



Smart Tools and Applications in Graphics STAG 2019

November 14-15
Cagliari
Italy

ReviewerNet

A visualization tool for scholarly data

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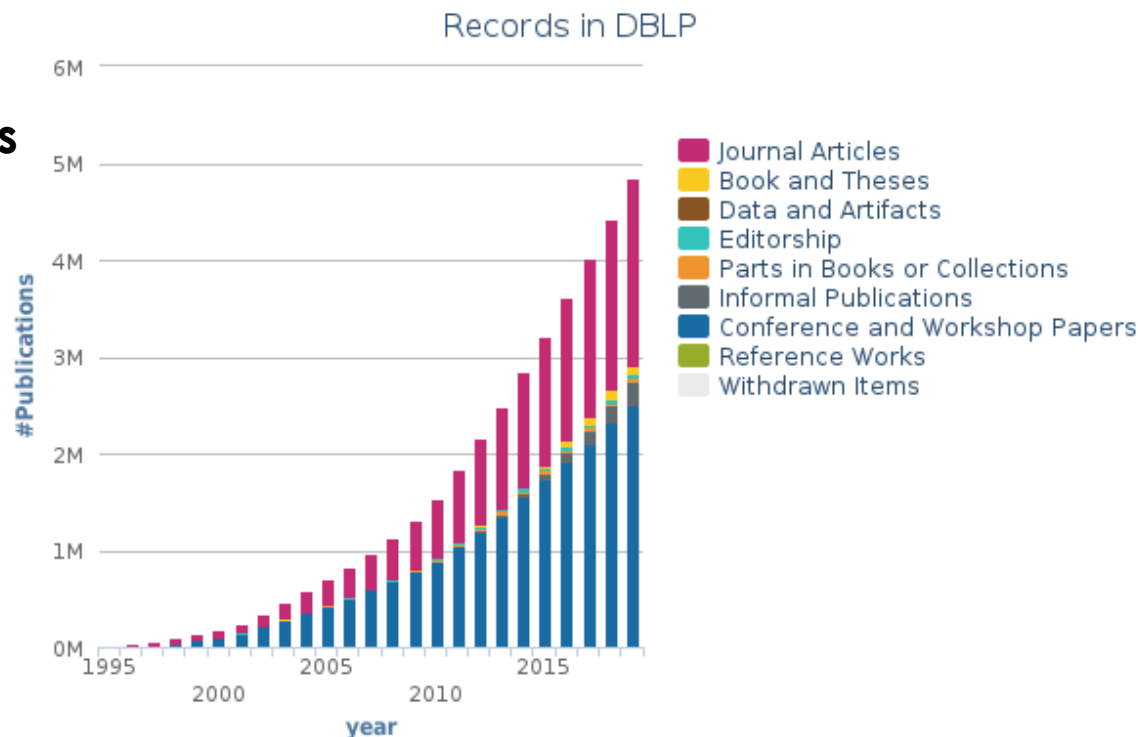
Problem

