D3: A Massive Dataset of Scholarly Metadata

for Analyzing the State of Computer Science Research

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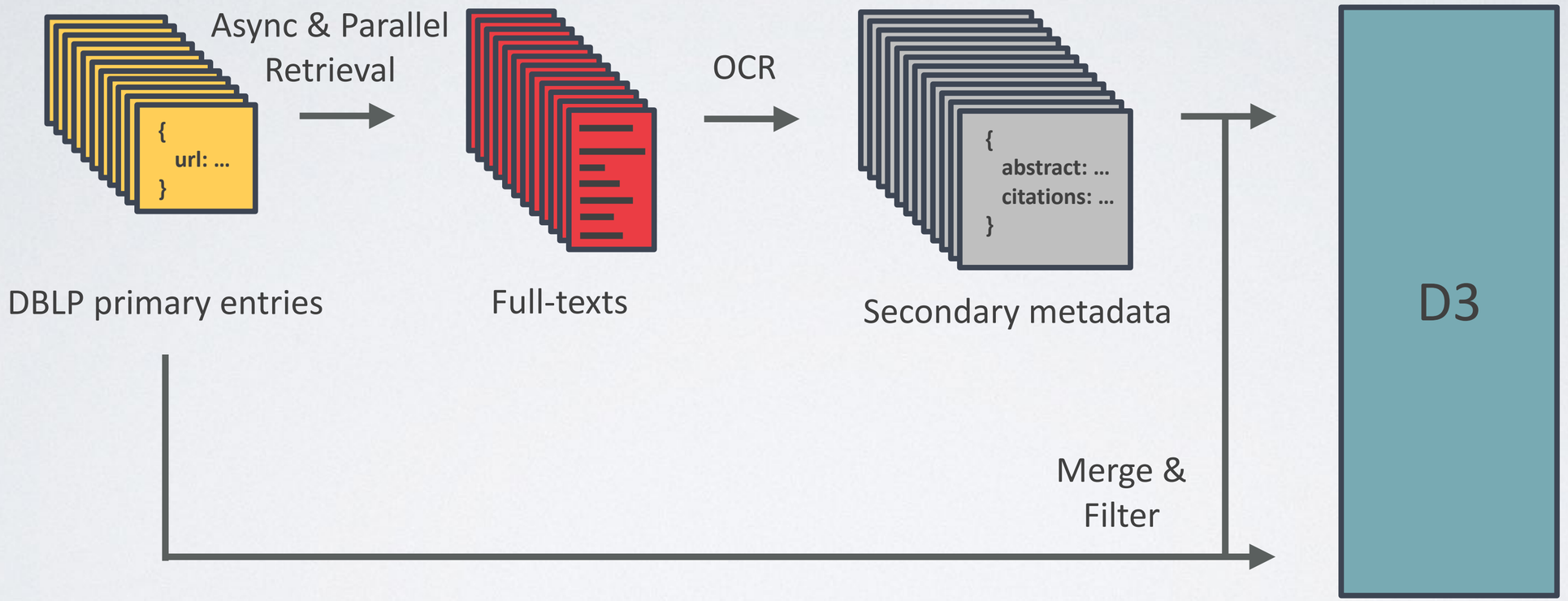
MOTIVATION

- Computer Science (CS) is one of the most influential research fields
- DBLP is the largest repository of scientific articles focused on CS
- DBLP misses semantic information (e.g., abstracts, bibliographies) from full-texts to understand trends in impact, content, or bias of CS research
- The DBLP discovery dataset (D3) combines metadata from DBLP with sentient information from publications

