Smart Tools and Applications in Graphics
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ReviewerNet

A visualization tool for scholarly data

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ReviewerNet.org

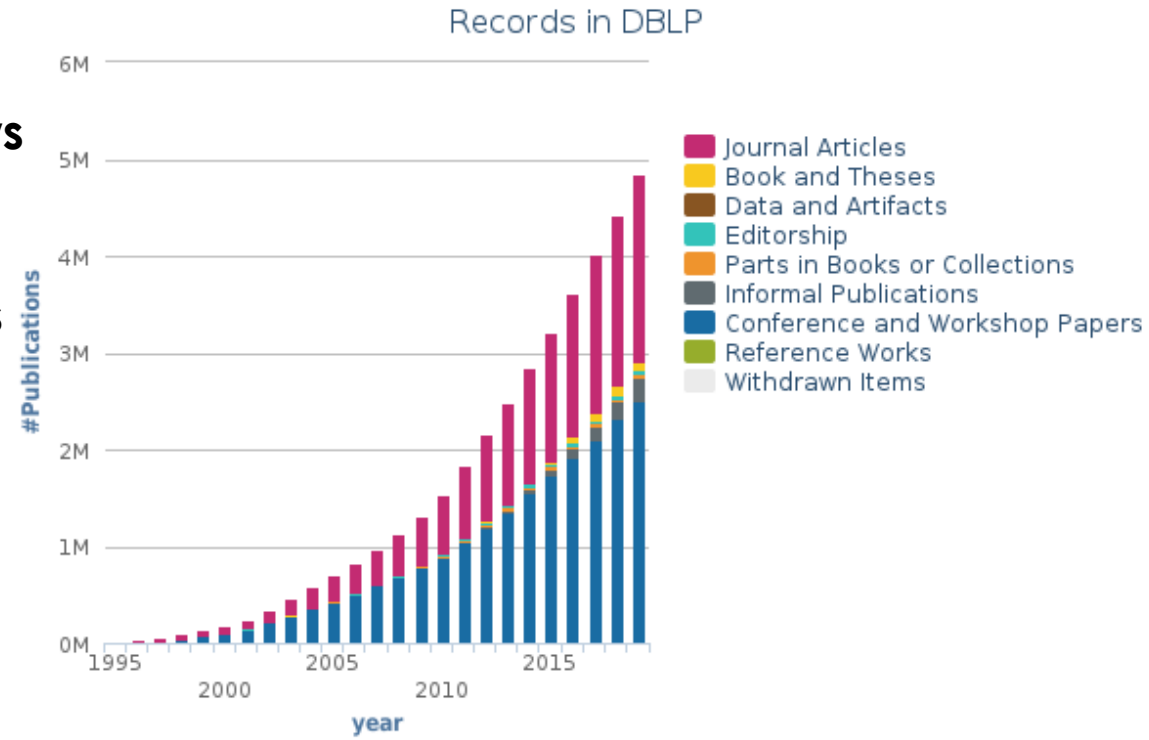
Problem

reviewer finding by journal editors and IPC members:

- Identify research communities searching the literature
- Look for active experts with good topic coverage
- Check conflict of interest and distribution of candidate in the community

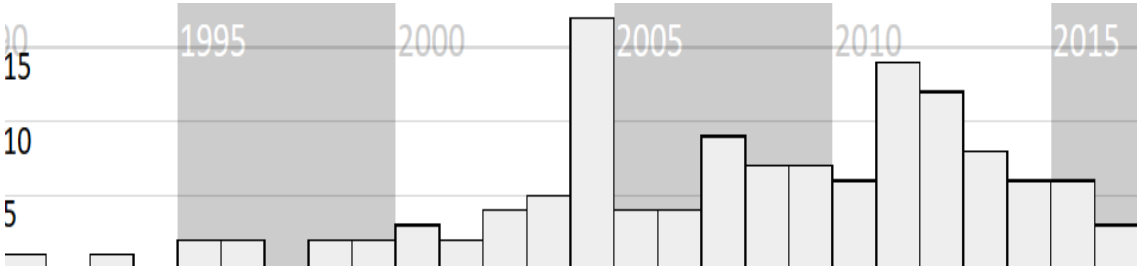
Introduction

- The number of academic uploaded documents grows very fast
- The volume, variety and velocity generated satisfies the big data definition
- Need more automation



Related Work

- More than 100 visual approaches for document collections proposed in the last 10 years