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

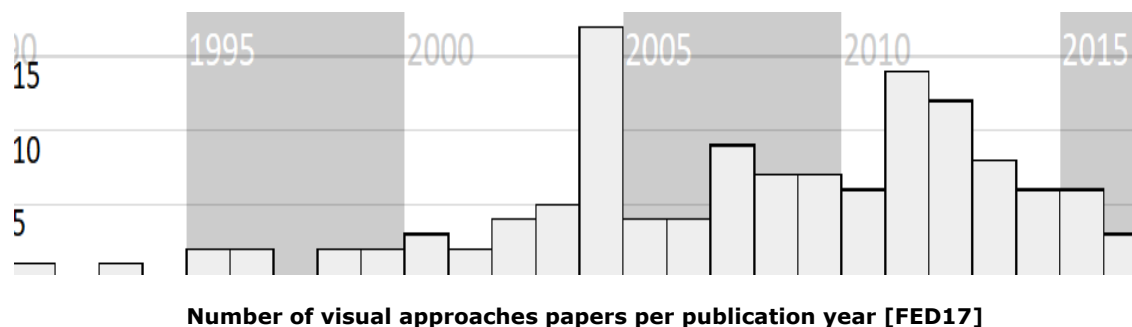
Introduction

- 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

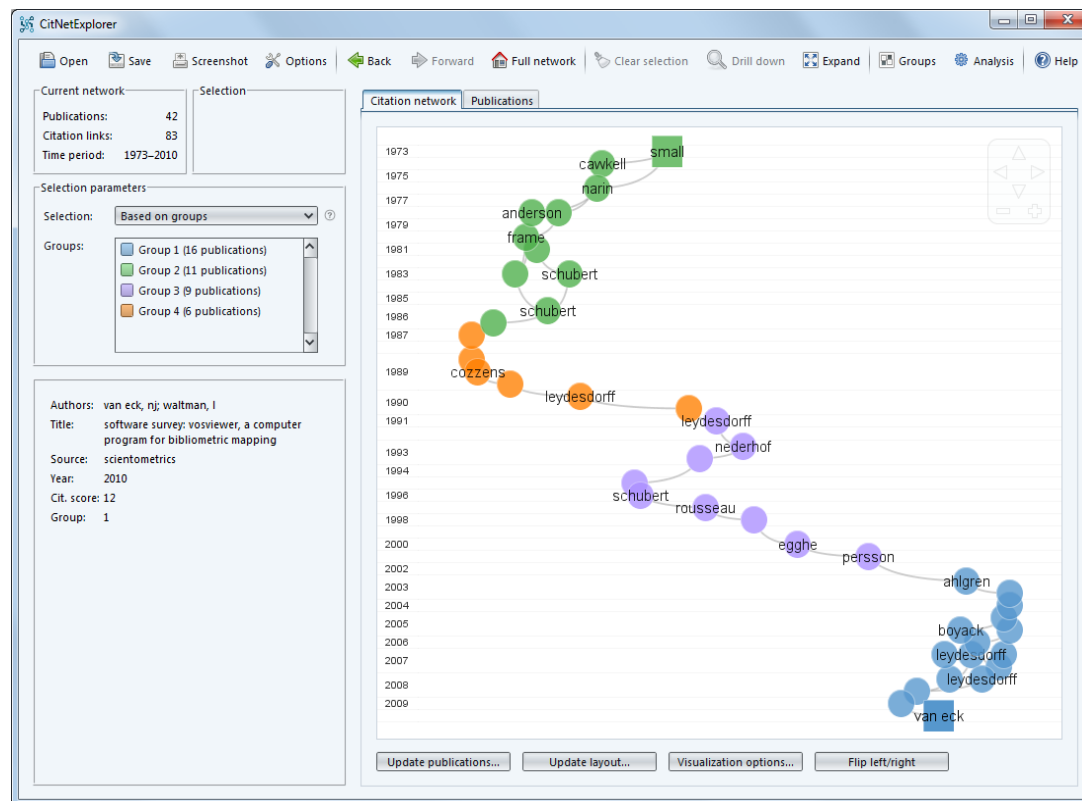


- most of the works focused on the visualization of document collections

