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
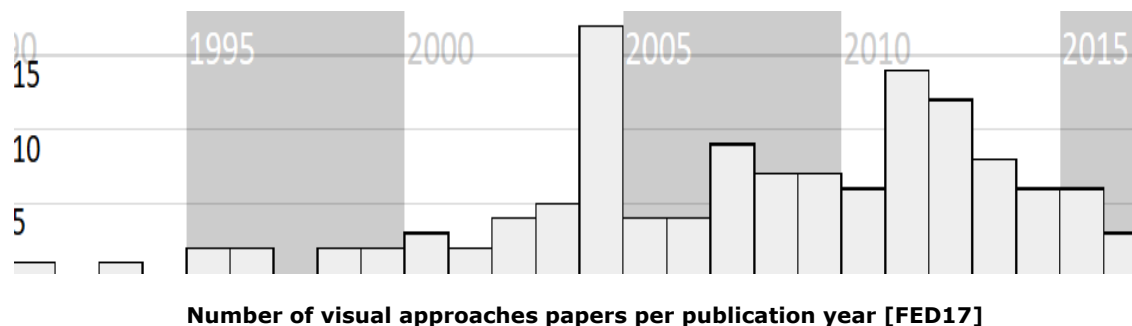
Introduction

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

Records in DBLP
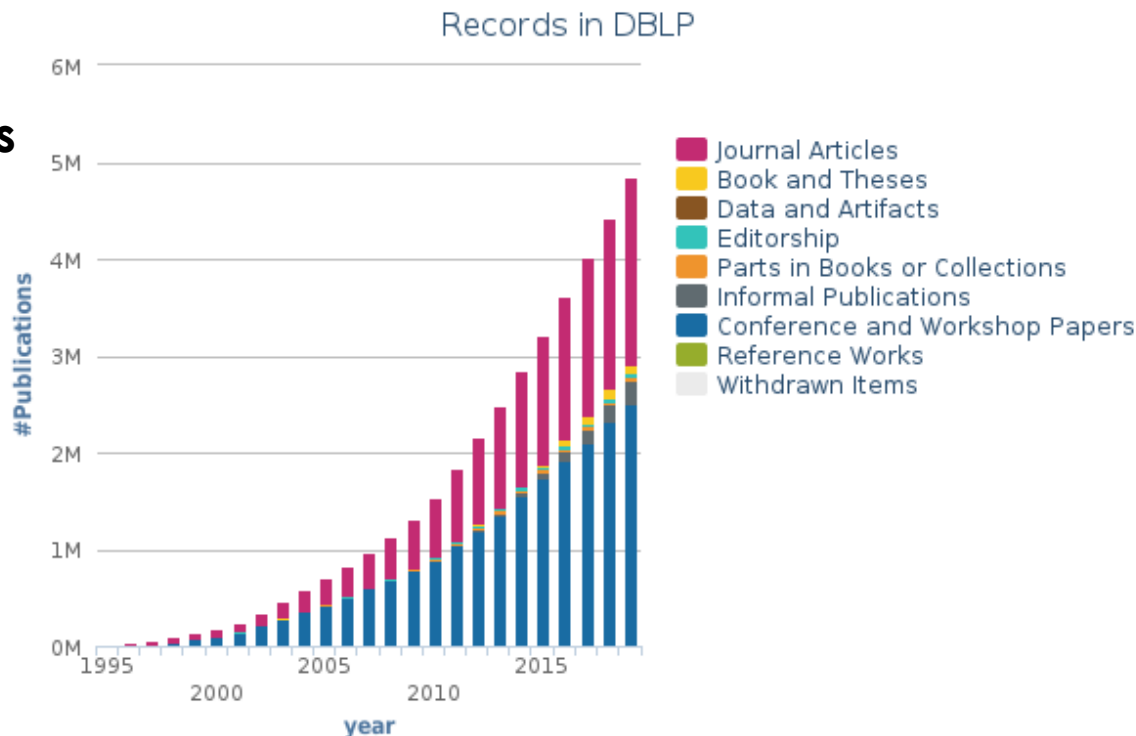
Related Work

- **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 static visualization**

[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.
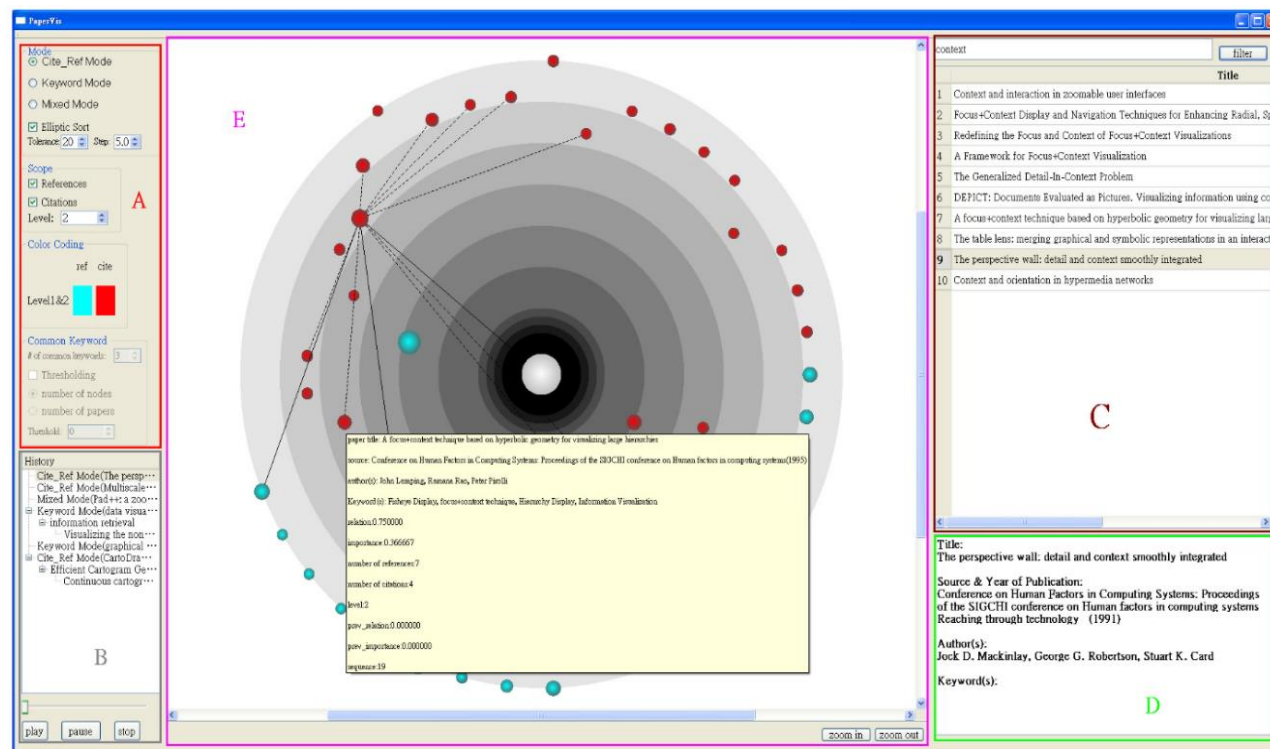
Related Work

