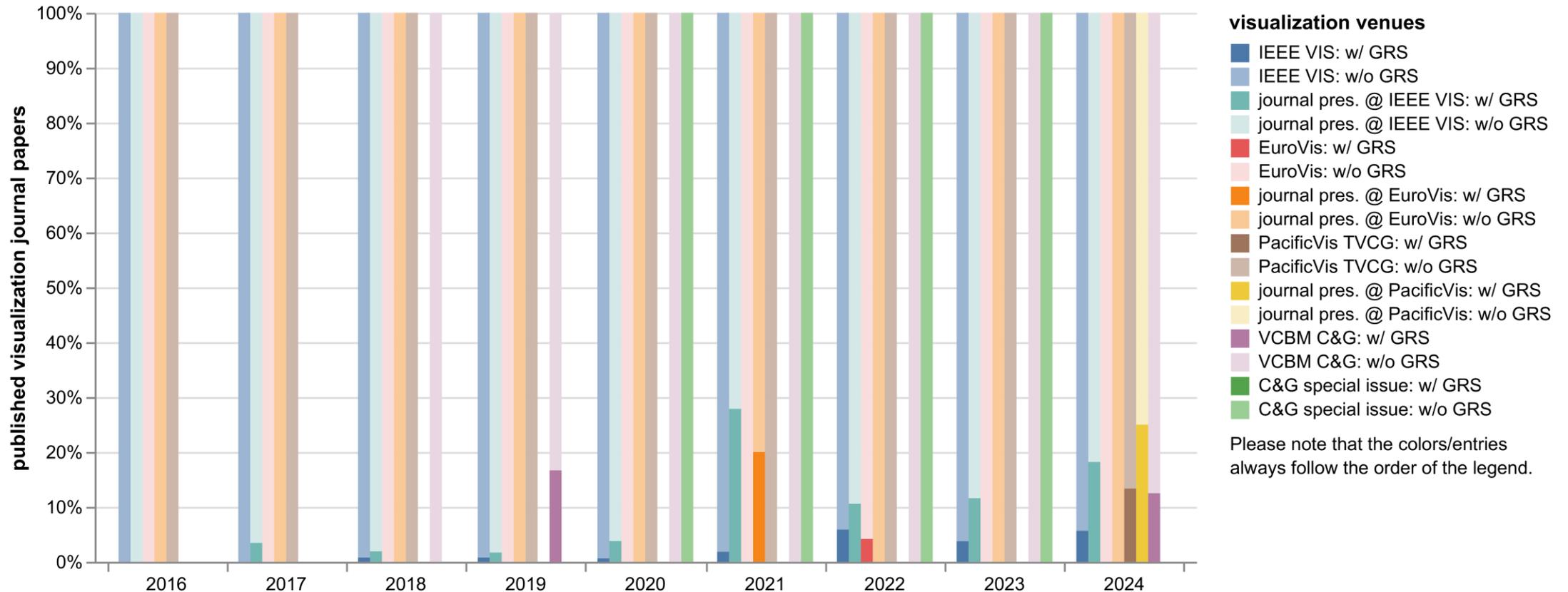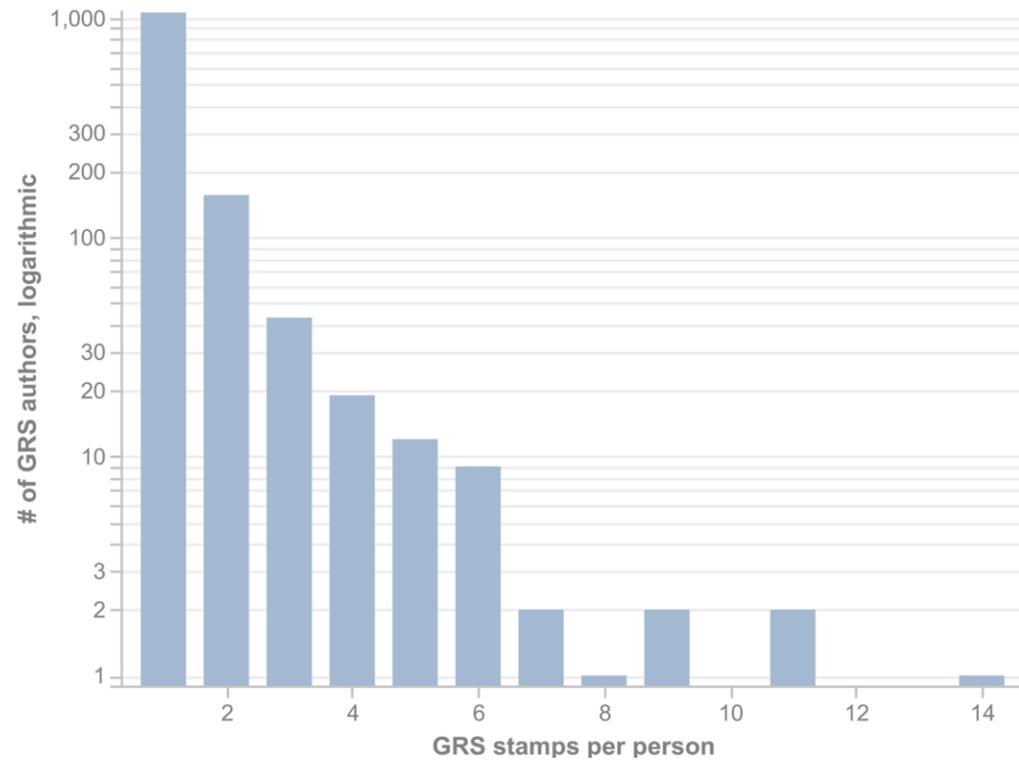
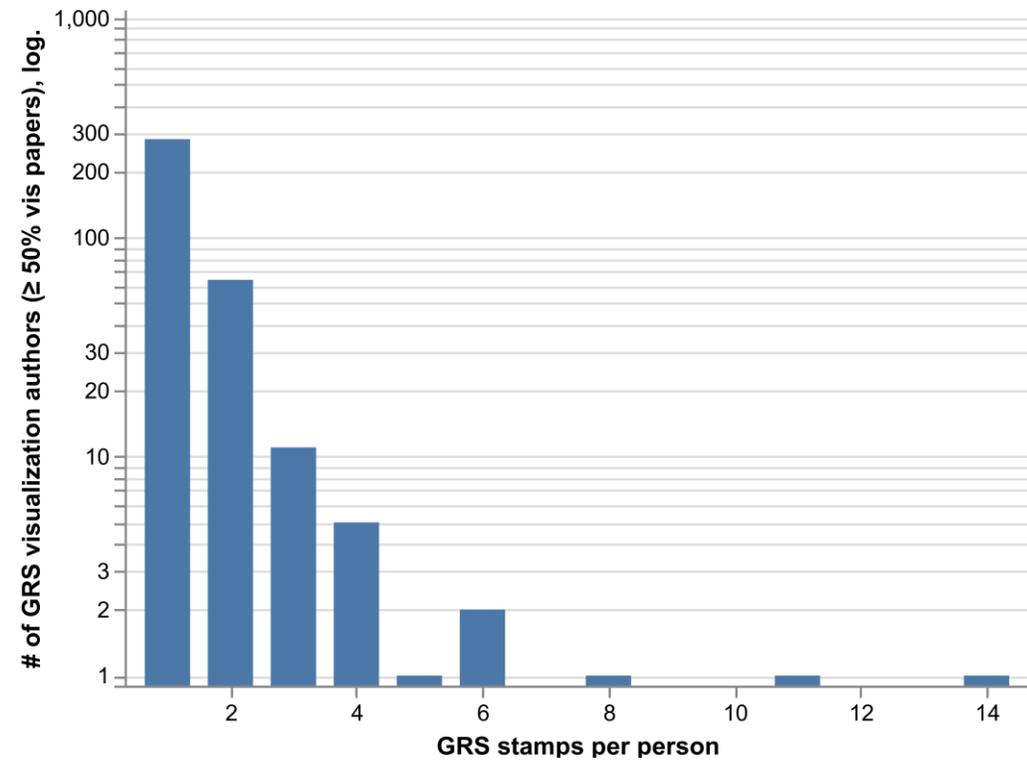