[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

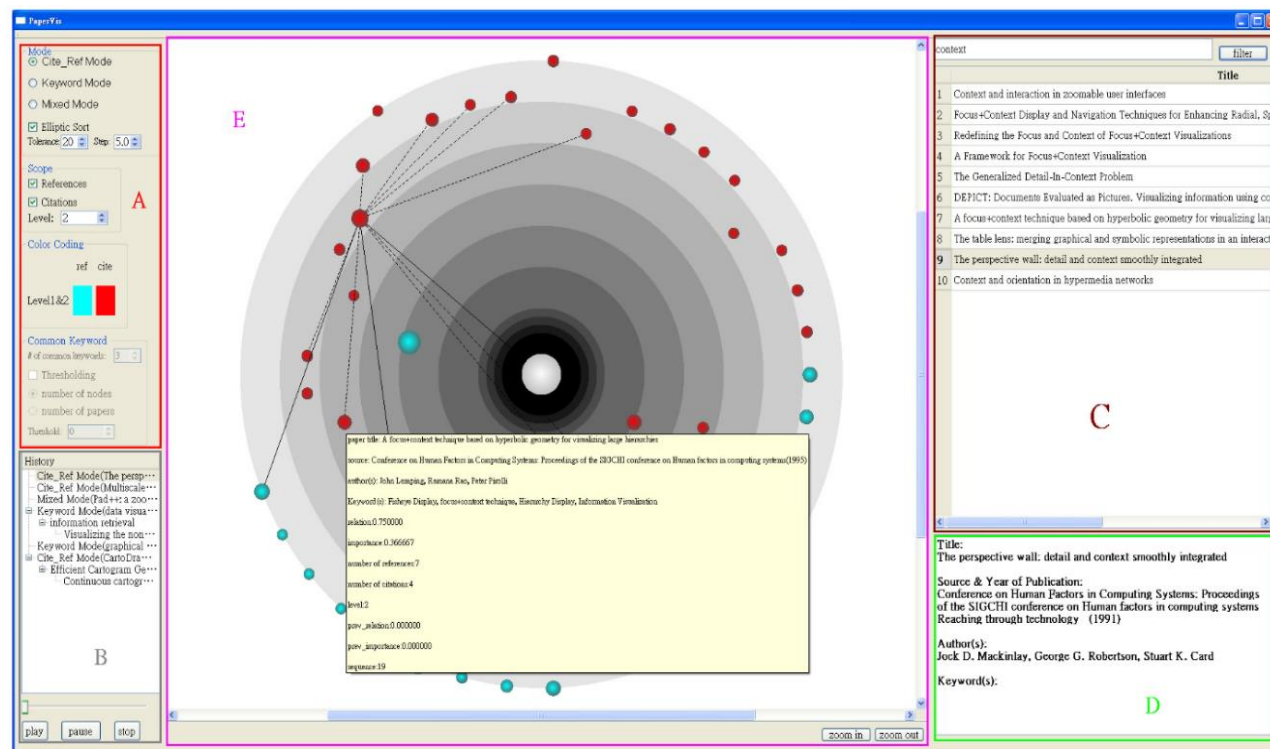
- the visualization of bibliometric networks is an active area of research
- history and development of research fields can be analyzed with citation networks