DATASET COLLECTION



FEATURES OF D3

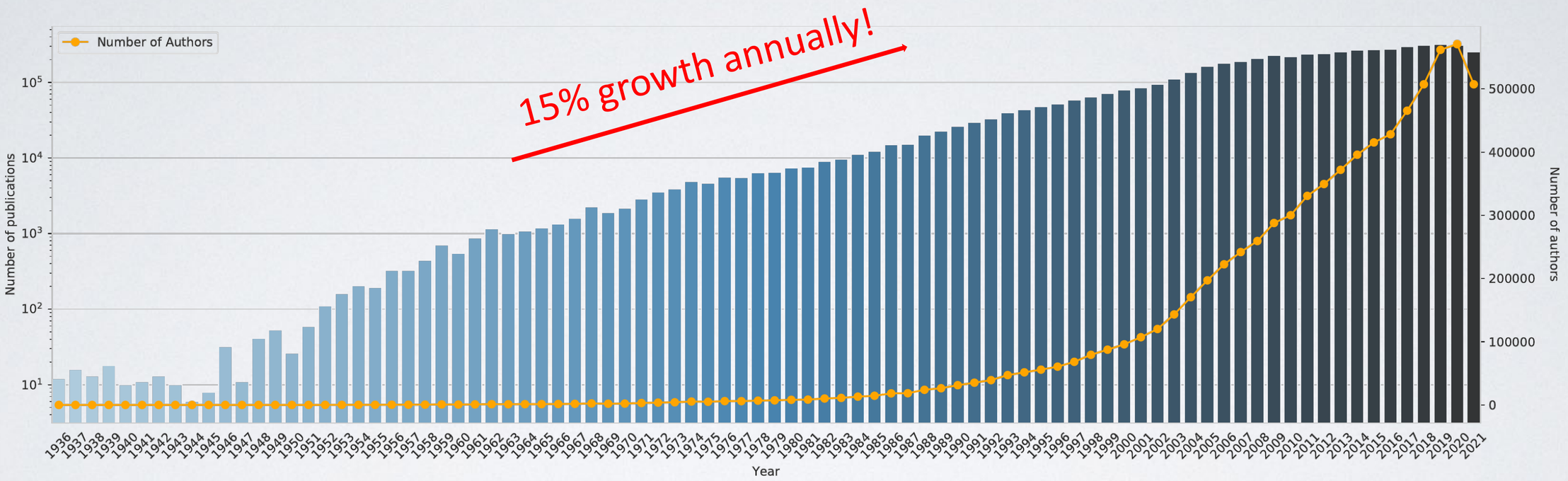
- Publications (title, abstract, access, doi, publisher, keywords, …)
- Authors (names, affiliation(s), webpage(s), …)
- Venues (acronyms, type, …)
- Citations (incoming, outgoing, …)

SUMMARY

- 6 million publications focused on CS journals and conferences
- 32 features: venues, citations, affiliations, ...
- Lightweight: 11GB compressed
- Abstracts and titles enable semantic analysis