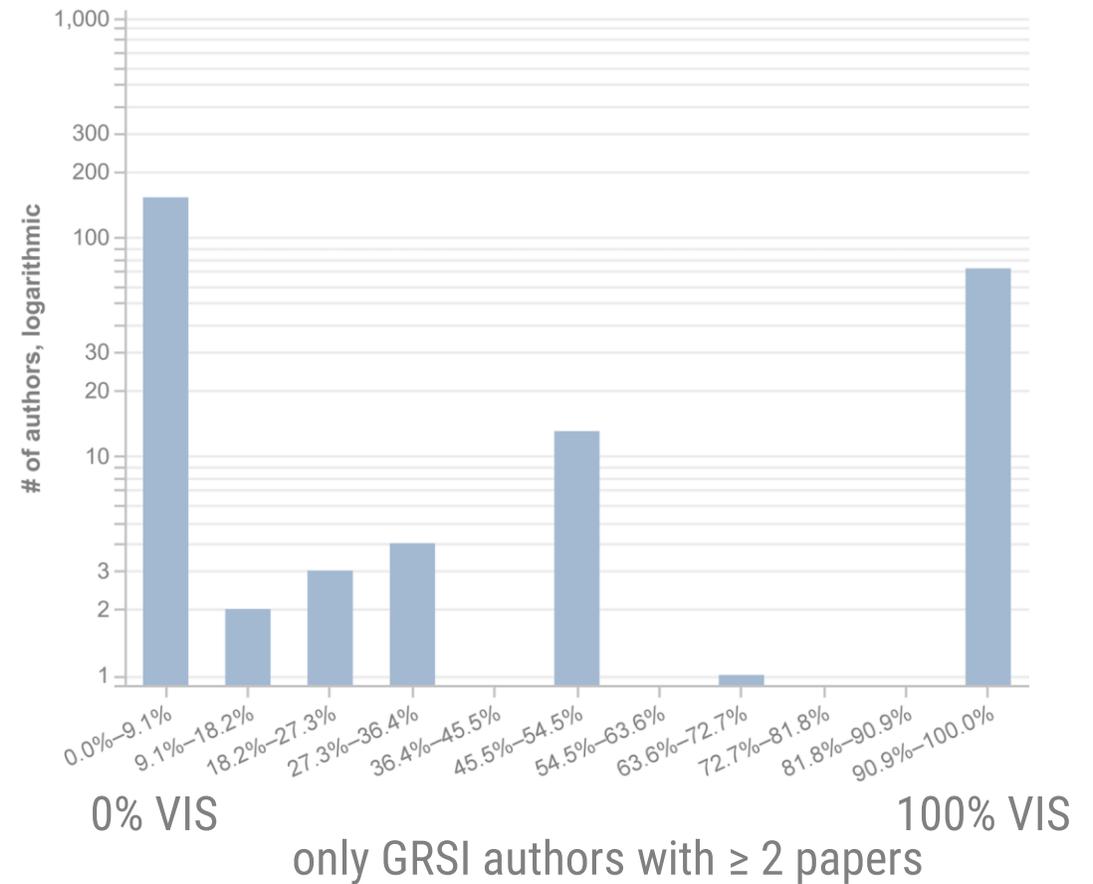# # of GSRI stamps per author
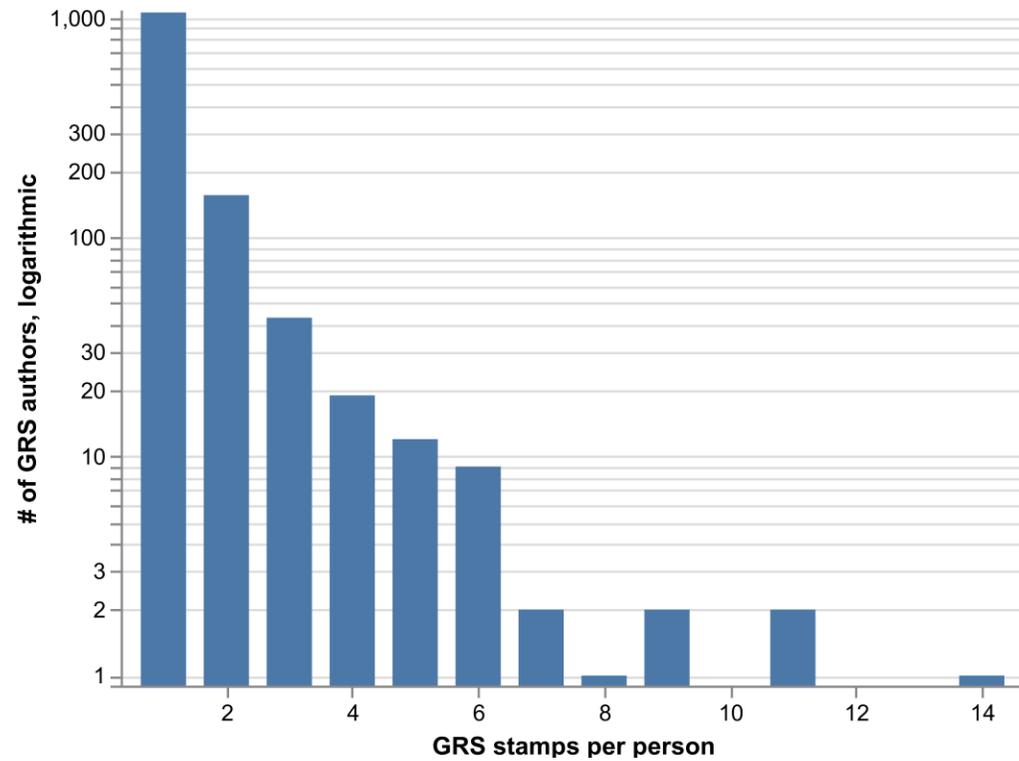