CiteNetExplorer

Related Work

- exploit graph structure to obtain semantically meaningful hierarchies



PaperViz

Related Work

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

Graph Control 

Reload Reset

List graph nodes

Connections: Temporal Topic Similarity 

Ranking: Total Publication in Topic 

Style: Standard 

Context 

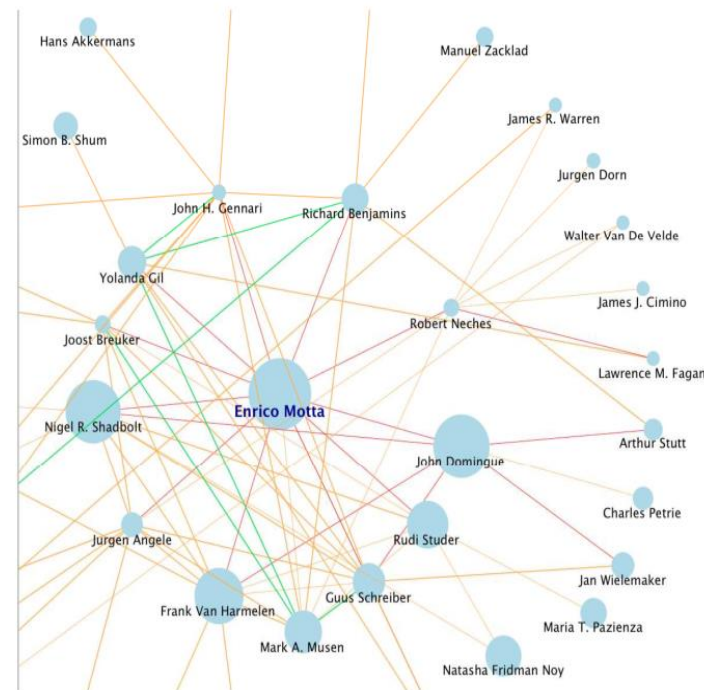
Semantic Web

Suggest venues from topics

Venue

Filters 

Advanced 



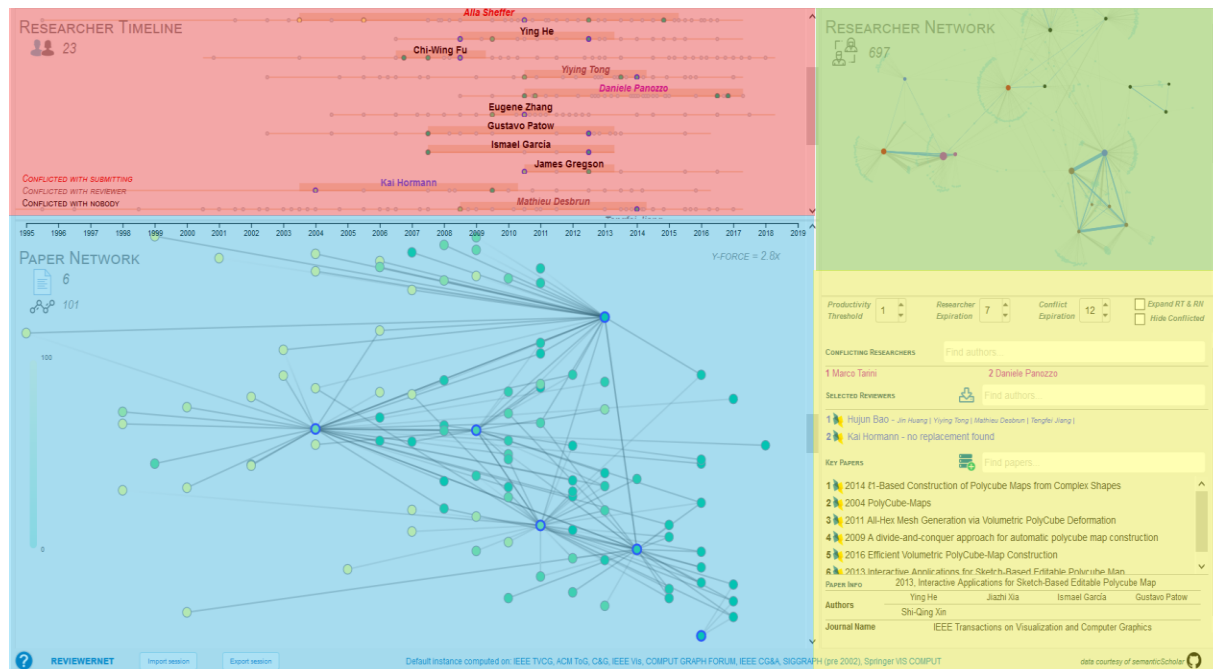
Rexplore

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**.