ANALYSIS

VOLUME



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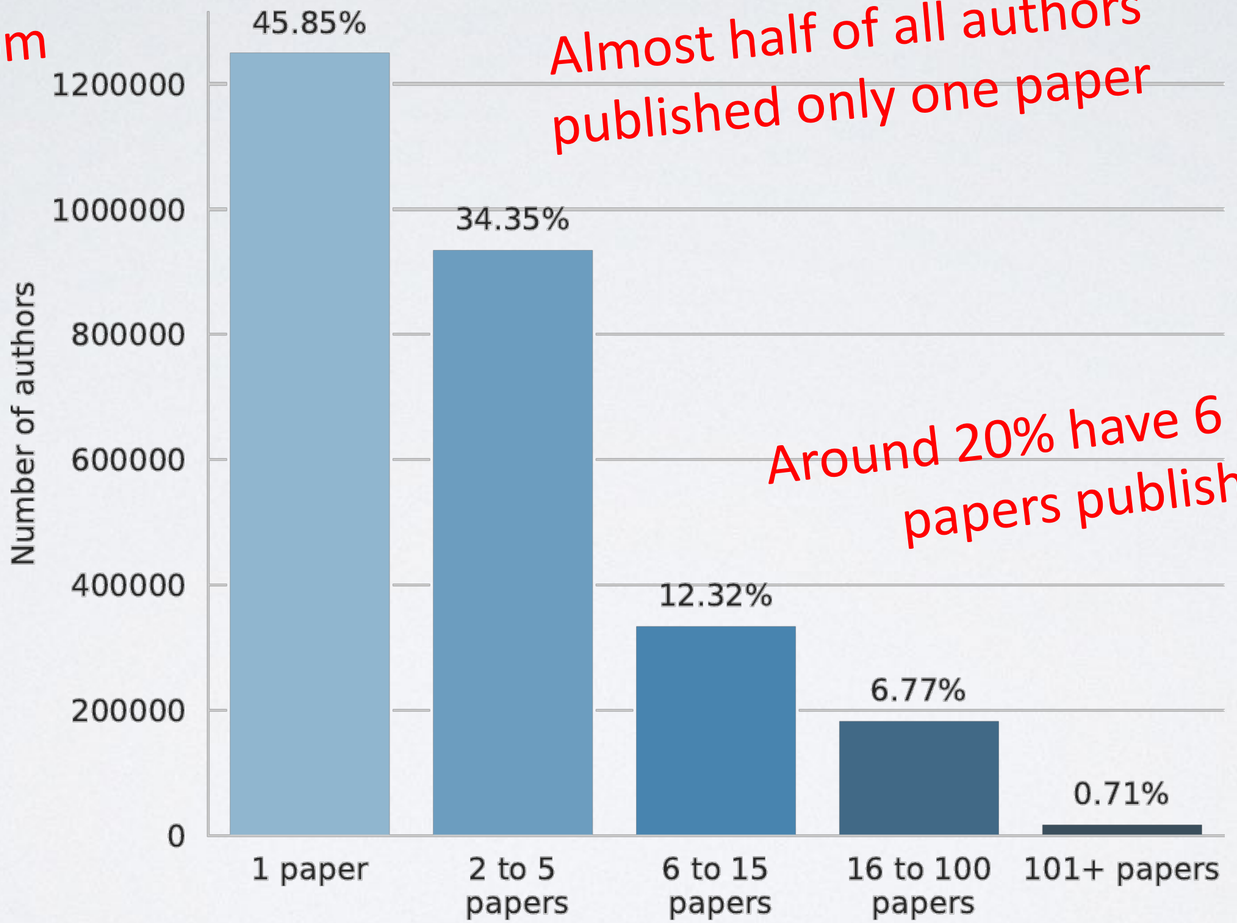
RESEARCH ACTIVITY

Similar pattern compared to NLP publications from the ACL Anthology[1]



Almost half of all authors published only one paper

Around 20% have 6 or more papers published

[1]Saif M. Mohammad "NLP Scholar: A Dataset for Examining the State of NLP Research" LREC 2020