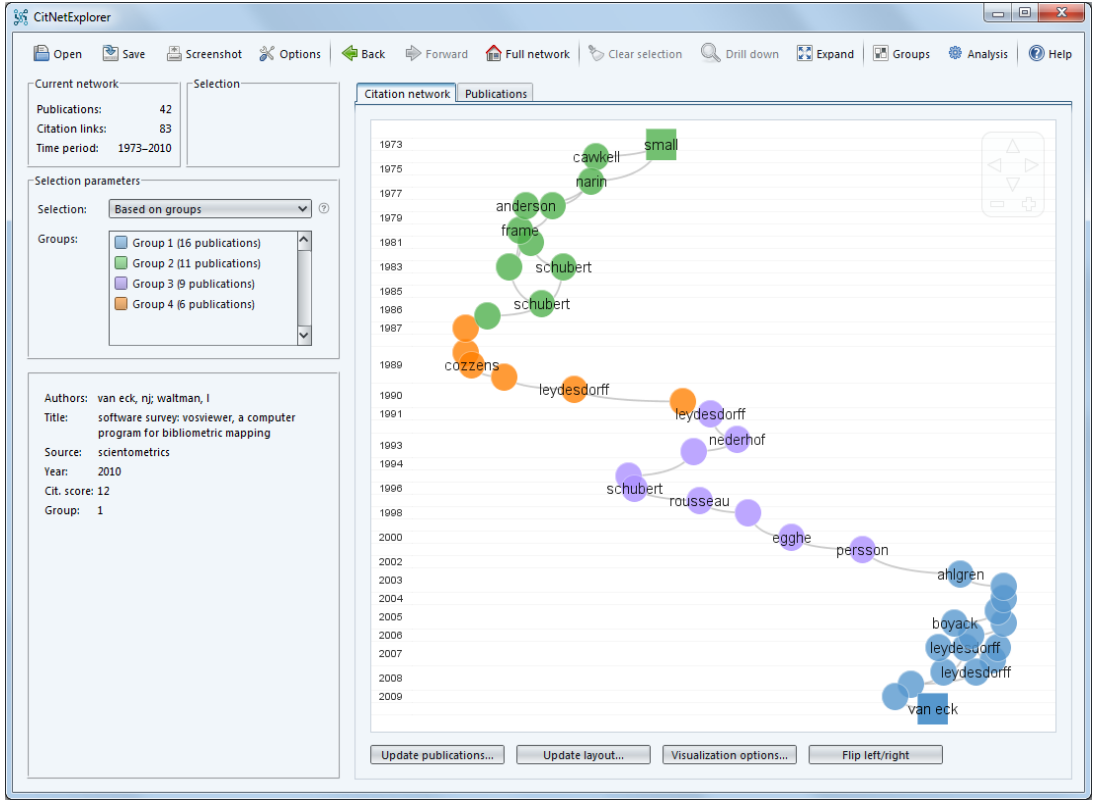
Number of visual approaches papers per publication year [FED17]

- most of the works focused on the visualization of document collections

[FED17] *Paolo Federico, Florian Heimerl, Steffen Koch, and Silvia Miksch*. "A Survey on Visual Approaches for Analyzing Scientific Literature and Patents". In: IEEE Transactions on Visualization and Computer Graphics 23.9 (2017), pp. 2179–2198.

Related Work

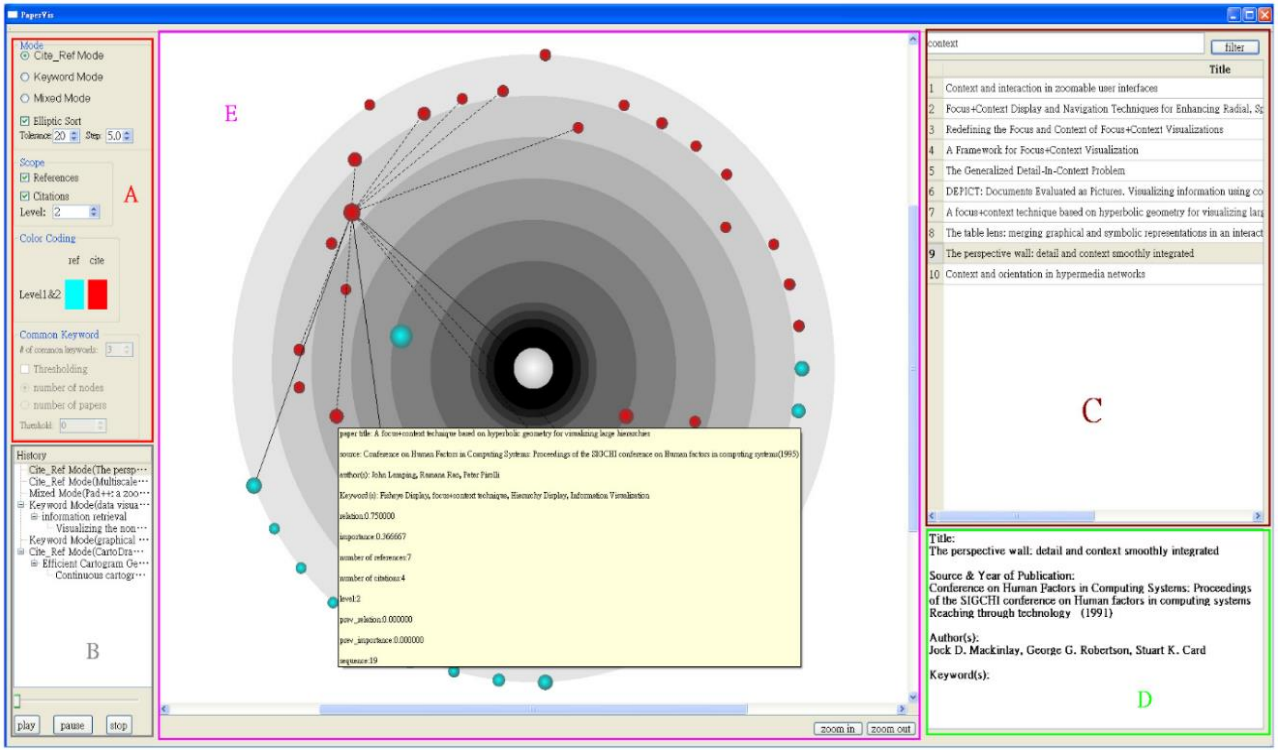
- the visualization of bibliometric networks is an active area of research
- history and development of research fields can be analyzed with citation networks