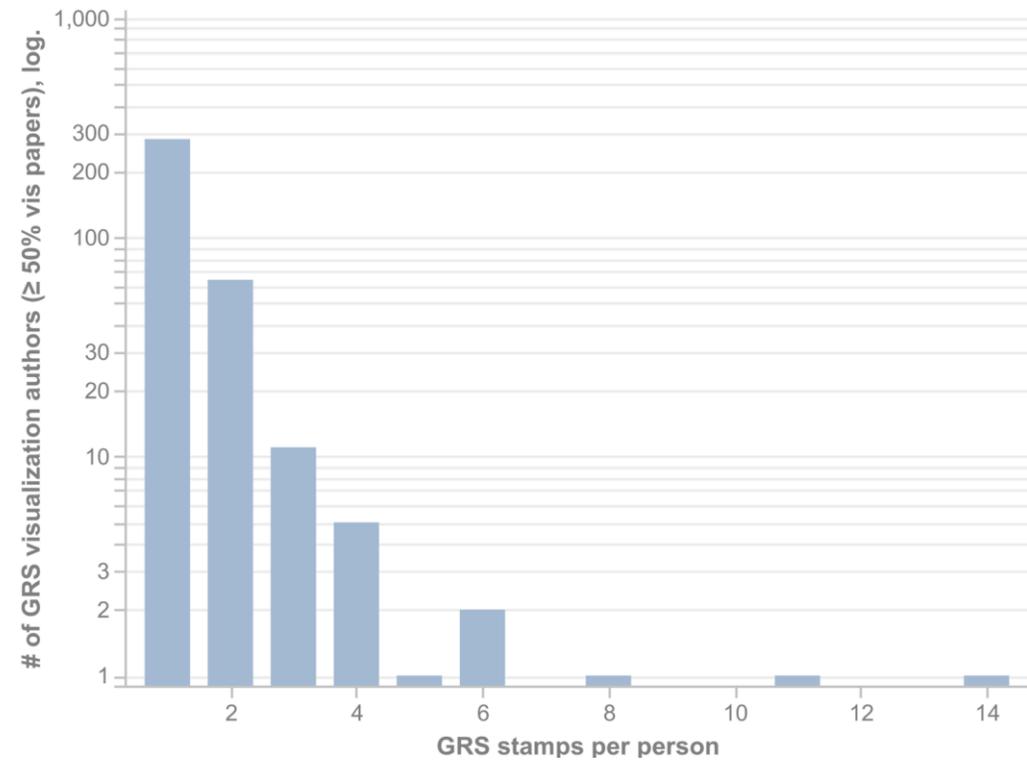
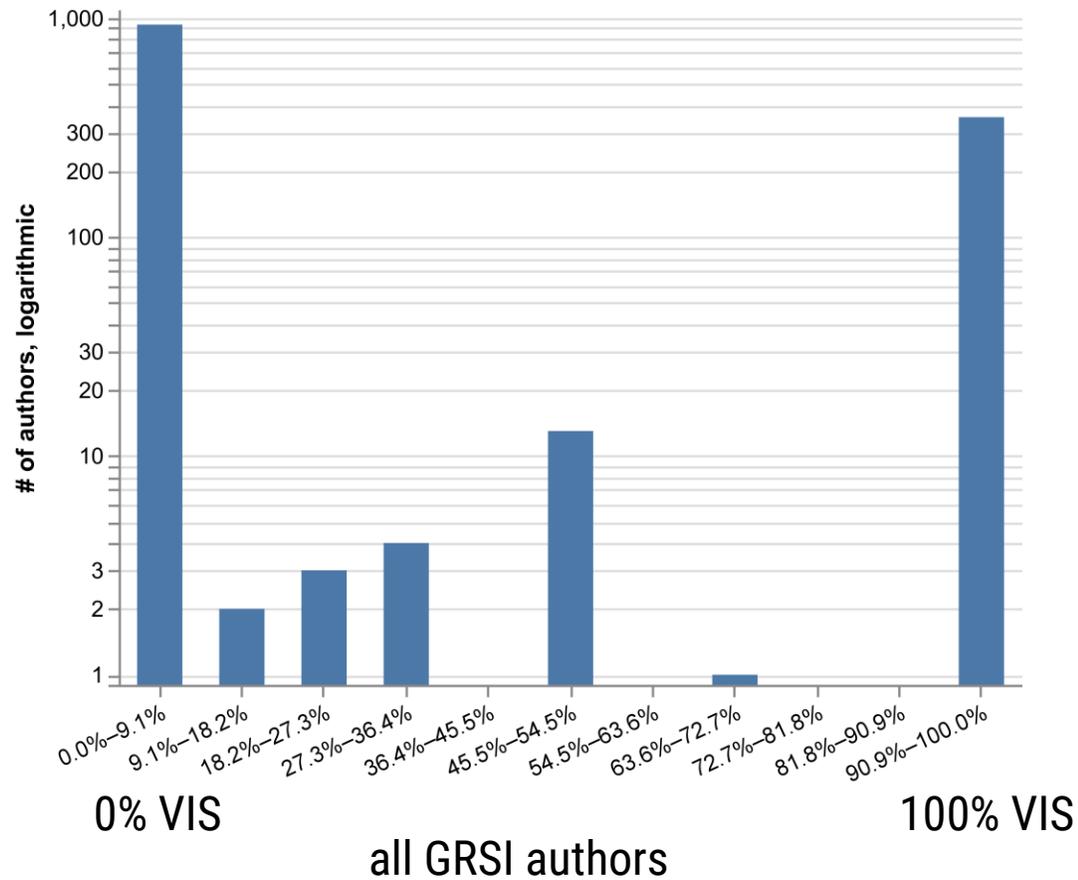all GRSI authors