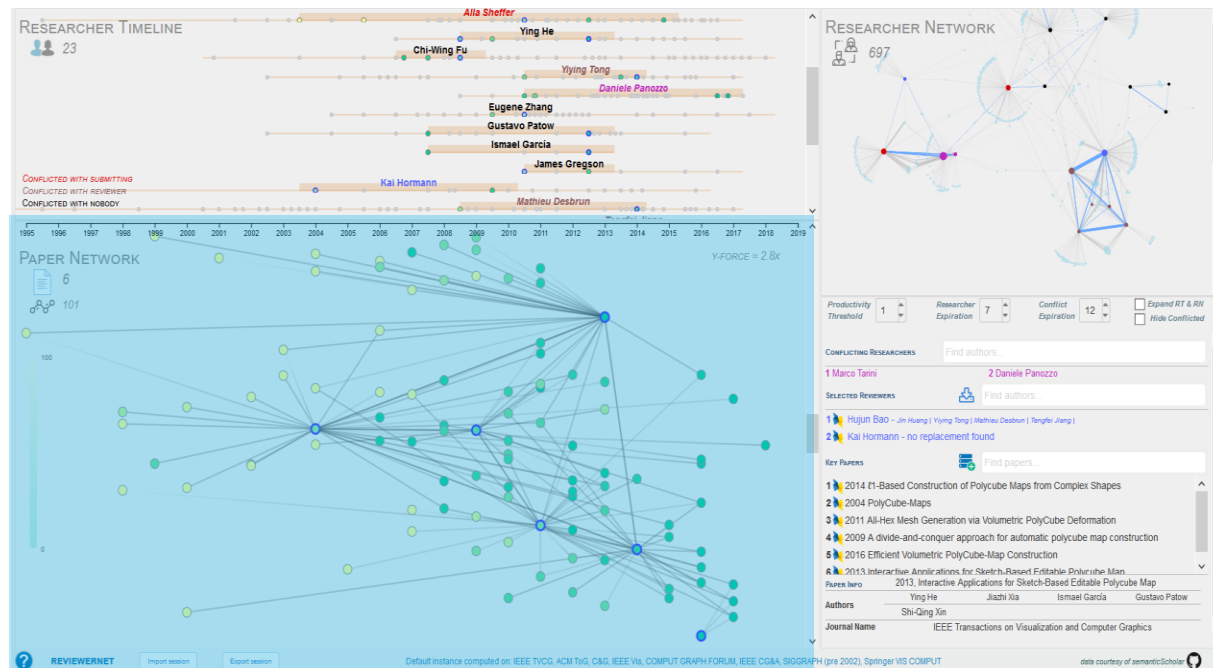


User Interface



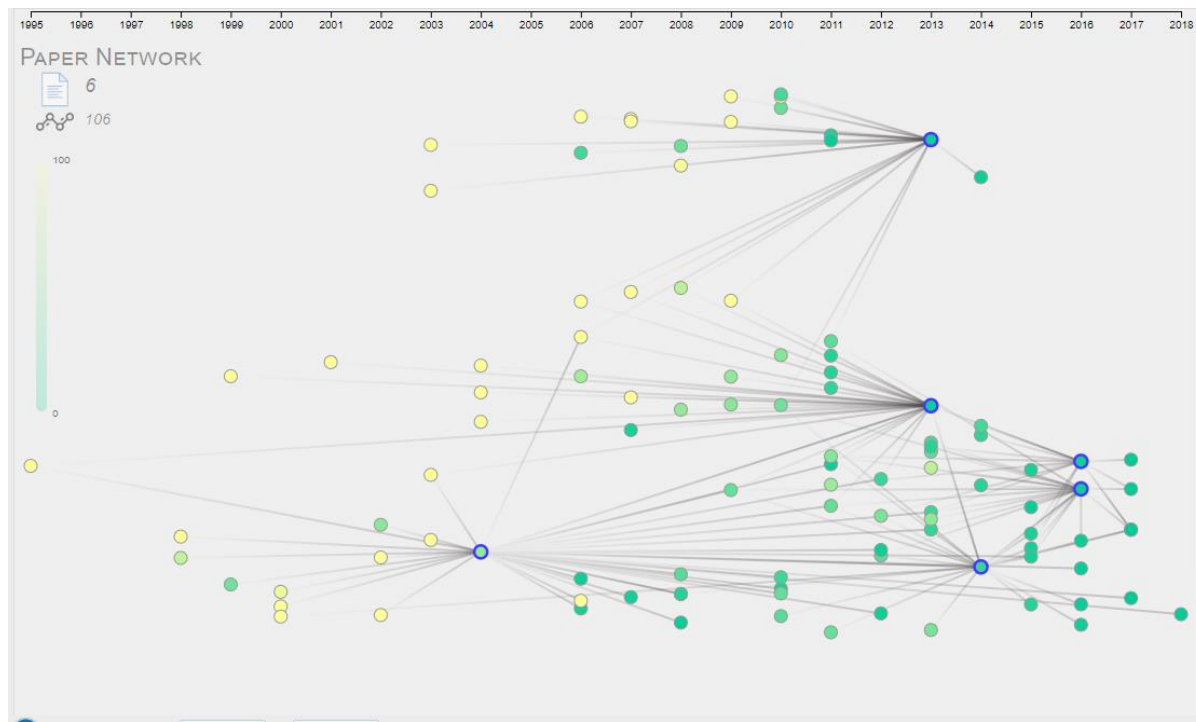
ReviewerNet User Interface