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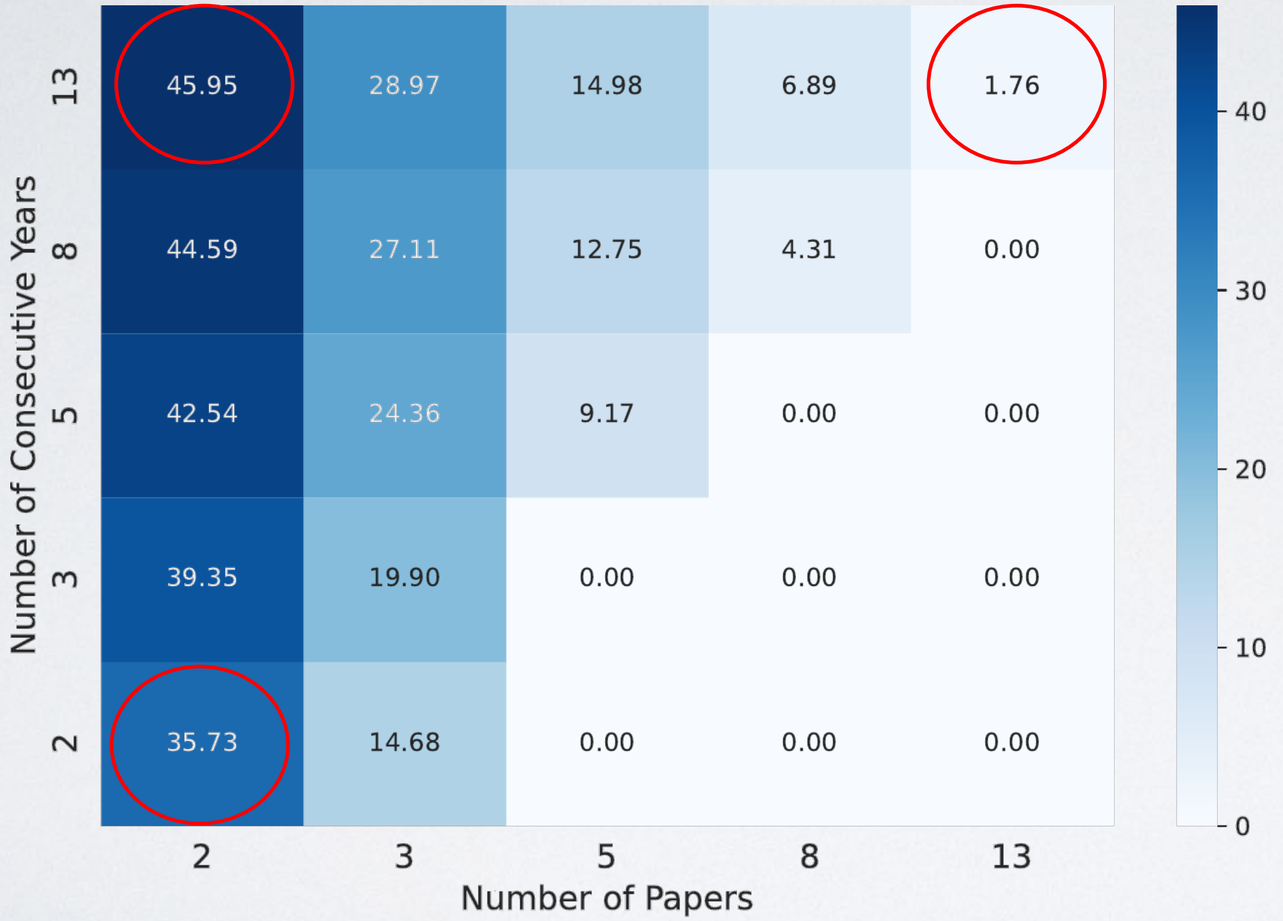
RESEARCH ACTIVITY



Persistence and output are indicators for research activity.

Most researchers publish few papers over a short time window.

