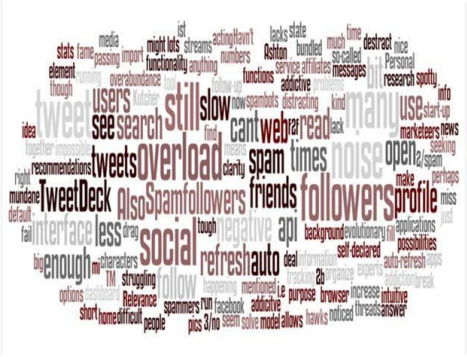
Understanding and Supporting search for scholarly knowledge



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Cristhian Parra

SCOPUS
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The Goal

To understand and improve the way find Scientific Knowledge

Understanding

Supporting

Understanding

Qualitative

30 Semi-Structured Interviews

Analyzing references on authored papers

Quantitative

Online Survey based on qualitative results

Qualitative Study

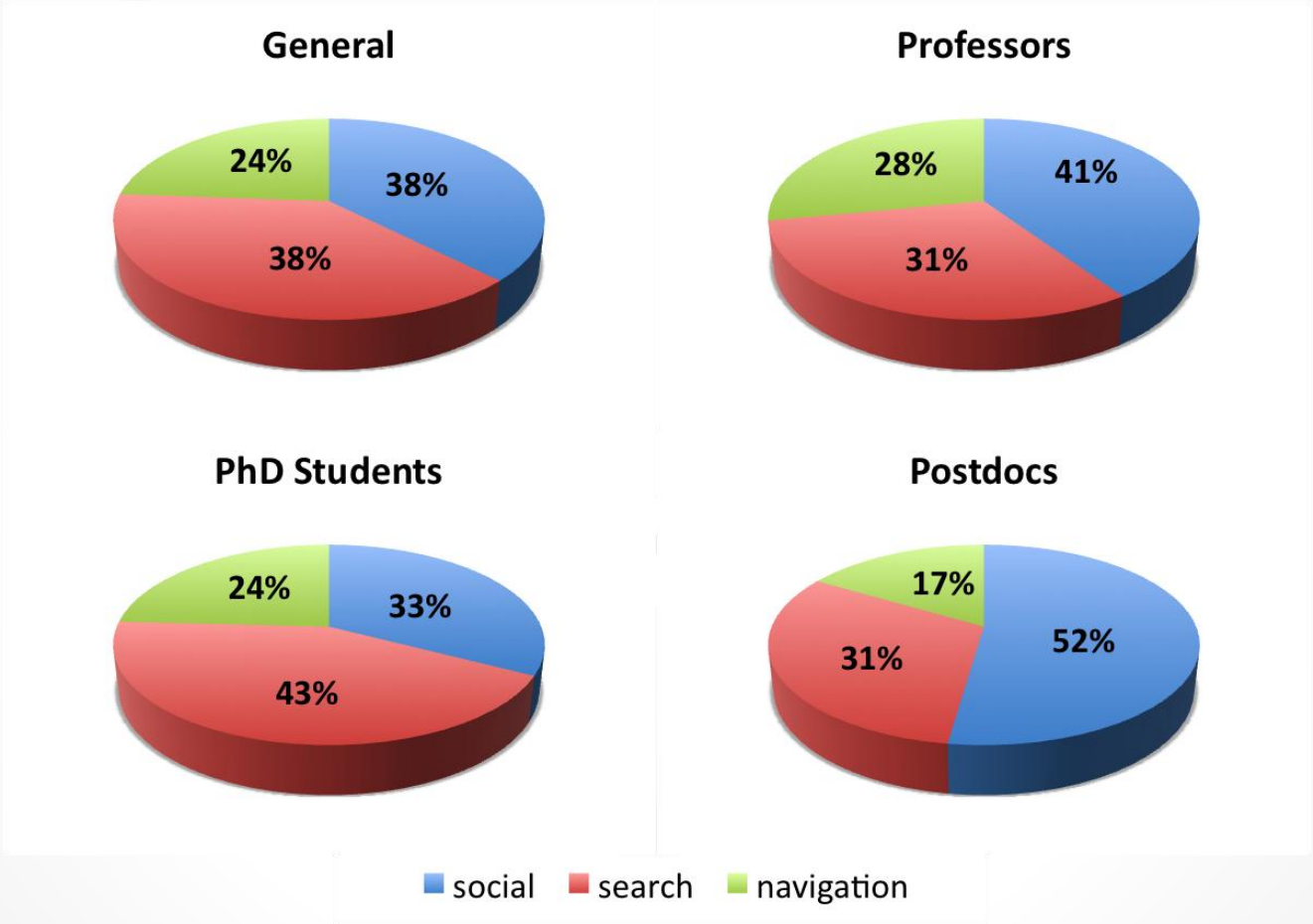
30 Semi-Structured Interviews

For each citation of one authored paper:

How did you get to this paper?