User Interface

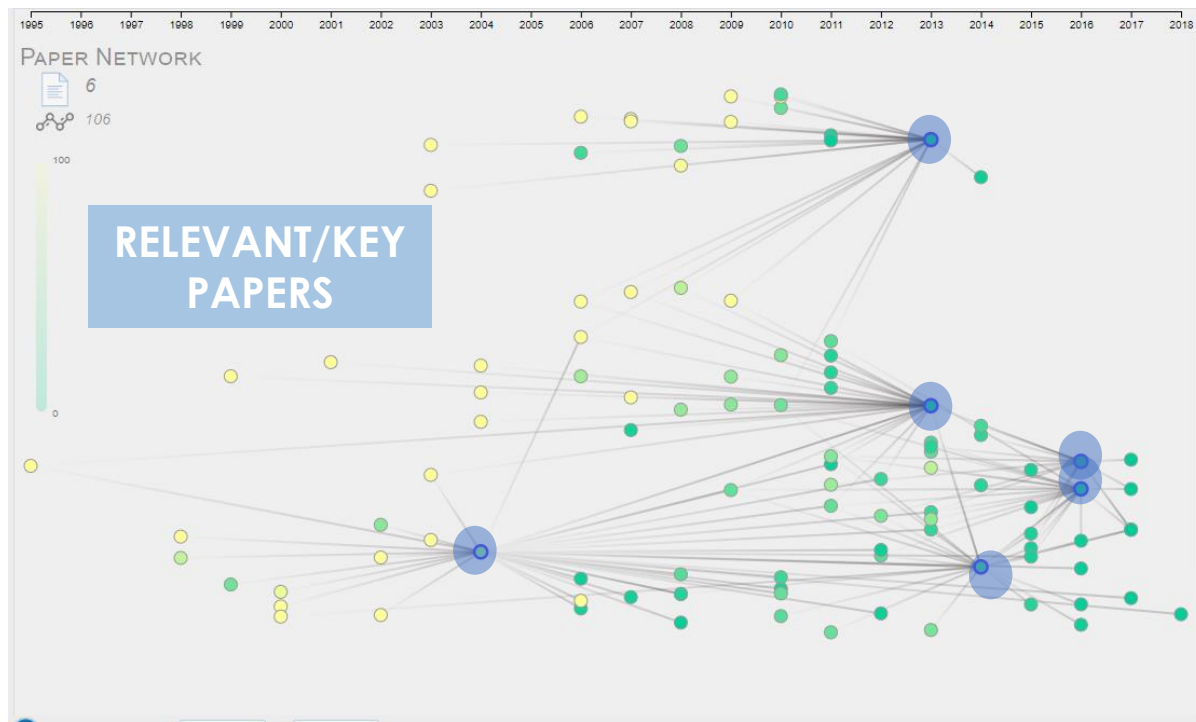


ReviewerNet User Interface

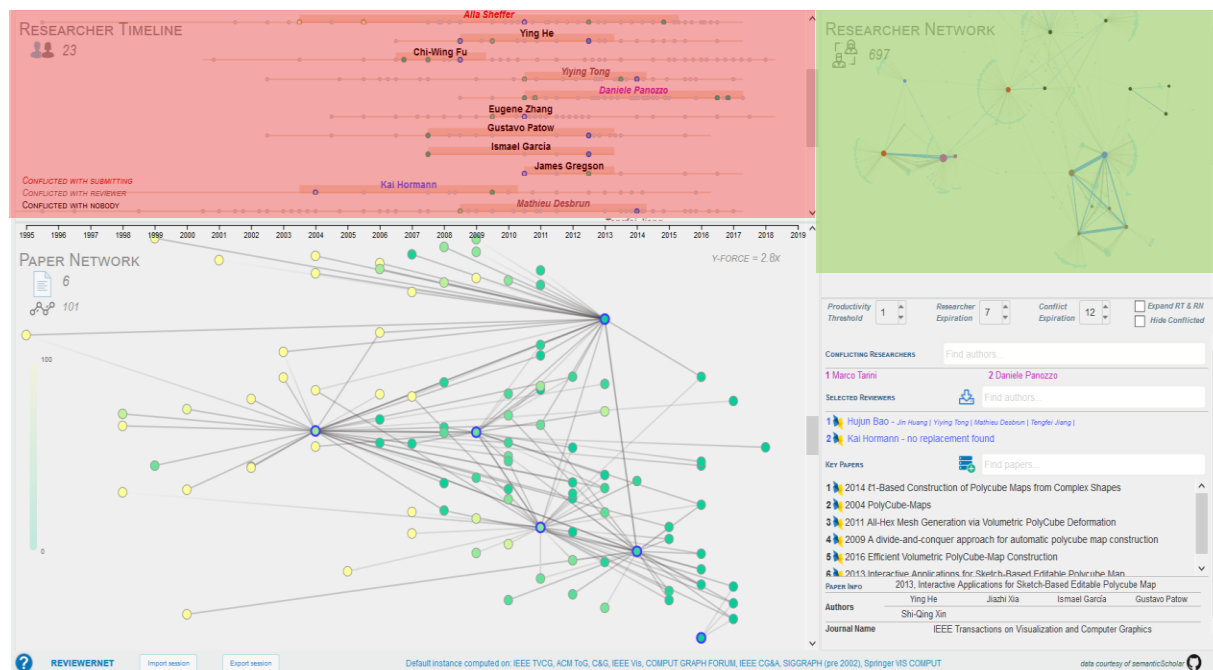
