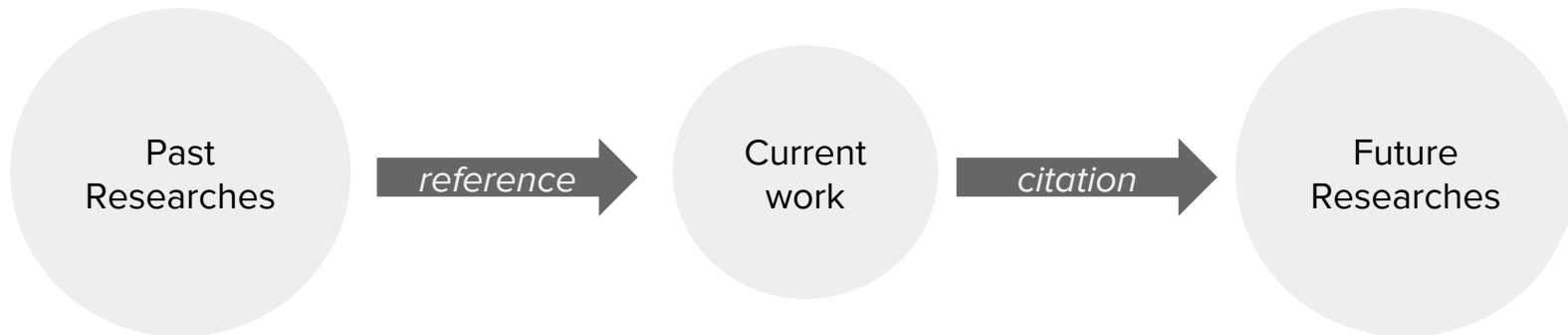


PAPER GALAXY

Team KimChoSun
Hoon Kim, Hyunsung Cho, Juho Sun

Motivation

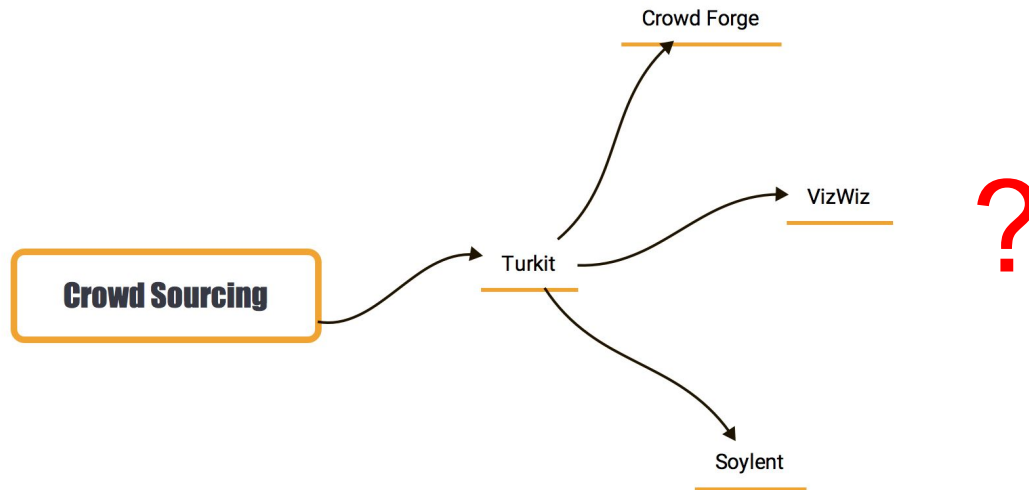
Every research is **connected to each other.**



Problem

It is **very important** for researchers to understand

“How each research is connected to each other”



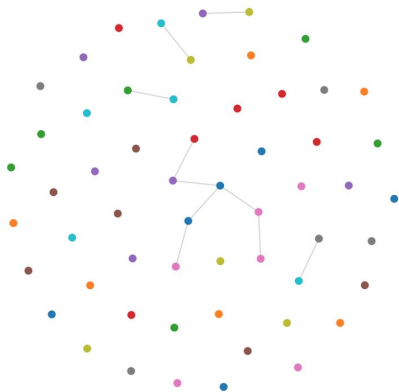
Our Solution

[김훈](#) [Home](#) [Logout](#) [Help](#)

PAPER GALAXY

SEARCH

If you're a new explorer, please visit the 'help' section



Main Tasks

Node: Academic paper

Edge: Descriptive label of the relationship

PAPERGALAXY

김훈

Search for papers...