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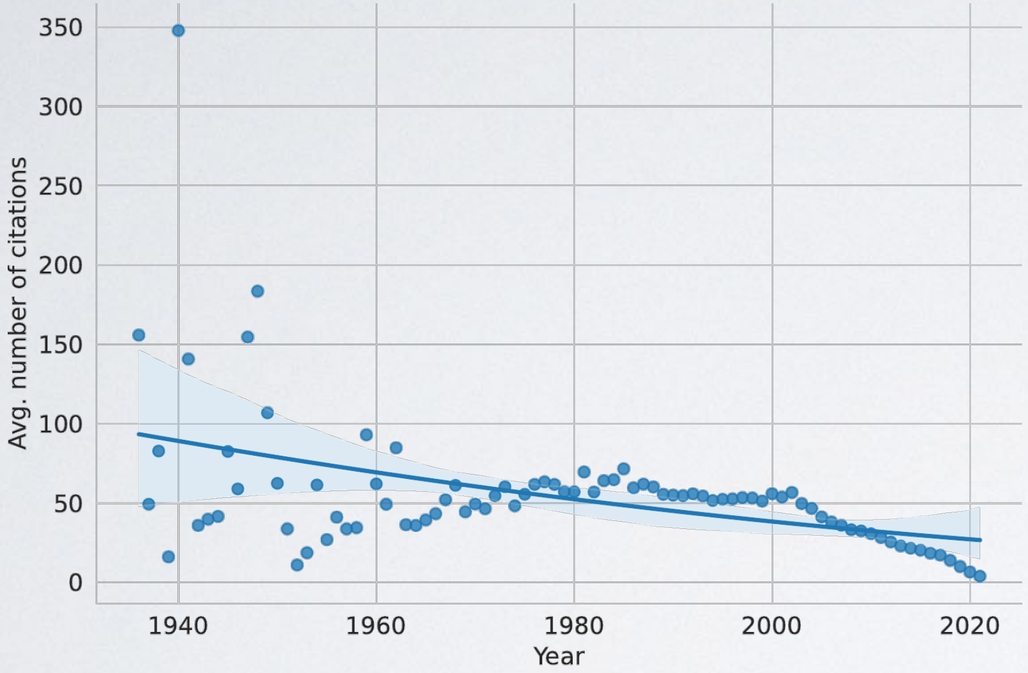
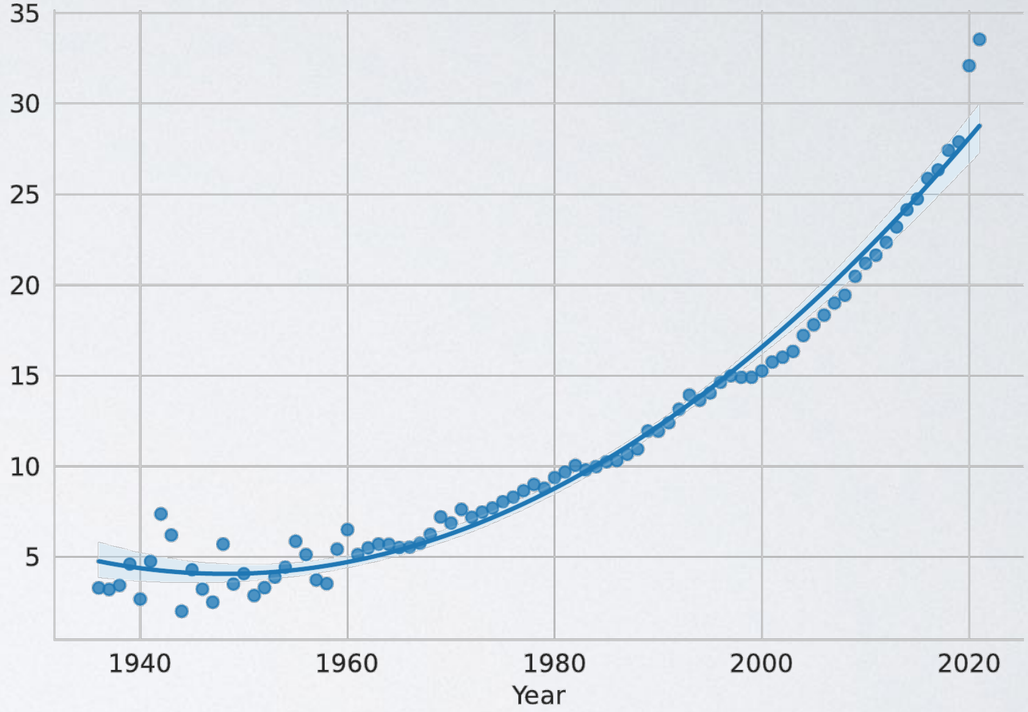
TOPIC TRENDS