VIS-only GRSI authors

of GSRI stamps per author

all GRSI authors

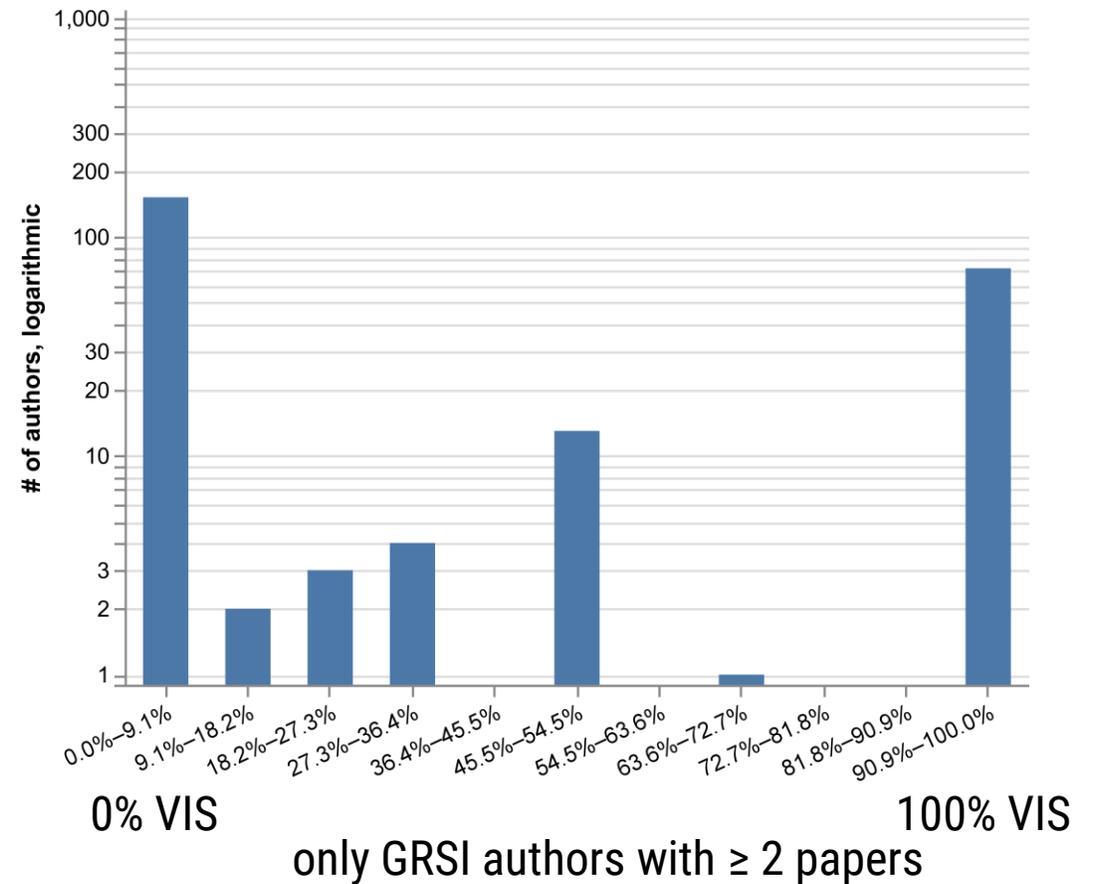