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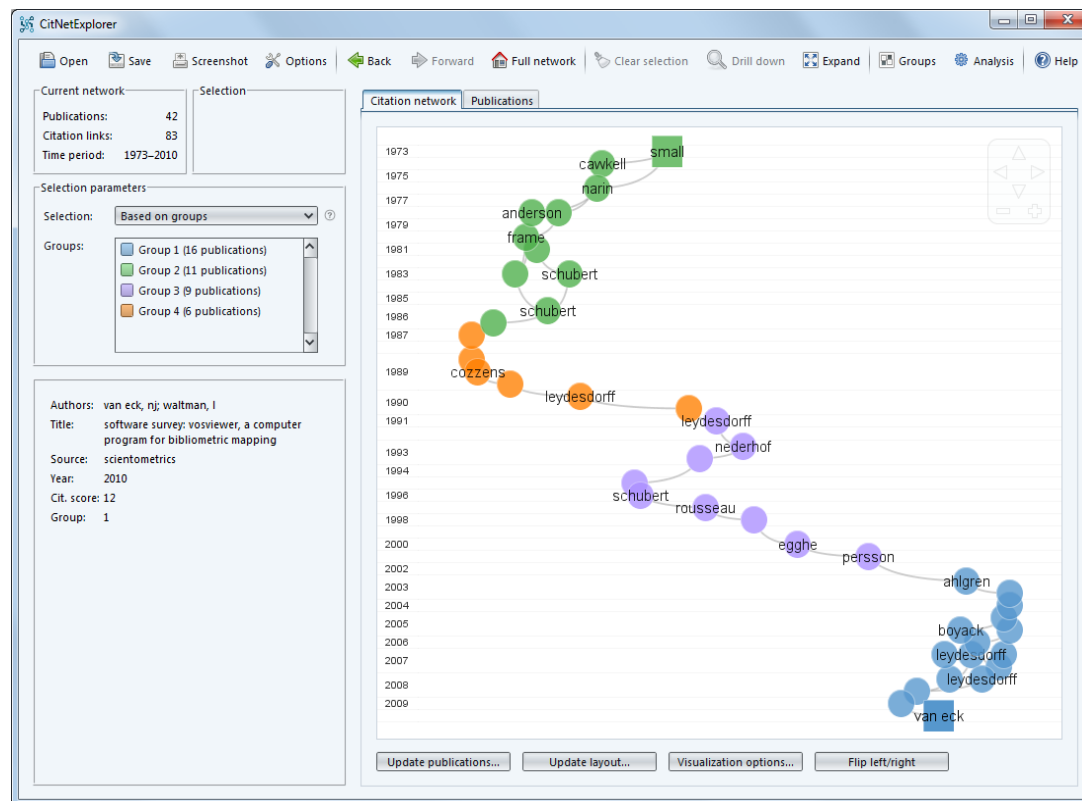
CiteNetExplorer

Related Work

- **exploit graph structure to obtain semantically meaningful hierarchies**