User Interface: the Paper Network



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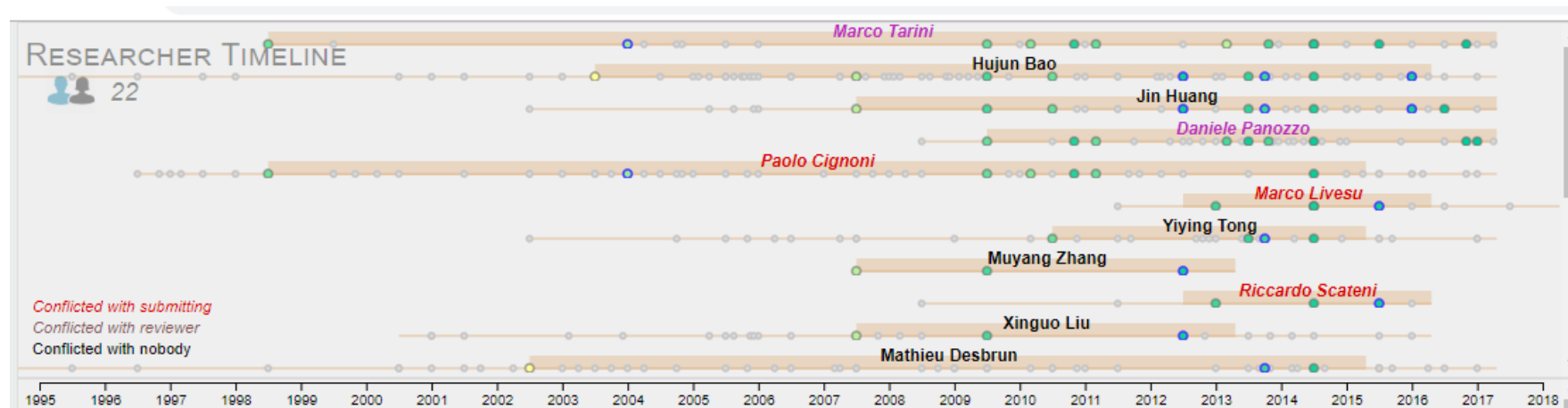