CITATIONS



Avg. incoming citations



Avg. outgoing citations

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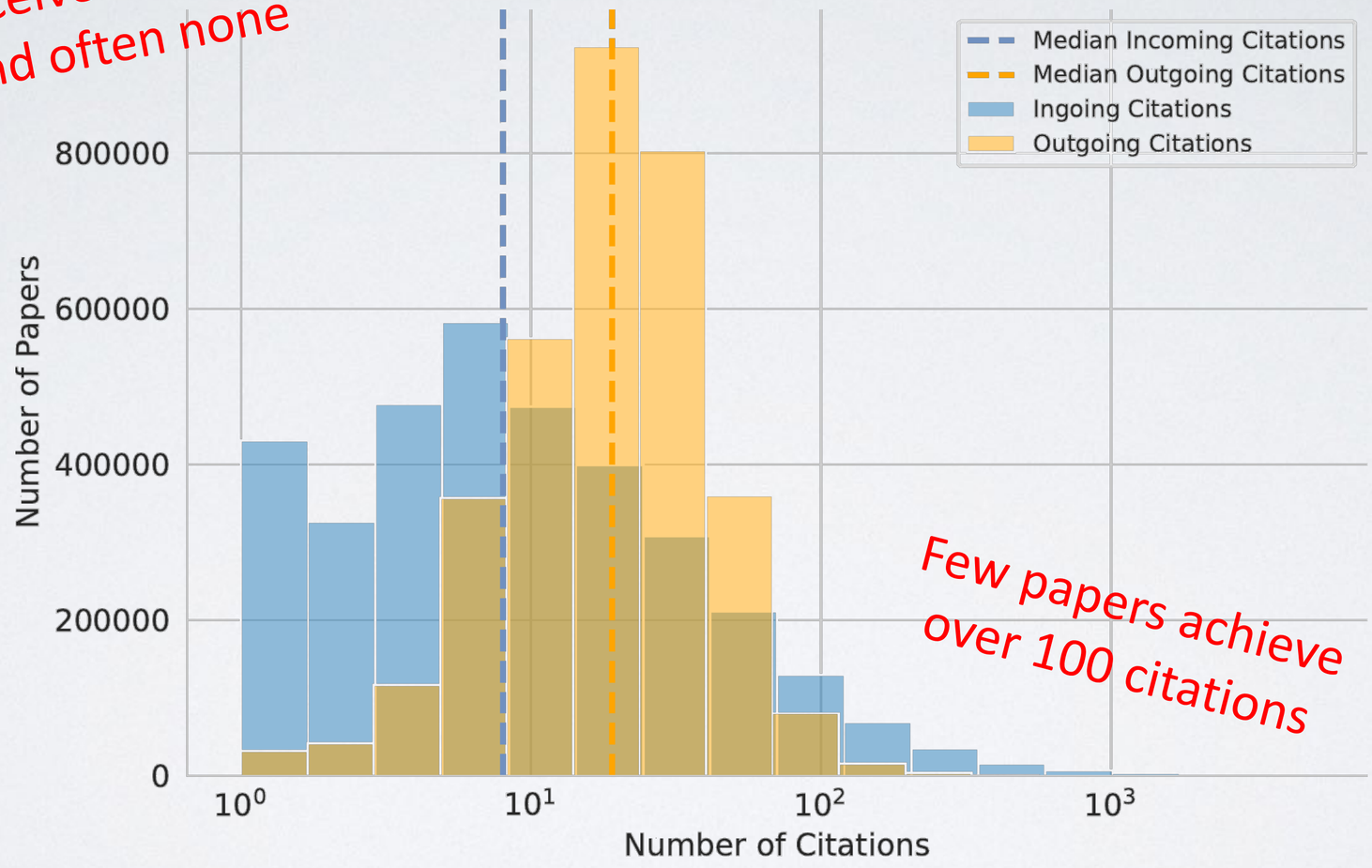
CITATIONS