PaperViz

Related Work

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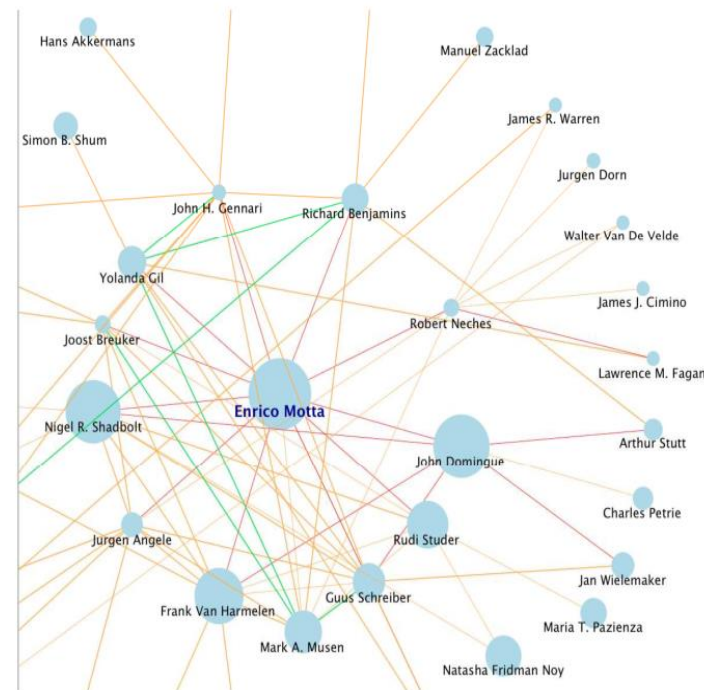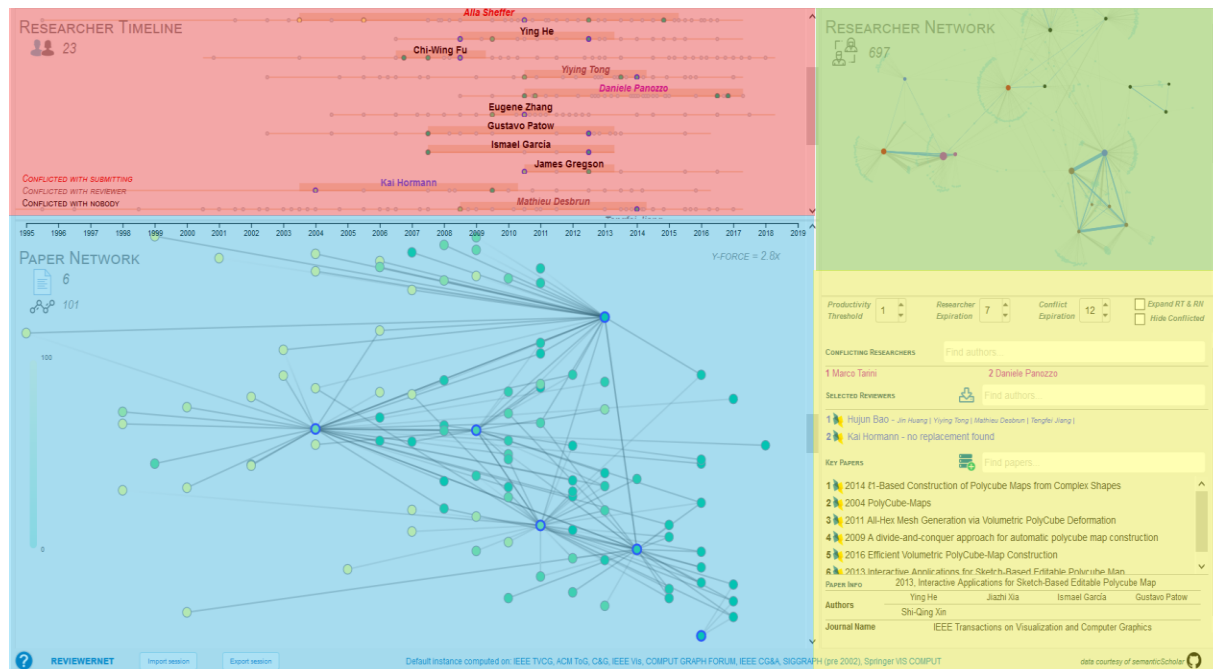