User Interface

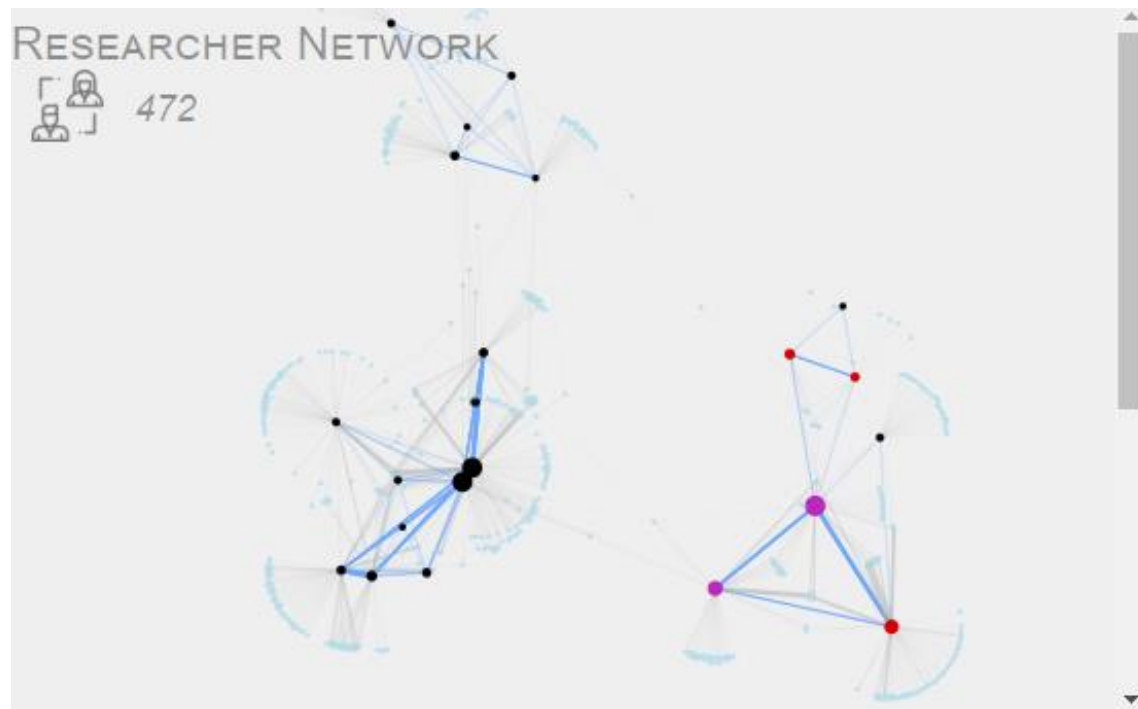


ReviewerNet User Interface

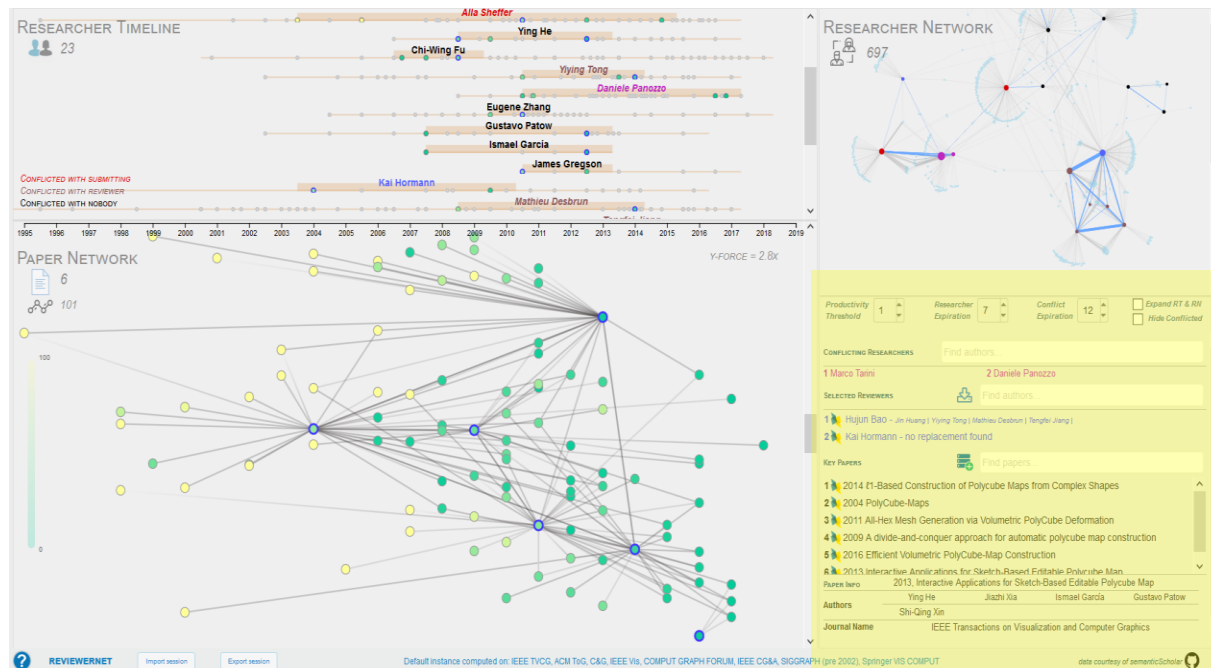
User Interface: the Researcher Timeline



User Interface: the Researcher Network



User Interface



ReviewerNet User Interface

User Interface: the Control Panel

Productivity Threshold

1

Researcher Expiration

7

Conflict Expiration

12

☐ Expand RT & RN

☐ Hide Conflicted

CONFLICTING RESEARCHERS

Find authors...

1 Marco Tarini

2 Daniele Panozzo

SELECTED REVIEWERS

Find authors...

1 Hujun Bao - Jin Huang | Yiyong Tong | Mathieu Desbrun | Tengfei Jiang |

2 Kai Hormann - no replacement found

KEY PAPERS

Find papers...

1 2014 ϵ 1-Based Construction of Polycube Maps from Complex Shapes

2 2004 PolyCube-Maps

3 2011 All-Hex Mesh Generation via Volumetric PolyCube Deformation

4 2009 A divide-and-conquer approach for automatic polycube map construction

5 2016 Efficient Volumetric PolyCube-Map Construction

6 2013 Interactive Applications for Sketch-Based Editable Polycube Map

PAPER INFO

2013, Interactive Applications for Sketch-Based Editable Polycube Map

Authors

Ying He

Jiazhi Xia

Ismael García

Gustavo Patow

Shi-Qing Xin

Journal Name

IEEE Transactions on Visualization and Computer Graphics

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](https://github.com/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



THANKS FOR YOUR ATTENTION