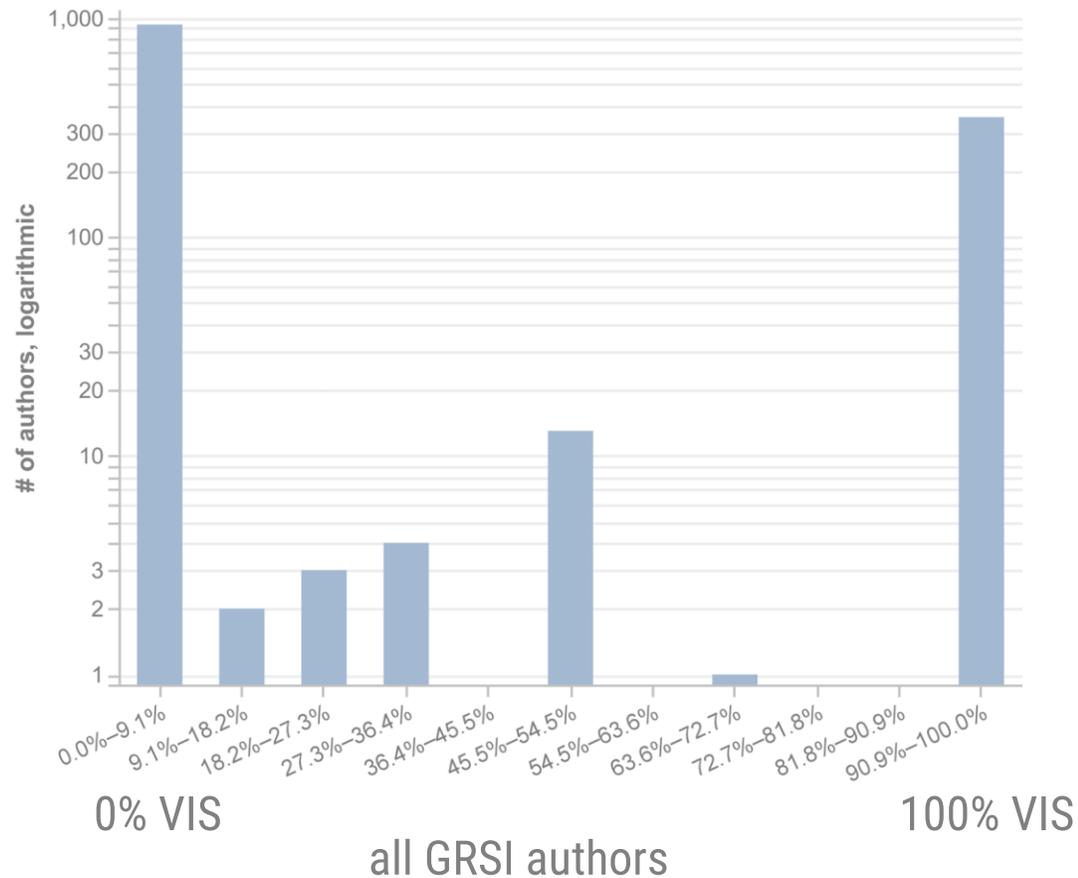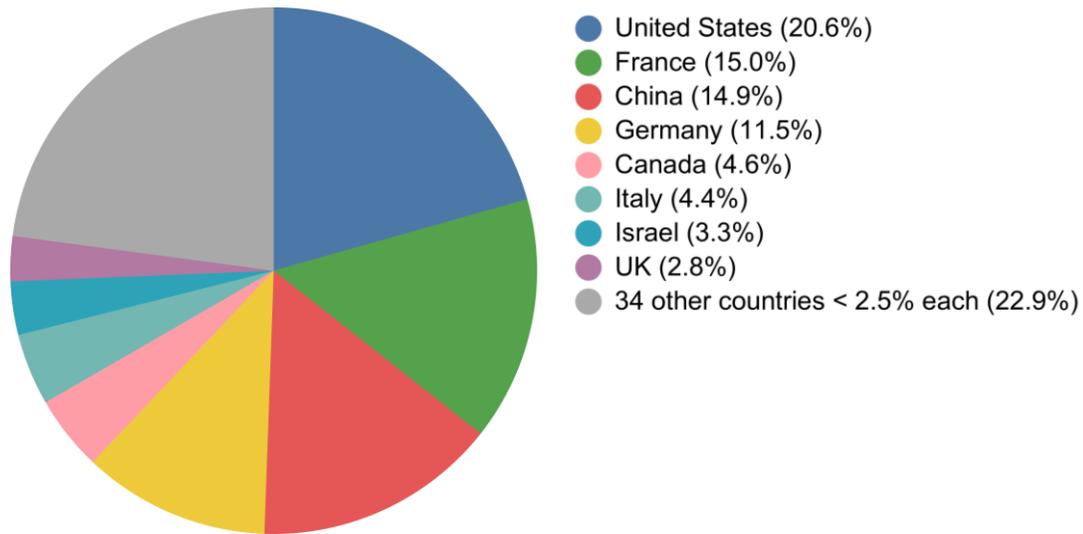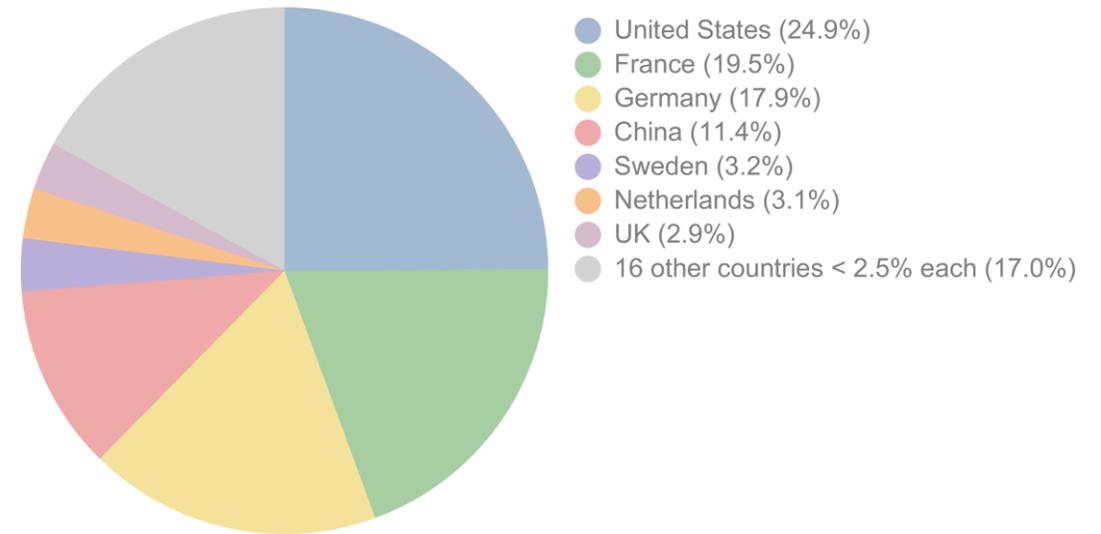VIS-only GRSI authors