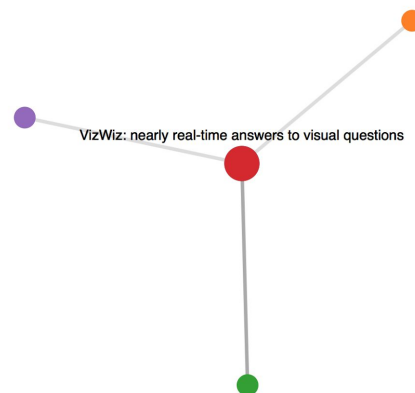


Home

Logout

Help

#	USERNAME	POINTS
1	김훈	1380
2	선주호	1250
3	박종민	620



NEW CONNECTION

NEW PAPER

ADD

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.

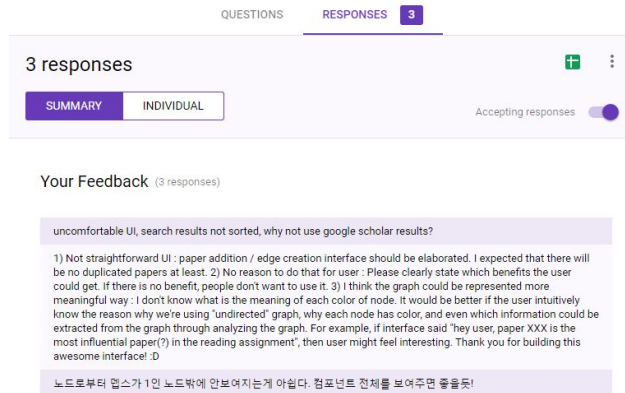


Live Demo

- papergalaxy.org
-

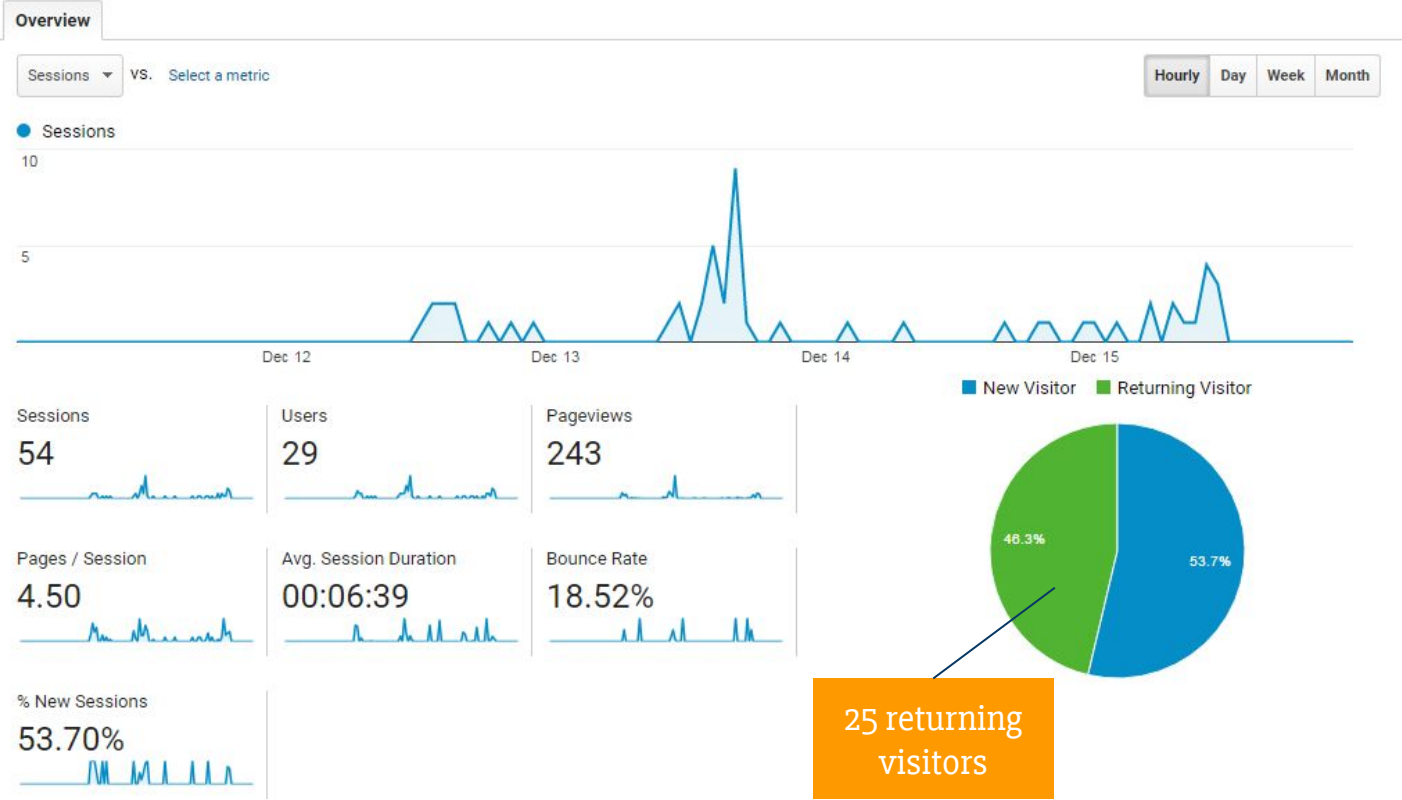
User Study

- 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



The screenshot shows the 'Your Feedback' section of a Google Form. At the top, there are tabs for 'QUESTIONS' and 'RESPONSES' (with a '3' indicator). Below the tabs, it says '3 responses' and has a '+', a menu icon, and a toggle for 'Accepting responses' which is currently turned on. There are two buttons: 'SUMMARY' (selected) and 'INDIVIDUAL'. Below this is the heading 'Your Feedback (3 responses)'. The first response is highlighted in a light purple box and reads: 'uncomfortable UI, search results not sorted, why not use google scholar results?'. Below this is a text area containing a list of feedback points: '1) Not straightforward UI ; paper addition / edge creation interface should be elaborated. I expected that there will be no duplicated papers at least. 2) No reason to do that for user ; Please clearly state which benefits the user could get; if there is no benefit, people don't want to use it. 3) I think the graph could be represented more meaningful way ; I dont know what is the meaning of each color of node. It would be better if the user intuitively know