PAPERGALAXY

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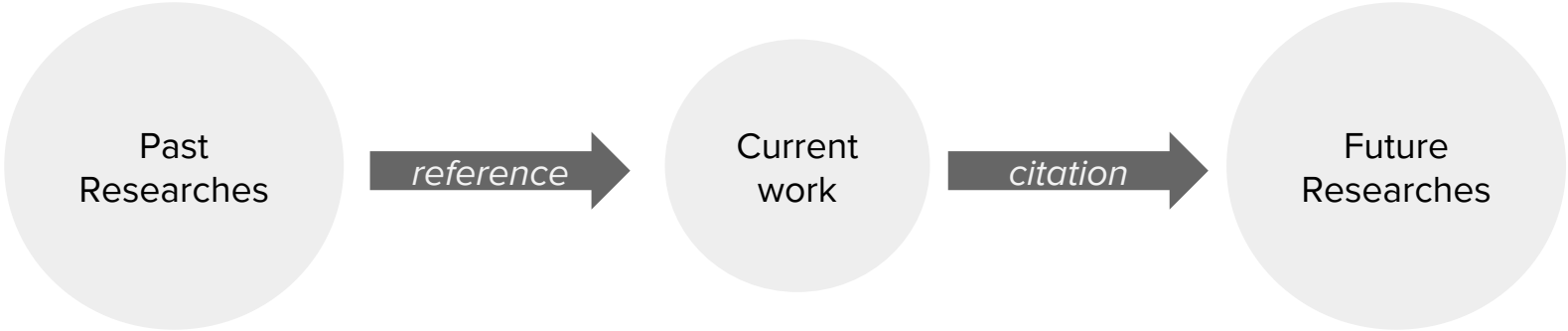
Motivation

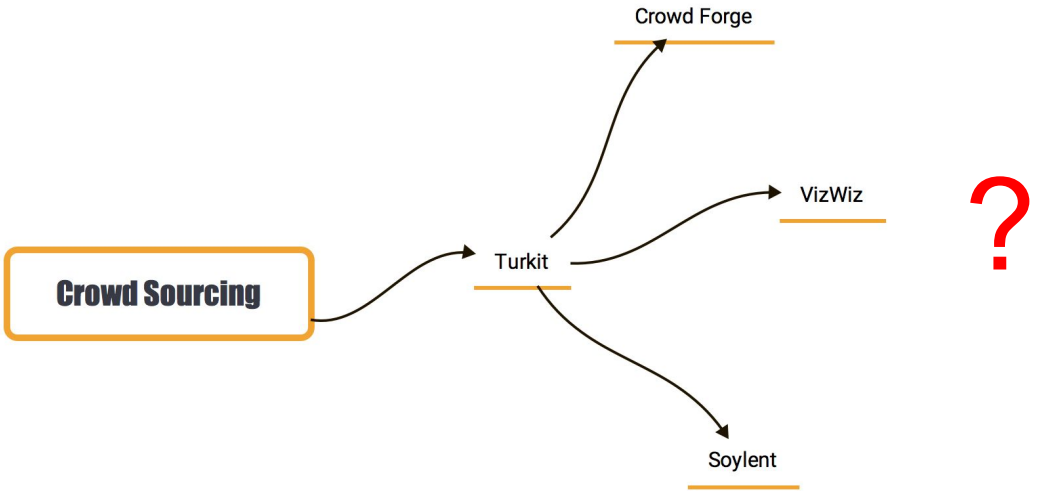
Every research is connected to each other.