CiteNetExplorer

Related Work

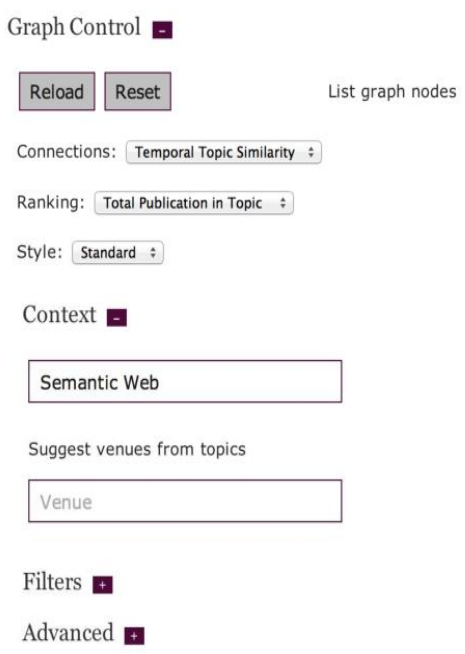
- exploit graph structure to obtain semantically meaningful hierarchies

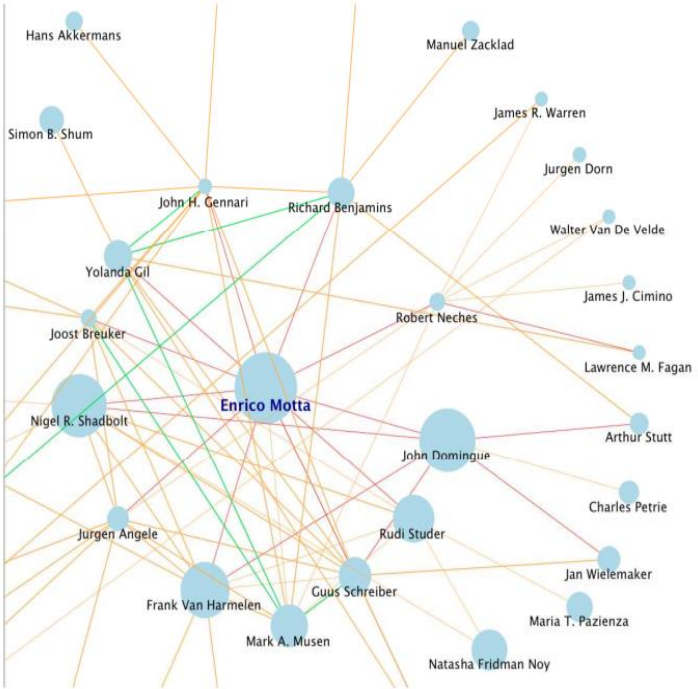


PaperViz

Related Work

- **Rexplore includes a graph connecting similar authors**