the reason why we're using 'undirected' graph, why each node has color, and even which information could be extracted from the graph through analyzing the graph. For example, if interface said 'hey user, paper XXX is the most influential paper(?) in the reading assignment', then user might feel interesting. Thank you for building this awesome interface! :D'. At the bottom, there is a Korean comment: '노트로부터 맵스가 1인 노트밖에 안보여지는게 아쉽다. 컴포넌트 전체를 보여주면 좋을듯!'.

Overview



Collected Data

- 9 active users (6 excluding us)
- Edges

RELATION	DESCRIPTION	PLUS	MINUS
Similar Workflow	crowdsourcing at scale	+1	-0

RELATION	DESCRIPTION	PLUS	MINUS
Similar Motivation	Crowdsourcing technique for accessibility	+0	-0

- Papers

- 52: "PeerStudio: Rapid Peer Feedback Emphasizes
- 53: "Structuring, Aggregating, and Evaluating C
- 54: "IdeaHound: Improving Large-scale Collabora
- 55: "GPGPU test suite minimisation: Search base
- 56: "d'
- 57: "Tohme: Detecting Curb Ramps in Google Stre
- 58: "Researcher-Centered Design of Statistics: l
- 59: "VizLens: A Robust and Interactive Screen R

Collected Data

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

```
description: "Same pape  
paper1: 5€  
paper2: 5€  
relationship: 3  
-KYqOkZSt0bolx4QFFjN + ×  
description: "Same pape  
paper1: 5€  
paper2: 5€  
relationship: 3  
-KYqOIXMWqpK9clTk8Ls  
description: "Same pape  
paper1: 5€  
paper2: 5€  
relationship: 3
```

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