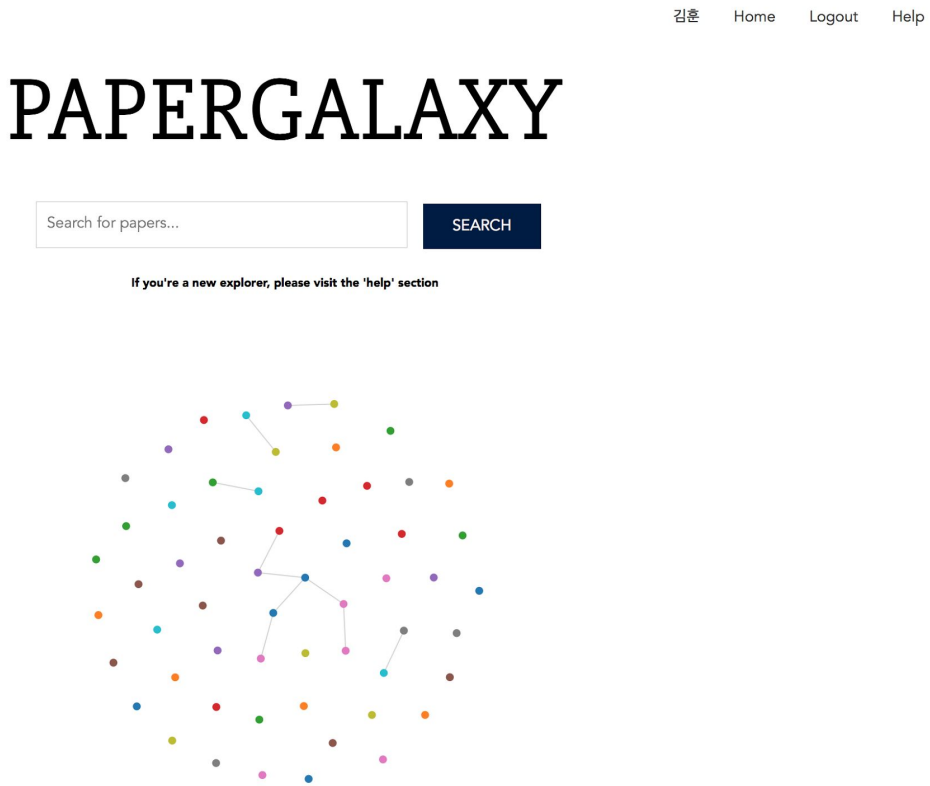
Problem

It is very important for researchers to understand

“How each research is connected to each other”