Author split between VIS and not VIS

all GRSI authors

only GRSI authors with ≥ 2 papers

Author split between VIS and not VIS

Contributions by country

all GRSI-awarded papers

Legend (left chart):
- United States (20.6%)
- France (15.0%)
- China (14.9%)
- Germany (11.5%)
- Canada (4.6%)
- Italy (4.4%)
- Israel (3.3%)
- UK (2.8%)
- 34 other countries < 2.5% each (22.9%)

VIS-only GRSI-awarded papers

Legend (right chart):
- United States (24.9%)
- France (19.5%)
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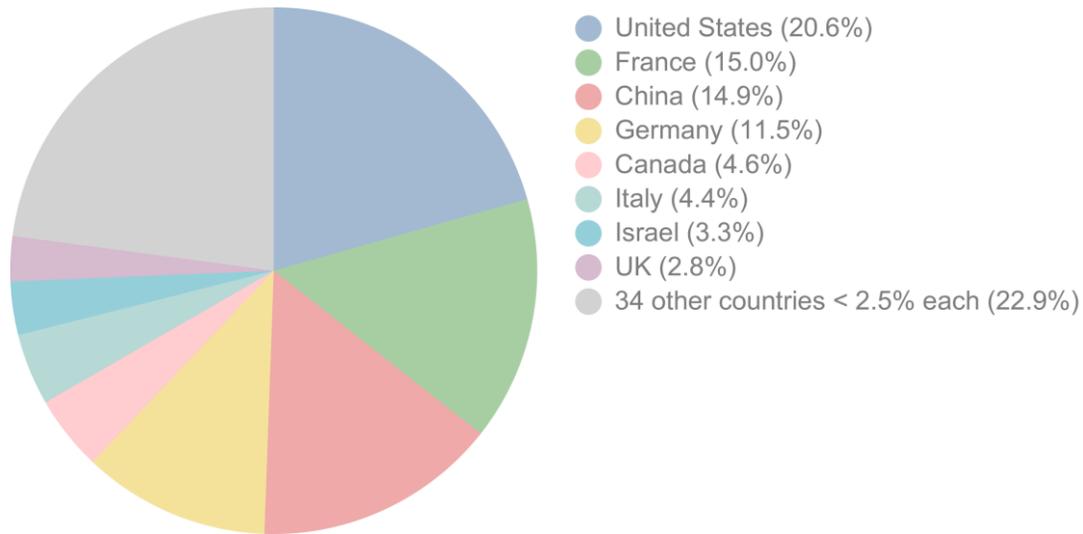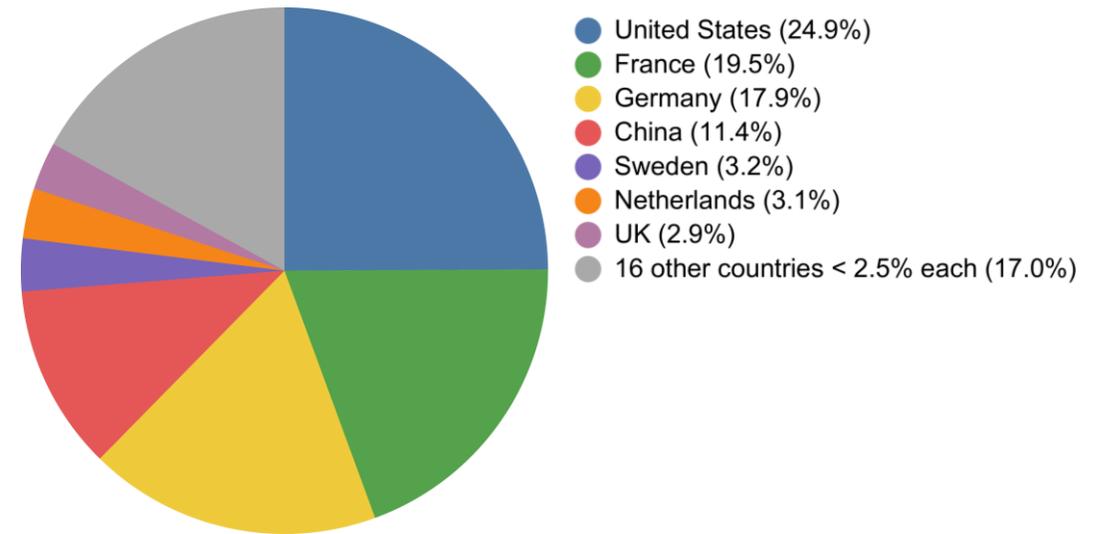
Discussion