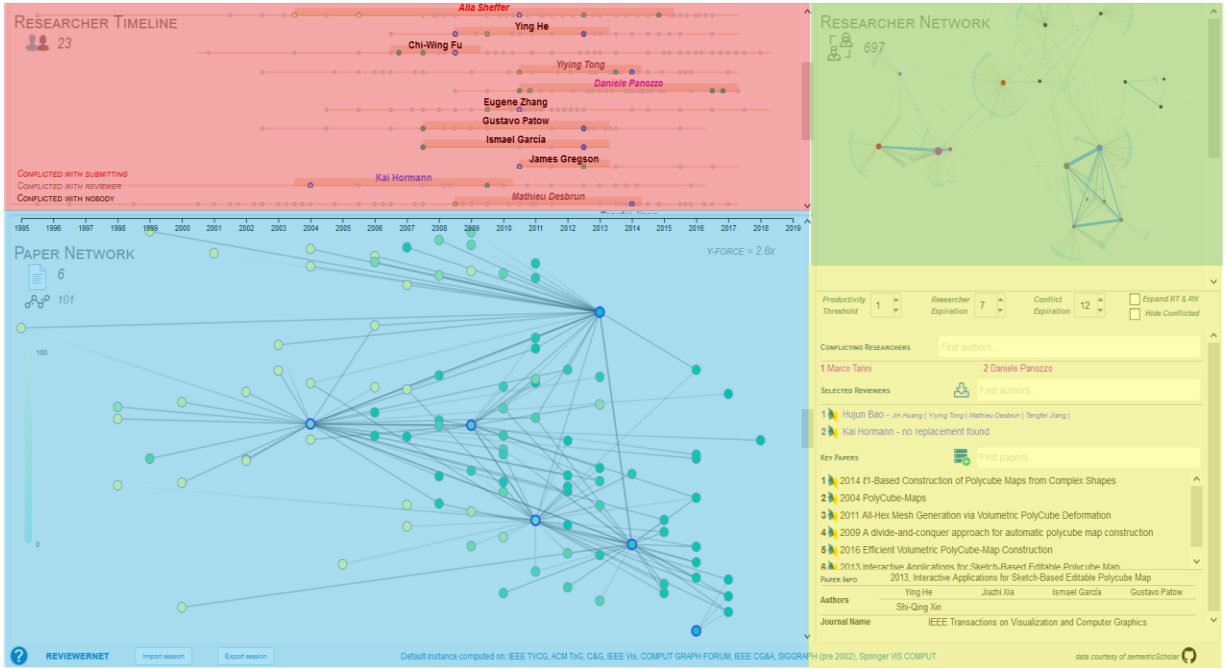


Rexplore

Main Intuition & The Reviewer Selection Process

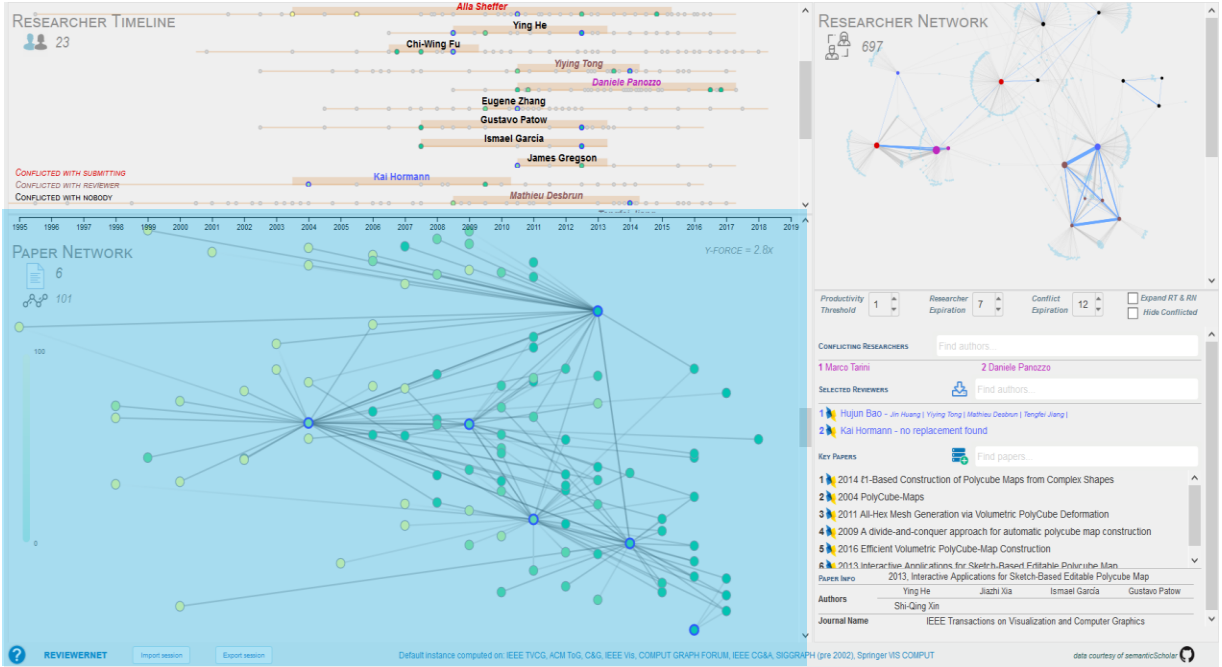
- specific goal: provide enough understanding to help editors in picking reviewers
- To support the user in the reviewer selection process we only rely on citations.