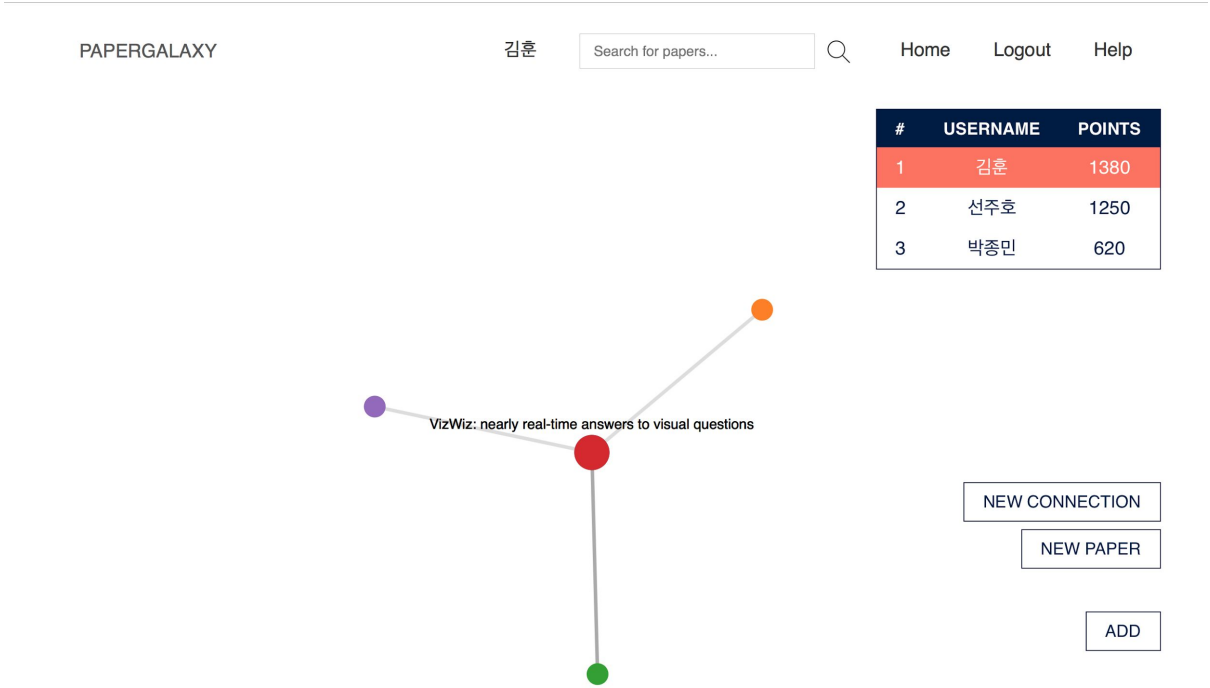
Our Solution



Main Tasks

Node: Academic paper

Edge: Descriptive label of the relationship

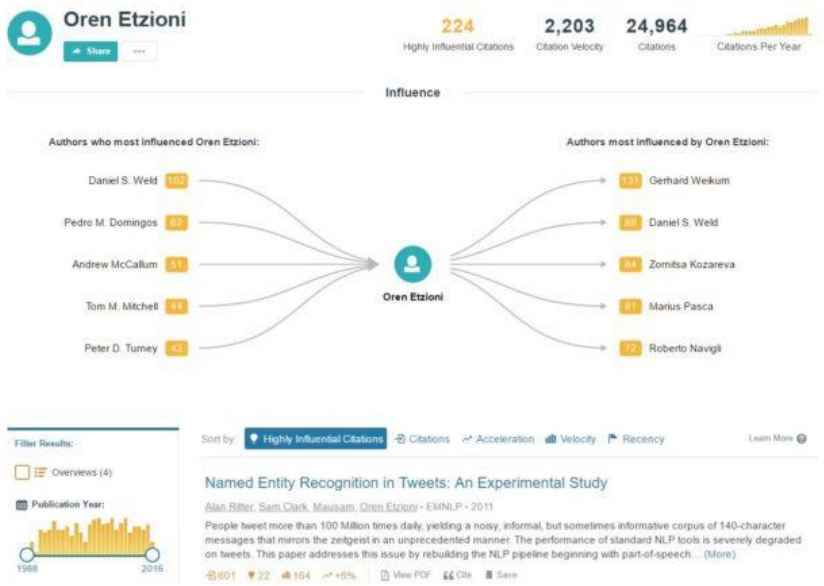


Workers create a map of papers by connecting **nodes** and labeling the **edges.**

Existing Solution (Semantic Scholar)

1. lacks the context of each connections

2. only shows microscopic view of connections between papers.



Live Demo

- papergalaxy.org
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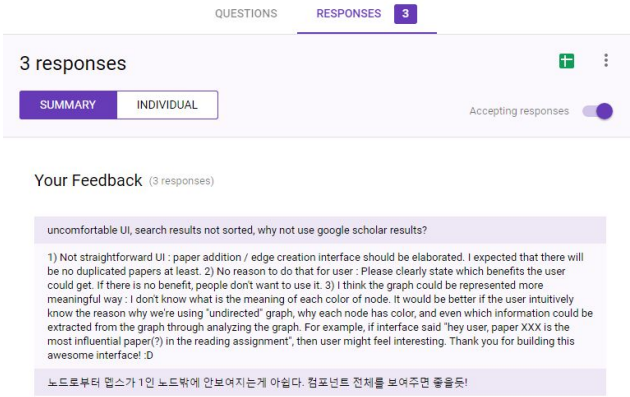
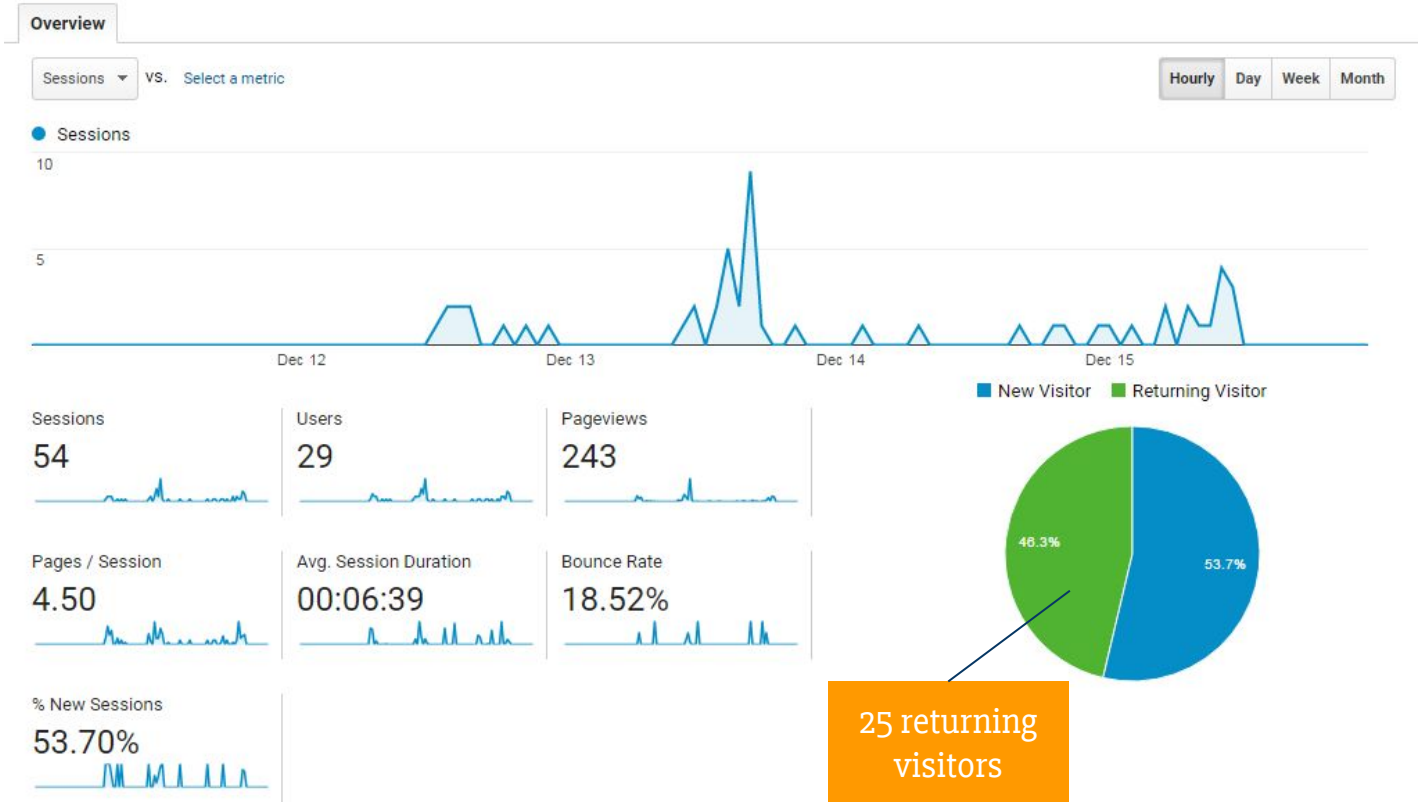
User Study