Rexplore

Main Intuition & The Reviewer Selection Process

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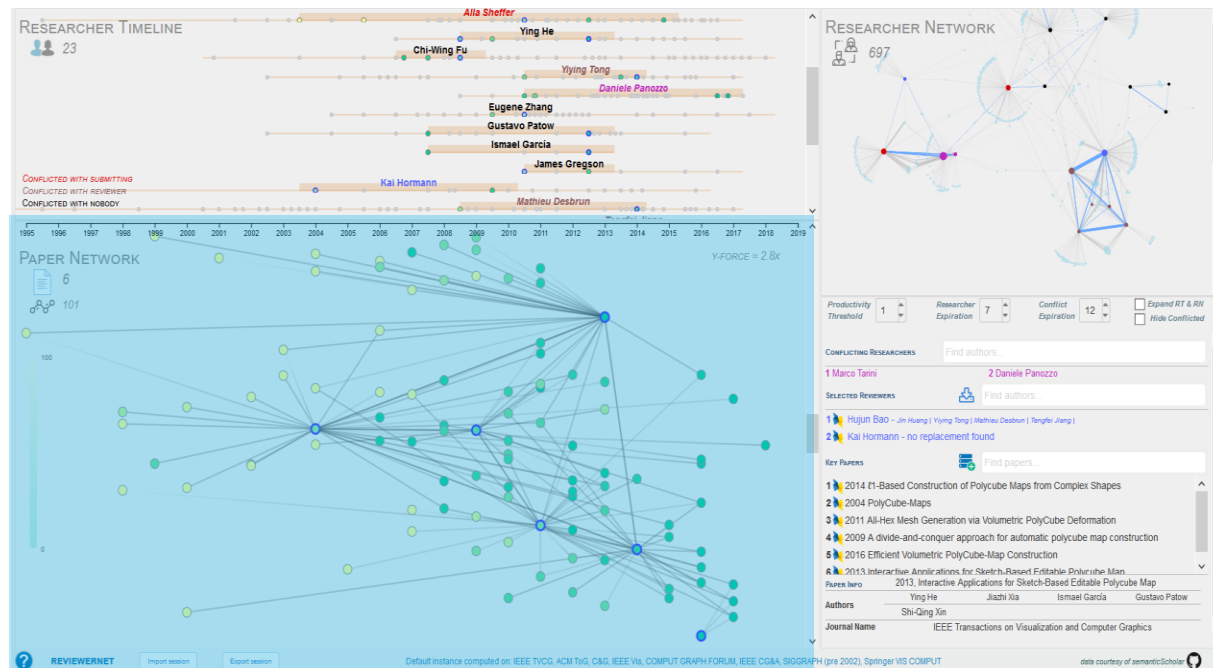- To support the user in the reviewer selection process we only rely on citations.