User Interface



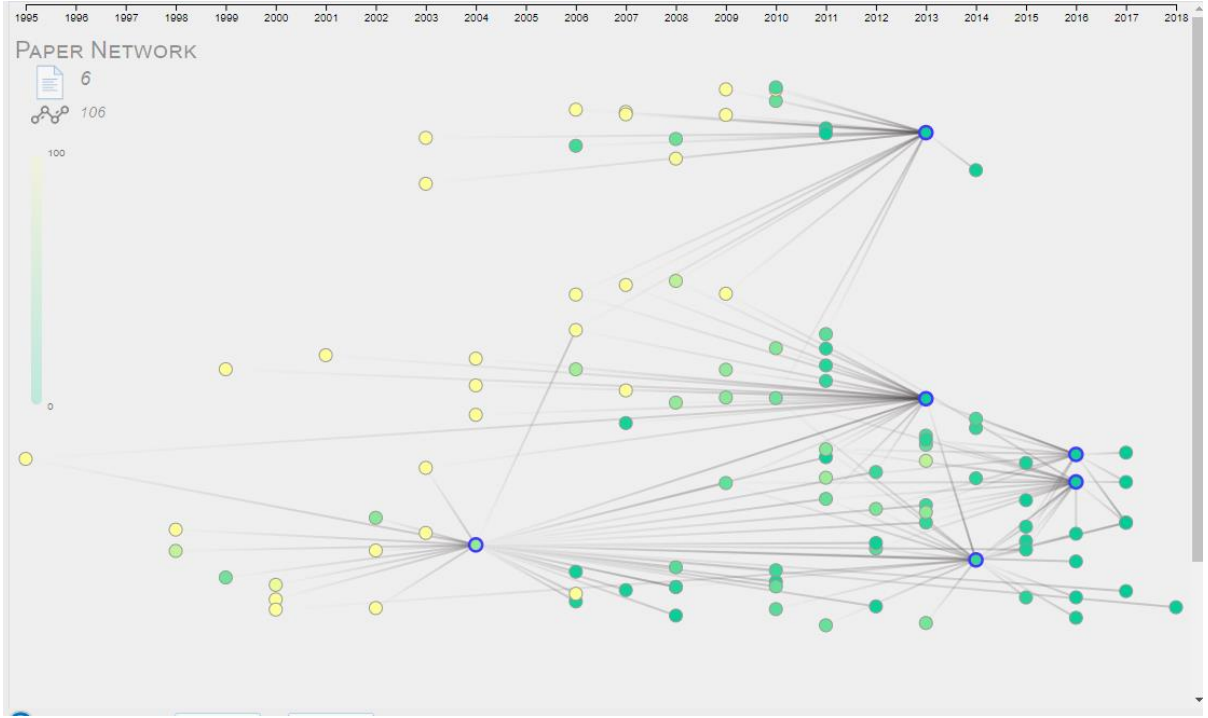
ReviewerNet User Interface

User Interface

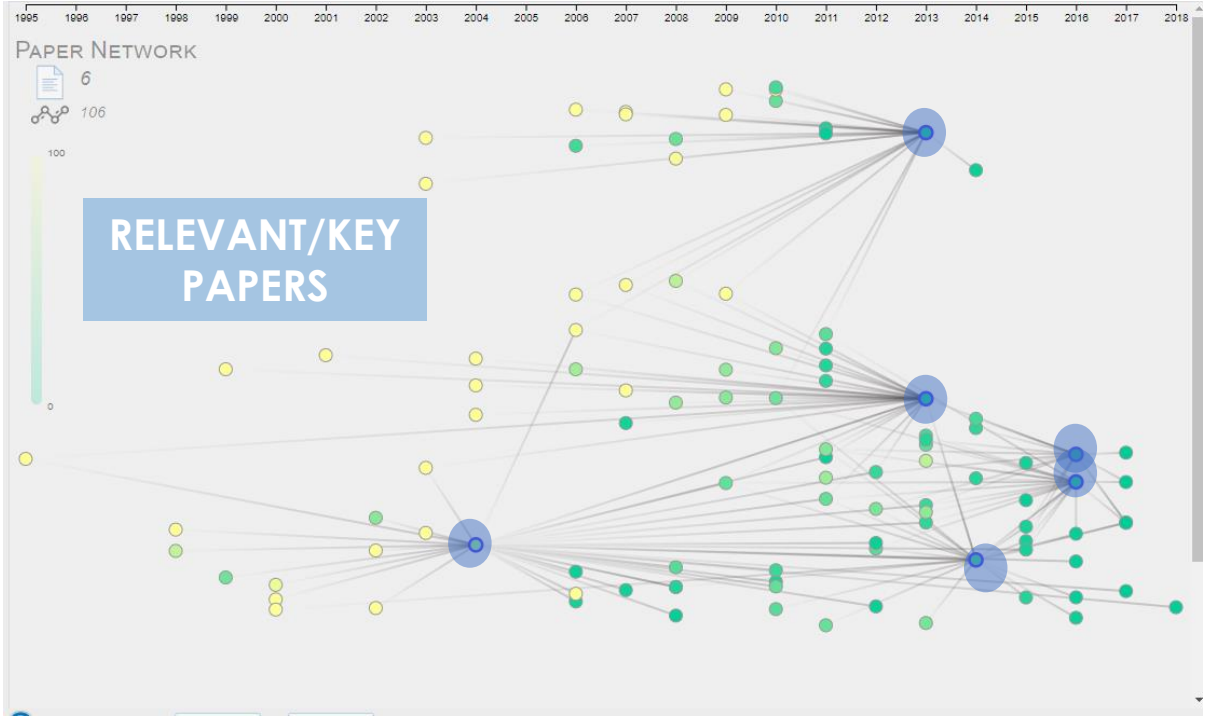


ReviewerNet User Interface

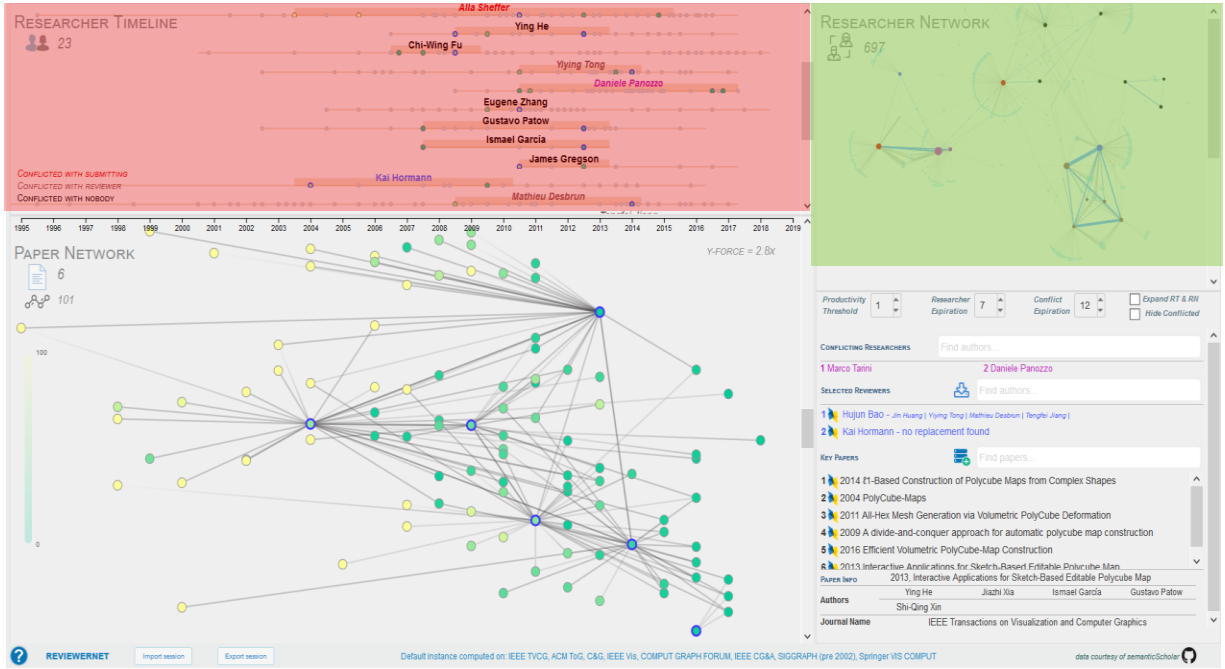
User Interface:
the Paper Network



User Interface:
the Paper Network

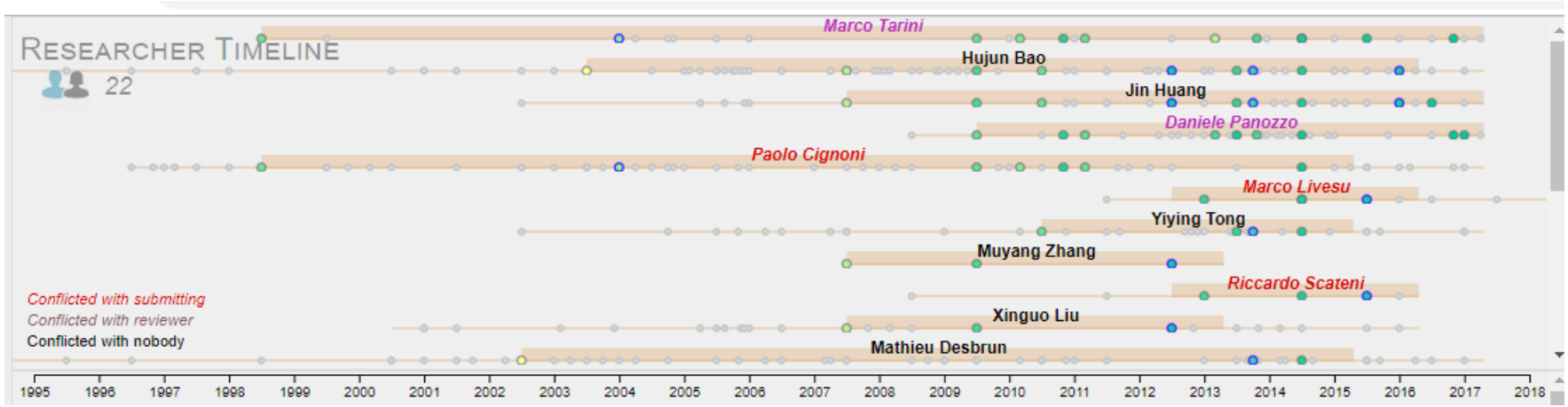


User Interface

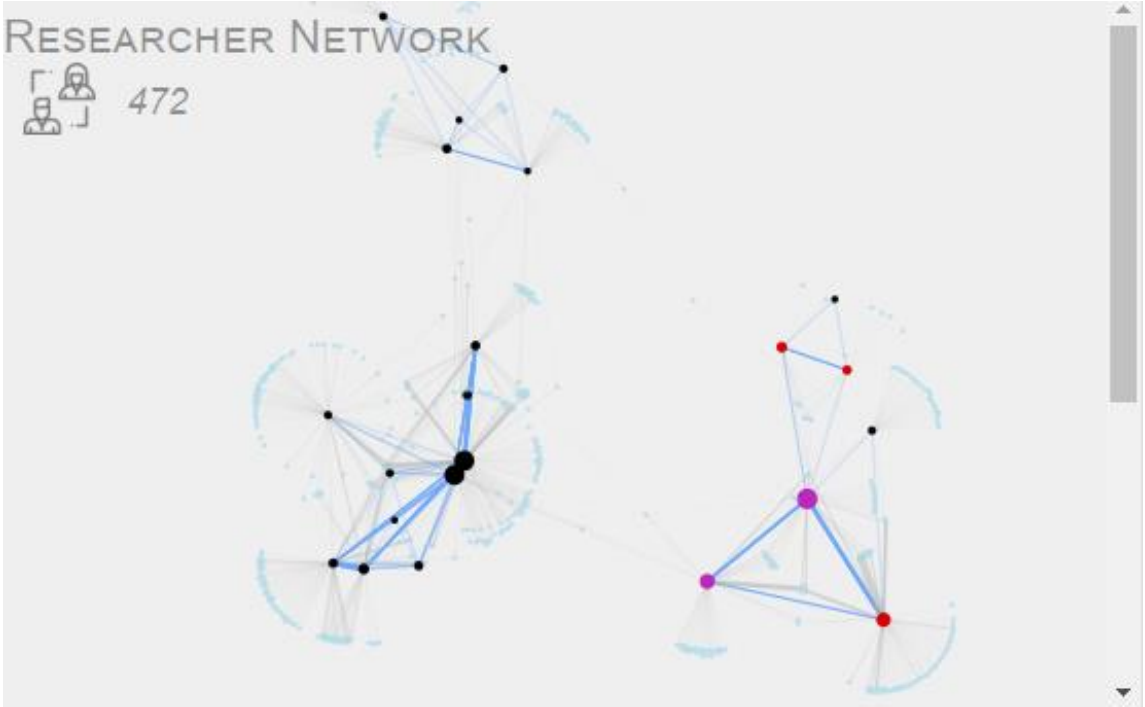


ReviewerNet User Interface

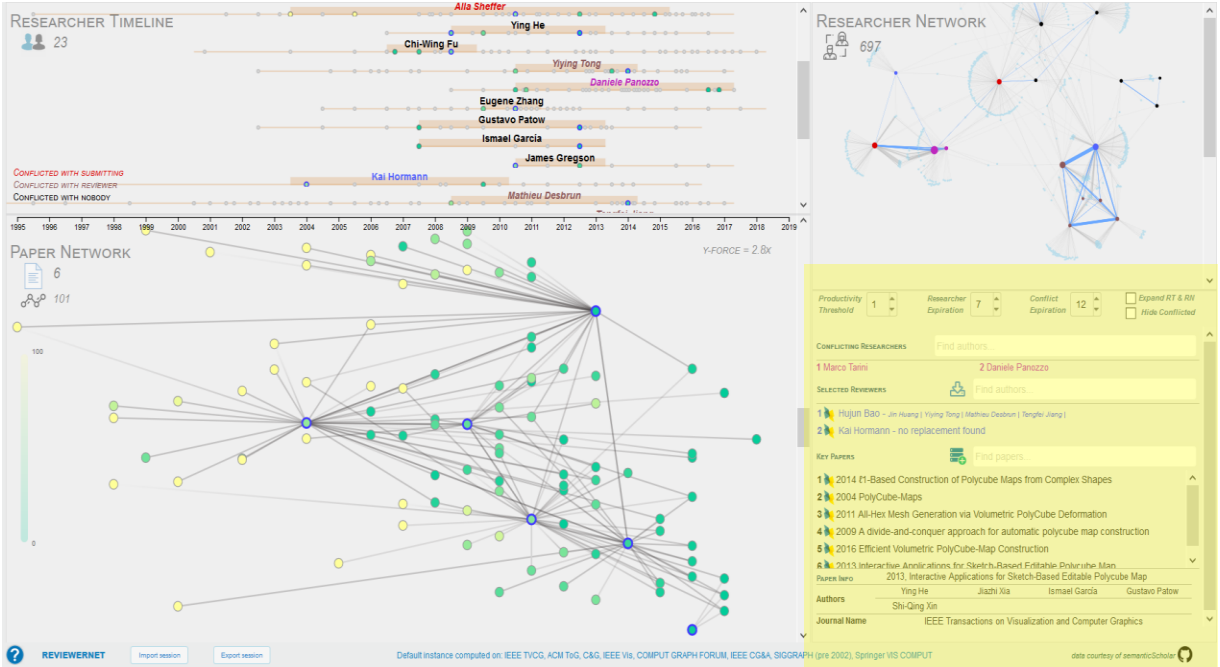
User Interface:
the Researcher Timeline



User Interface:
the Researcher Network

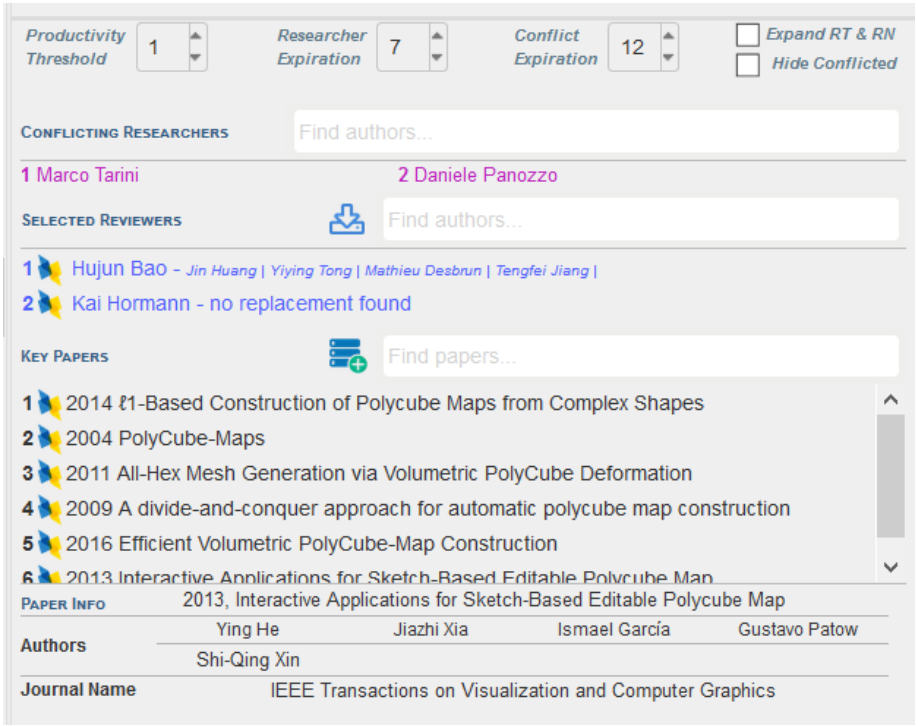


User Interface



ReviewerNet User Interface