- For 4 days (Dec. 12 - Dec. 15)
- Voluntary, targeted study
  - Purely voluntary participation: did not recruit a certain group of participants
  - Targeted advertising through Piazza and in person
- Received feedbacks using Google Forms
- Analyzed visiting patterns through Google Analytics

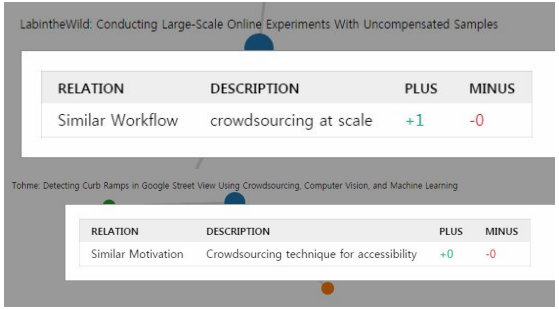


Overview

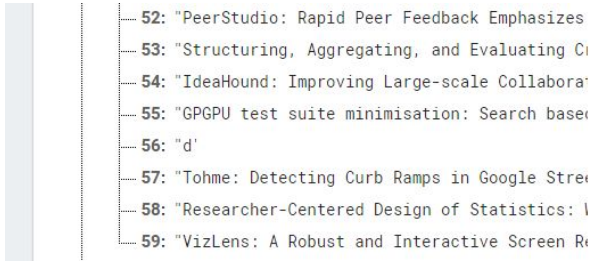

Overview
Sessions
vs.
Select a metric
Hourly
Day
Week
Month
Sessions
10
5
Dec 12
Dec 13
Dec 14
Dec 15
Sessions
54
Users
29
Pageviews
243
Pages / Session
4.50
Avg. Session Duration
00:06:39
Bounce Rate
18.52%
% New Sessions
53.70%
New Visitor
Returning Visitor
46.3%
53.7%
25 returning visitors

Collected Data

- 9 active users (6 excluding us)
- Edges

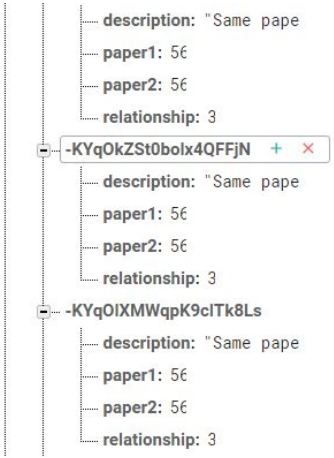


- Papers



Collected Data

- Users also gamed the system: discovered a bug and used it to gain points



Implies that gamification worked!

Limitations + Possible Improvements

- High entry barrier to make contribution
  - Limited initial data: academic papers discussed in Crowdsourcing course
  - Solution 1: More initial data. Use existing paper database.
  - Solution 2: Recommend related papers using AI
  - Solution 3: Provide link to the corresponding paper
- Hard to navigate through papers
  - Navigation only available through 1) graph in the index page and 2) search
  - How to deal with millions of data?
    - Solution 1: Categorize papers (e.g. fields of study)
    - Solution 2: Add navigation tool such as zoom in and zoom out.
  - Search result shows only connections in depth 1.
    - Solution 3: Use continuous loading for deeper levels.