| Identify relevant papers | Navigate&Expand Citations Network | Assess the suitability and conflicts of researchers | Authors of relevant papers are good candidate reviewers |

User Interface
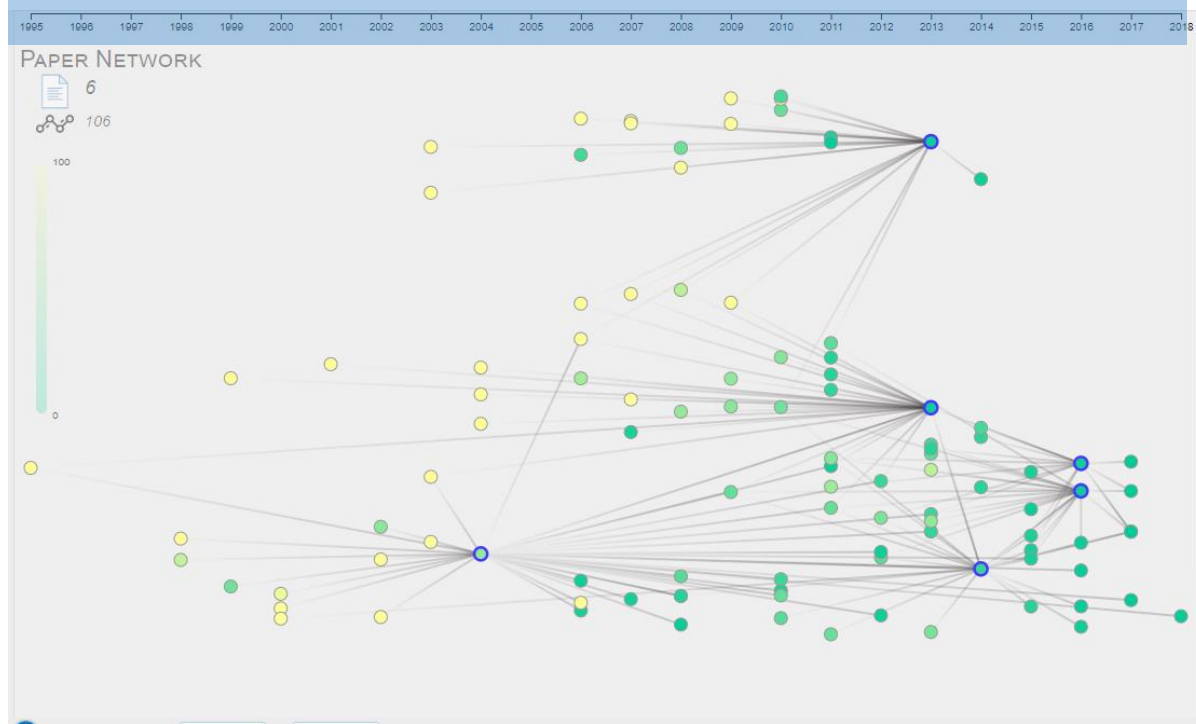

ReviewerNet User Interface
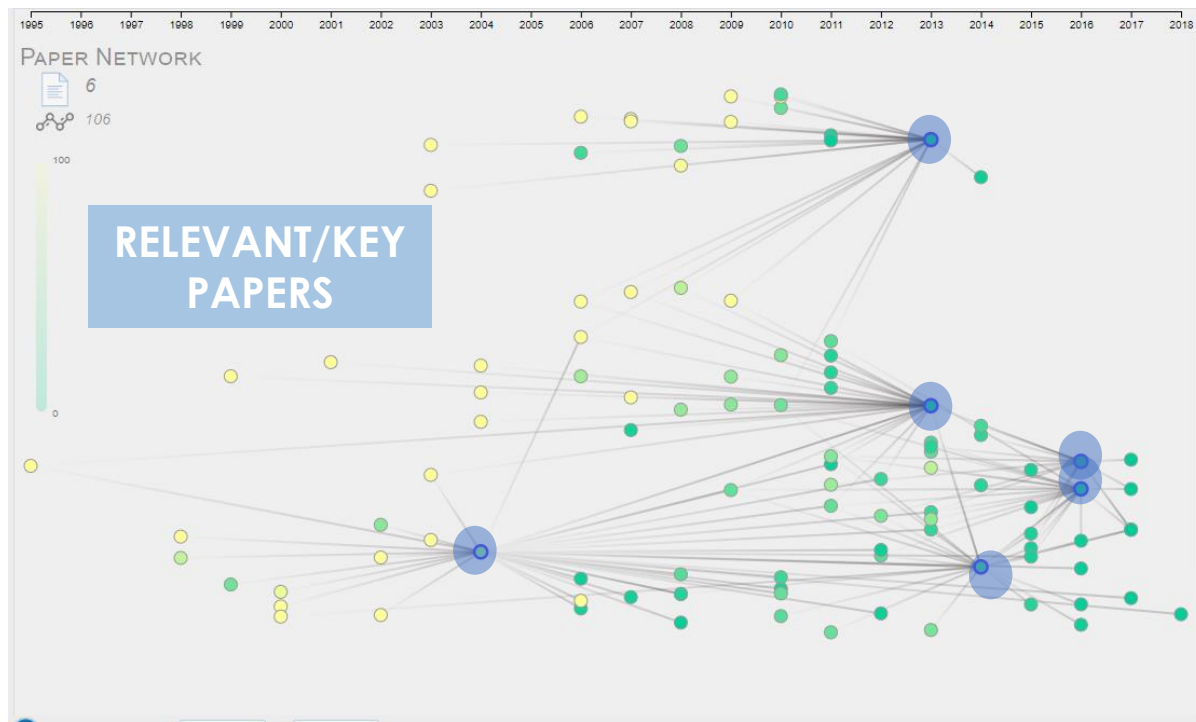
User Interface

ReviewerNet User Interface
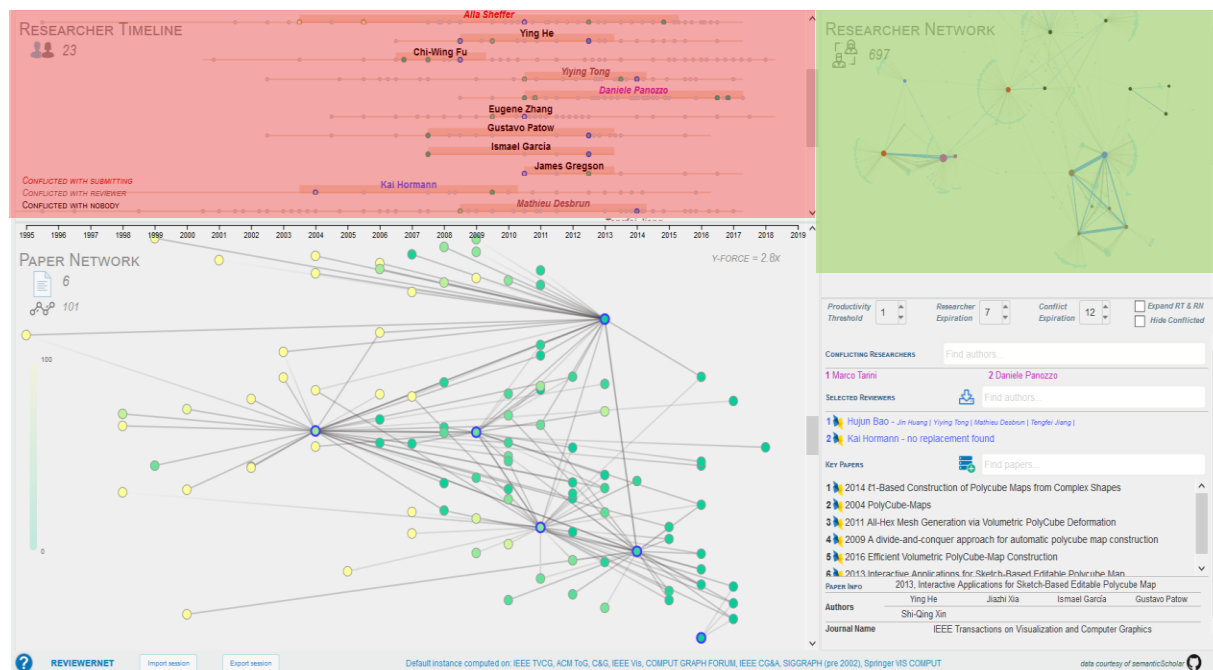
User Interface:
the Paper Network