Most papers receive less than 10 citations and often none



Few papers achieve over 100 citations

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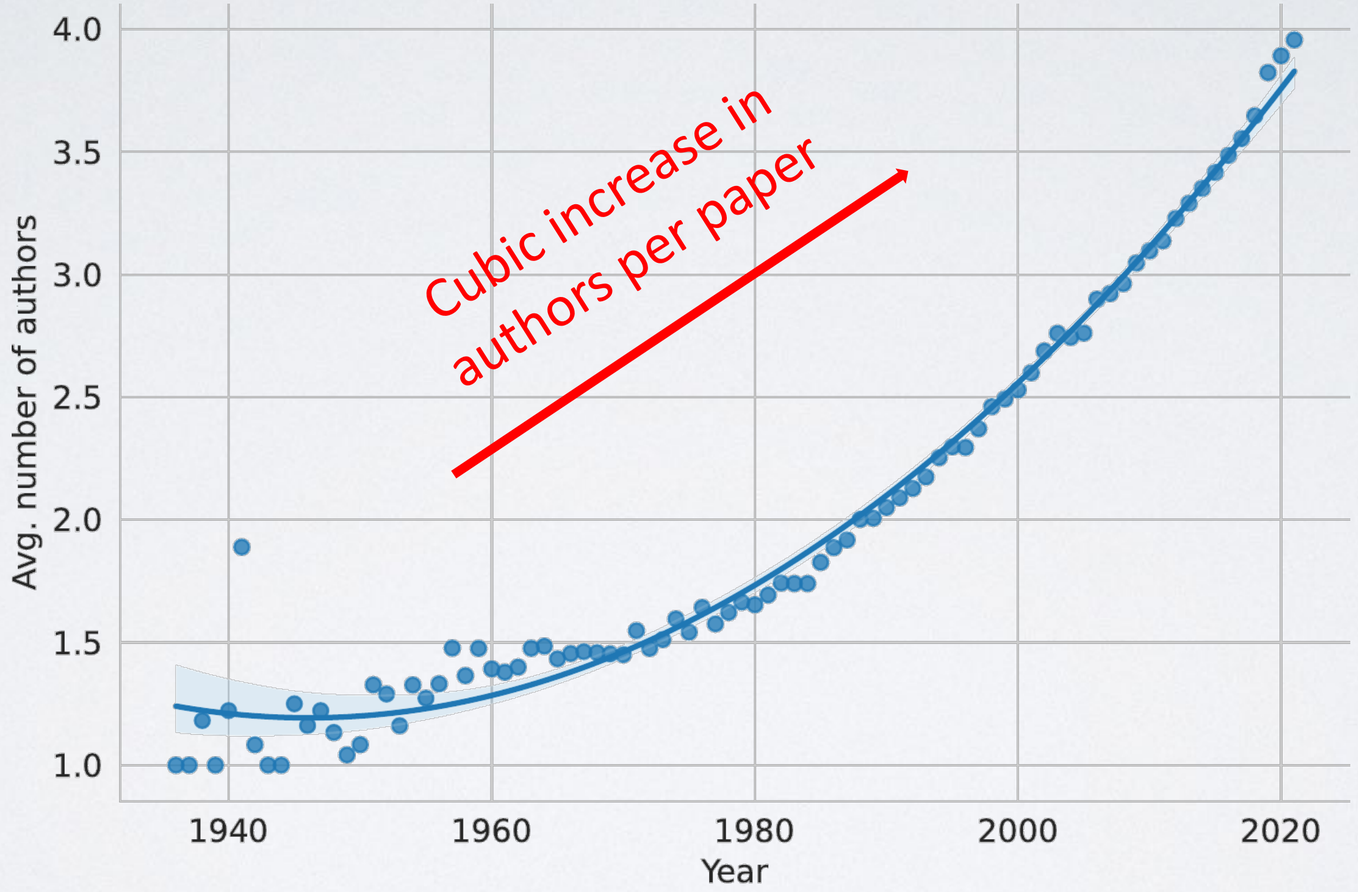
COLLABORATION