- numbers are increasing, but still low
  - 28.6% of GRSI papers are from VIS (106 out of 371)
  - from all full IEEE VIS papers 2021−24: only 21 or 4.3% have a GRS
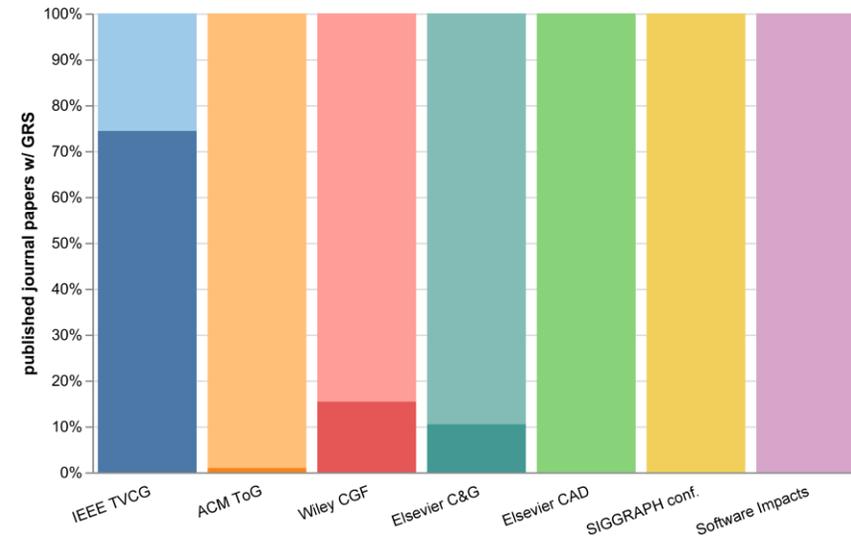 - for TVCG presentations @ VIS 2021−24: 48 or 19.8% have a GRS
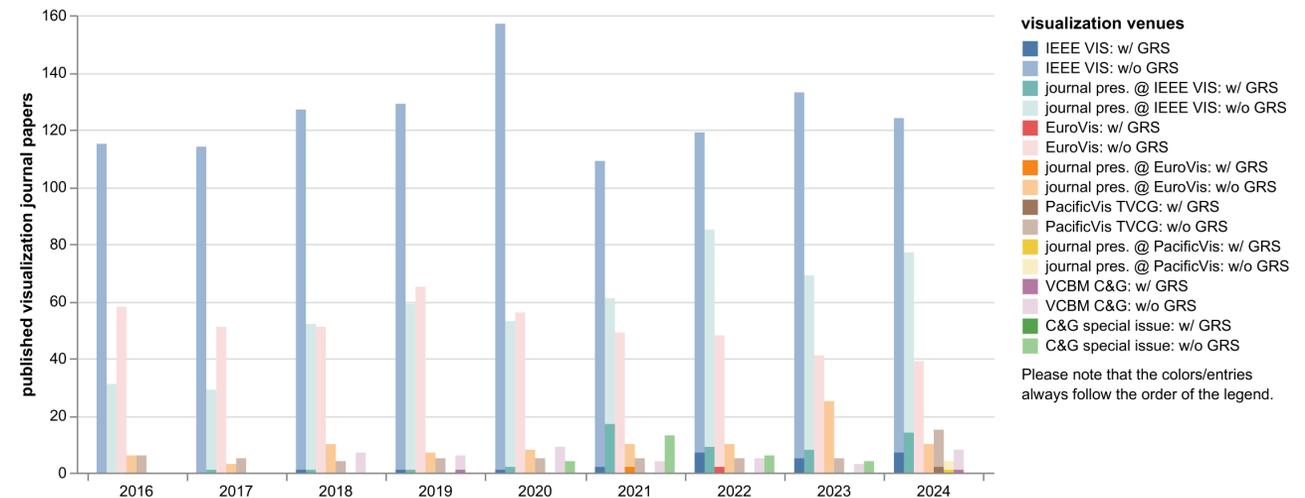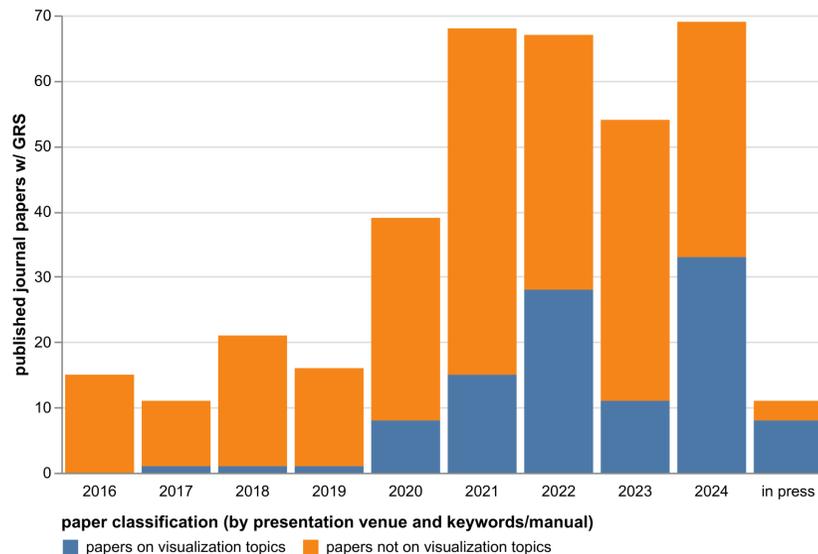
Possible reasons