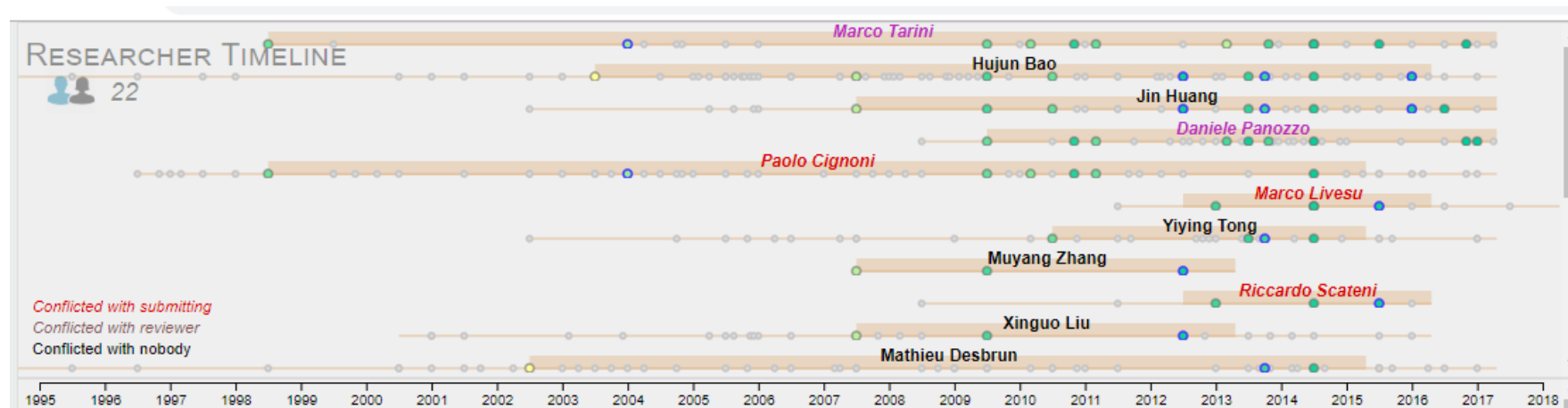Time axis

User Interface:
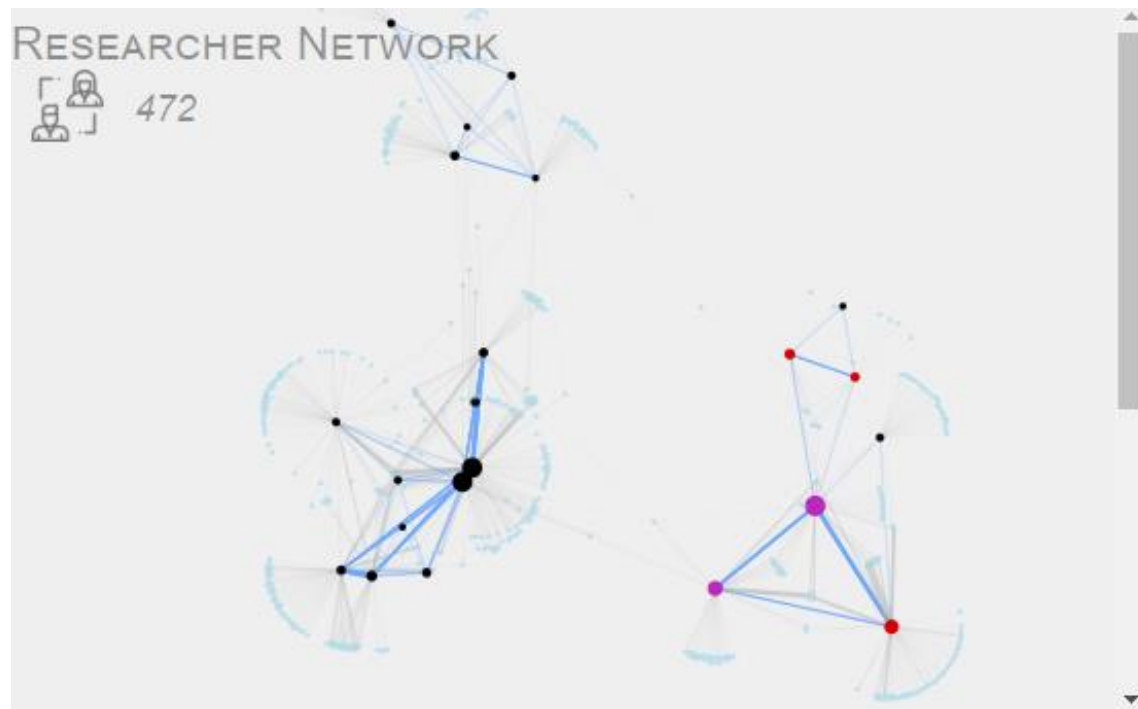## the Paper Network

User Interface
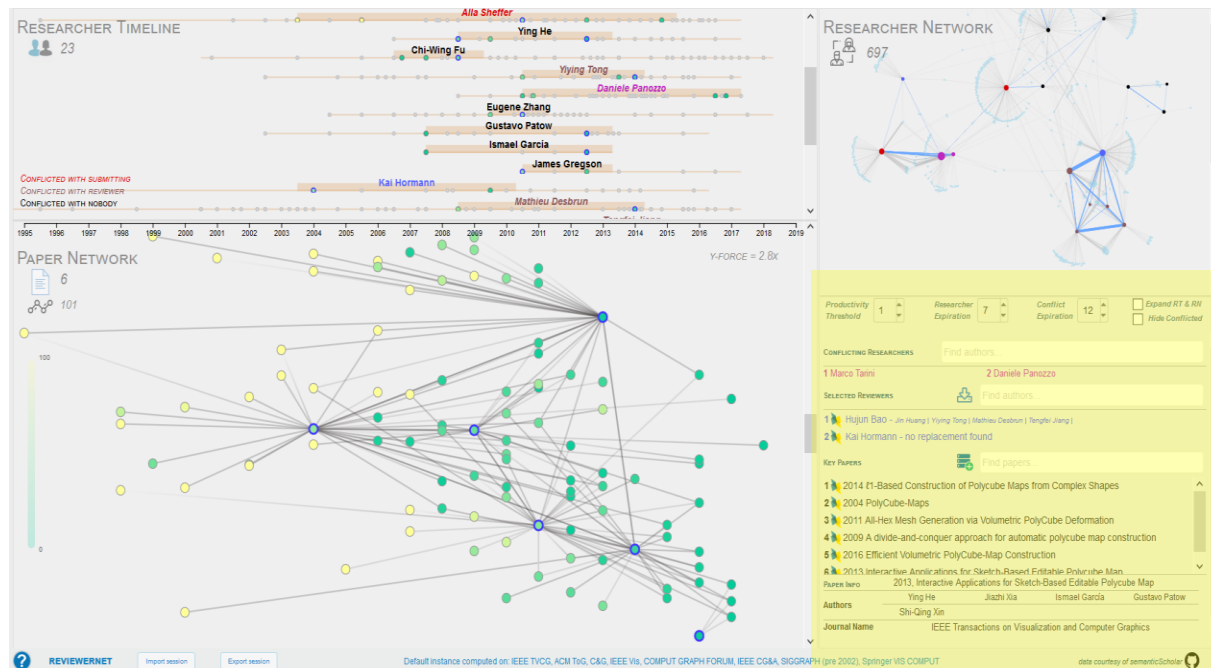

ReviewerNet User Interface

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.**

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

Semantic **Scholar**

python

Architecture & Implementation Detais

- **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**

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

- page-zero problem
- no customizable data coverage

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

Warning
Coding in progress

THANKS FOR YOUR ATTENTION