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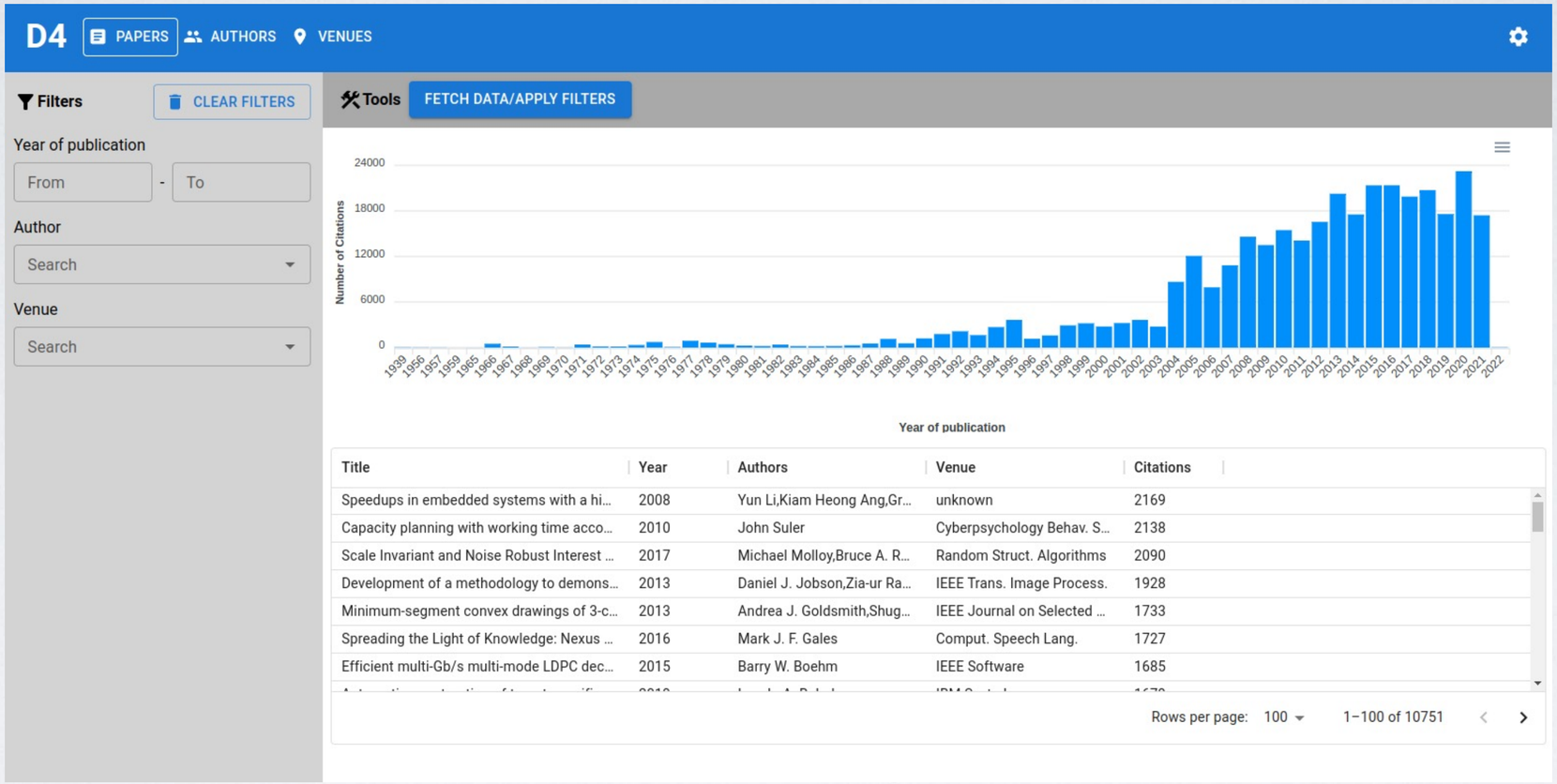
FUTURE WORK

- Open and interactive webapp to explore and analyze CS papers
- Topic analysis to understand influence of research fields in CS
- Analyzing impact, success, and productivity
- Gender gap and fairness

SNEAK PEEK



Interactive webapp to explore and analyze CS papers

EXPLORE D3

https://github.com/ag-gipp/NLP-Land-backend

https://zenodo.org/record/6477785

First release!

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