Limitations + Possible Improvements

- Lack of motivation and instruction for first time users
  - Benefits and how to use the system are not so straightforward
  - Solution 1: Let them know the benefits of the system in a natural way
  - Solution 2: Add tutorial for first-time visitors
- Uncomfortable UI
  - Solution 1: Sort search results
  - Solution 2: Add paper search function in edge addition
- Need more quality control
  - Participants added dummy explanations such as “So good” and “ ”.

Technical Limitations

- Lack of mobile support
- Fully functional only in Chrome
- Users can’t modify or delete connection

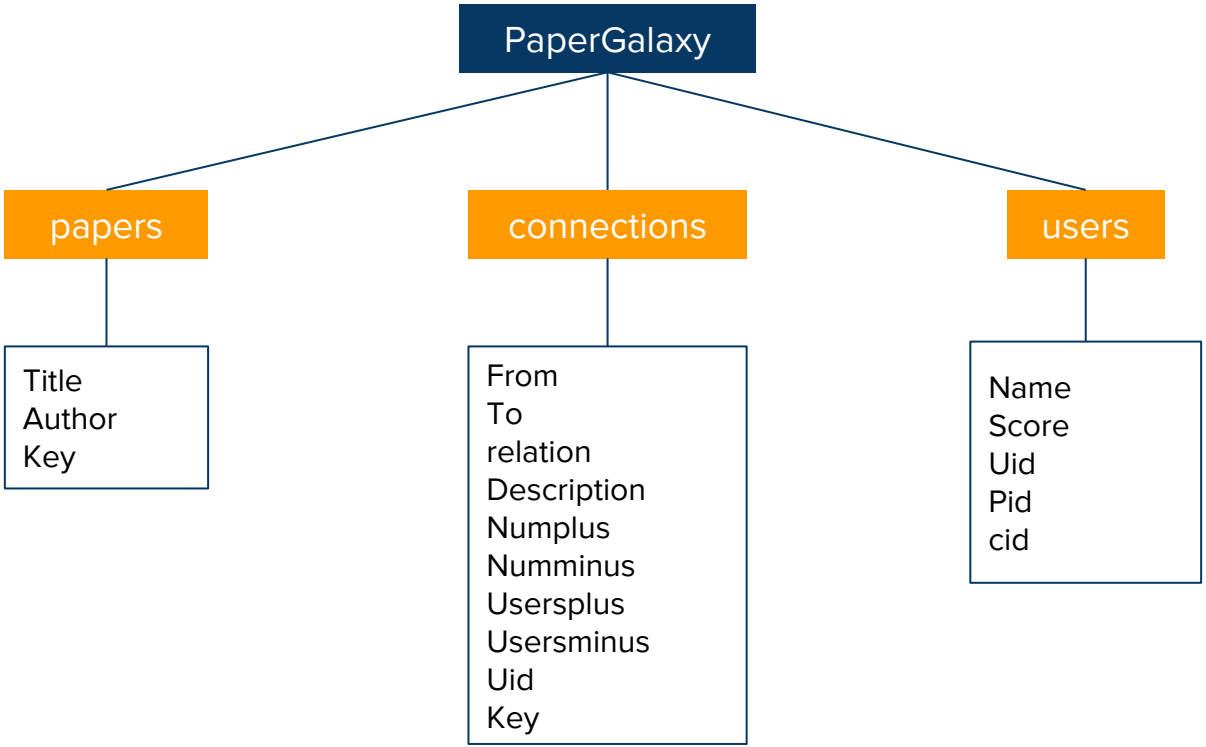
	Operating System	Sessions	% Sessions
1.	Macintosh	23	58.97%
2.	iOS	7	17.95%
3.	Windows	6	15.38%
4.	Android	2	5.13%
5.	Linux	1	2.56%

	Browser	Sessions	% Sessions
1.	Chrome	27	69.23%
2.	Safari	8	20.51%
3.	Safari (in-app)	2	5.13%
4.	Firefox	1	2.56%
5.	Internet Explorer	1	2.56%

PaperGalaxy
CONNECT THE DOTS

Q&A

Database


PaperGalaxy
papers
connections
users
Title
Author
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From
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relation
Description
Numplus
Numminus
Usersplus
Usersminus
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Key
Name
Score
Uid
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