- GRSI not well enough known among authors
  → need to advertise better; but things are improving
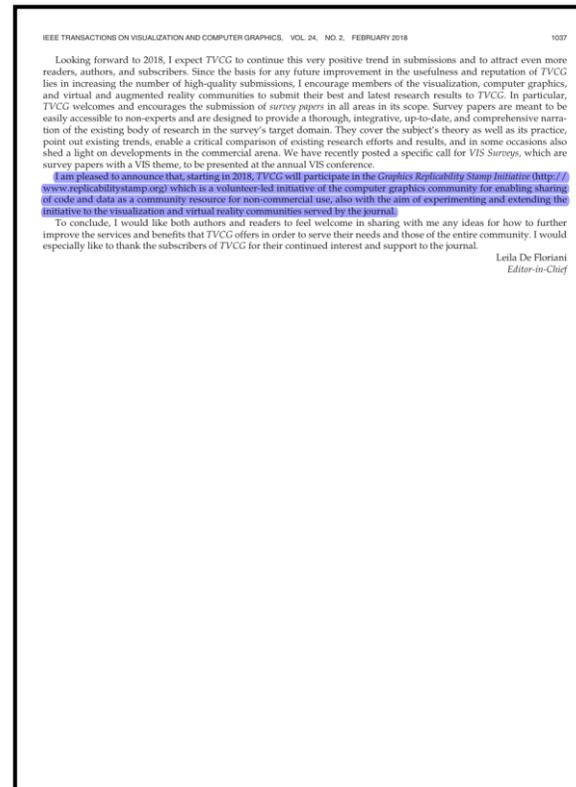
2020: 1 paper,   0.6%

2021: 2 papers, 1.8%

2022: 7 papers, 5.9%

2023: 5 papers, 3.8%

2024: 7 papers, 5.6%

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- lack of incentives, extra work, only eternal fame and glory
  → more incentives (awards?); but GRSI helps you, too!

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- VIS underrepresented in possible GRSI venues
  → can we change that?

VIS2024
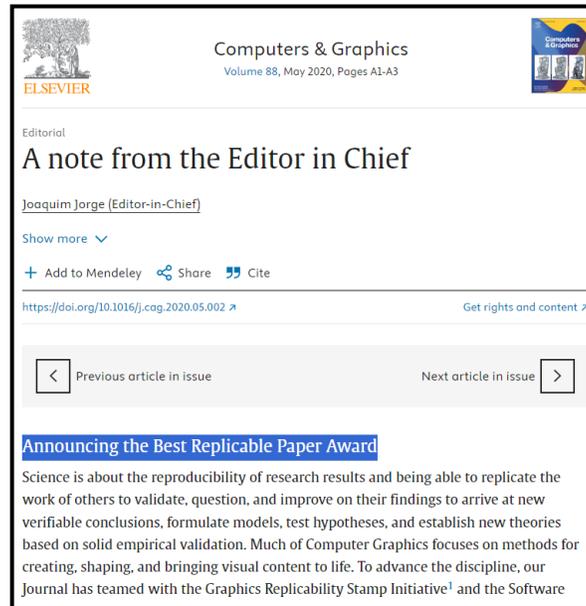
(Zoom) meetup: Thursday, Oct 17,
3:15pm Tampa, 21:15 Europe

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- commercialization intents/proprietary code

Reproducible paper writing

Paper, data, code, more information

- GitHub repo: tobiasisenberg/Visualization-Reproducibility
- URL: tobias.isenberg.cc/p/Isenberg2024SRS

- to fully reproduce:
  - python (data frozen from final paper time)
  - then LaTeX
- to get updated data: GitHub documentation

VIS2024 meetup: Thursday, after the sessions

thanks:
- GRSI organizers/reviewers
- data providers (vispubdata, Stefanie Behnke, Ross Maciejewski, Lane Harrison, VIS 2024 papers chairs)
- repository feedback: Cody Dunne
- reviewer & arXiv feedback