User Interface:
the Control Panel



Dataset

- The Semantic Scholar corpus contains more than 70M publications
- We filtered the dataset to keep complexity low and offer a cleaner visualization.

Semantic Scholar

ReviewerNet default instance runs on a bibliographic database in the field of Computer Graphics extracted from the ***Semantic Scholar*** Corpus.

The Computer Graphics instance contains 15893 papers, 108370 citations, and 21274 authors, from 1995 to 2019, from 8 sources:

IEEE TVCG	*3041 papers*
ACM ToG	*2821 papers*
C&G	*1859 papers*
IEEE Vis	*741 papers*
COMPUT GRAPH FORUM	*3080 papers*
IEEE CG&A	*1754 papers*
SIGGRAPH (pre 2002)	*884 papers*
Springer VIS COMPUT	*1910 papers*

Computer Graphics Instance statistics

python

Architecture & Implementation Details

- Data source Semantic Scholar

```
{
   "id": "4cd223df721b722b1c40689caa52932a41fcc223",
   "title": "Knowledge-rich, computer-assisted composition of Chinese couplets",
   "paperAbstract":
…
   "year": 2016,
   "venue": "DSH",
   "journalName": "DSH"
}
```

Generic JSON record of the Semantic Scholar corpus

- Python for preprocessing
- HTML, JS for UI and D3js for graph drawing
- ReviewerNet is a client-side application

Platform publicly available @ reviewernet.org

Code on github @ cnr-isti-vclab/ReviewerNet

Now a brief demonstration

Conclusions

ReviewerNet fully supports the reviewer selection process

Only relies on citations and co-authorship

Avoids conflicts and builds a distributed pool of reviewers

Conclusions:
pros&cons

- easy to use
- fast to learn
- multifunctional

- page-zero problem
- no customizable data coverage

Conclusions:
Further Work

- easy to use
- fast to learn
- multifunctional

- Automated choice of key papers
- user-friendly procedure to generate custom instances

- page-zero problem
- no customizable data coverage

THANKS FOR YOUR ATTENTION