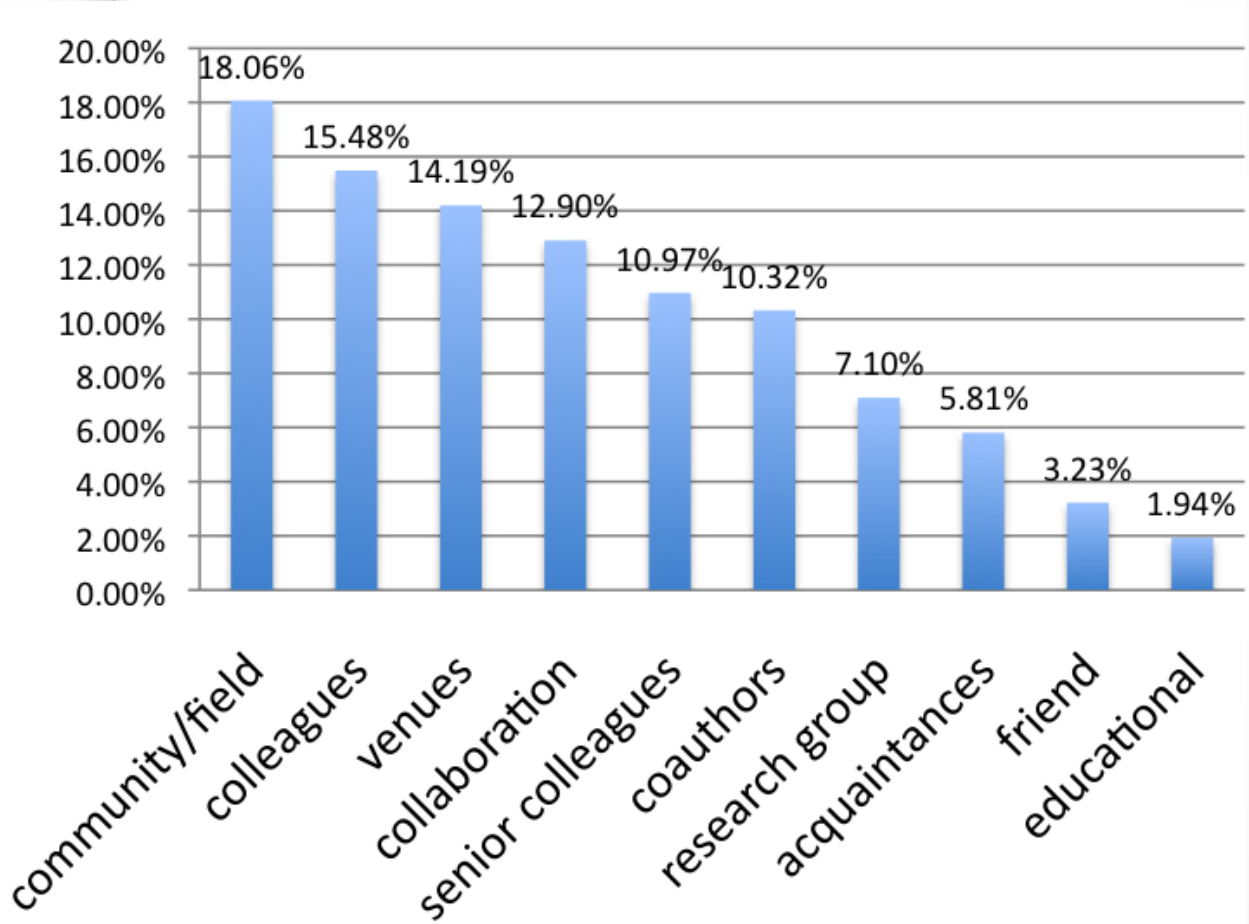
"My advisor suggested it"
"I search for X on Google Scholar"
"I was following some citations in a paper"

Qualitative Results



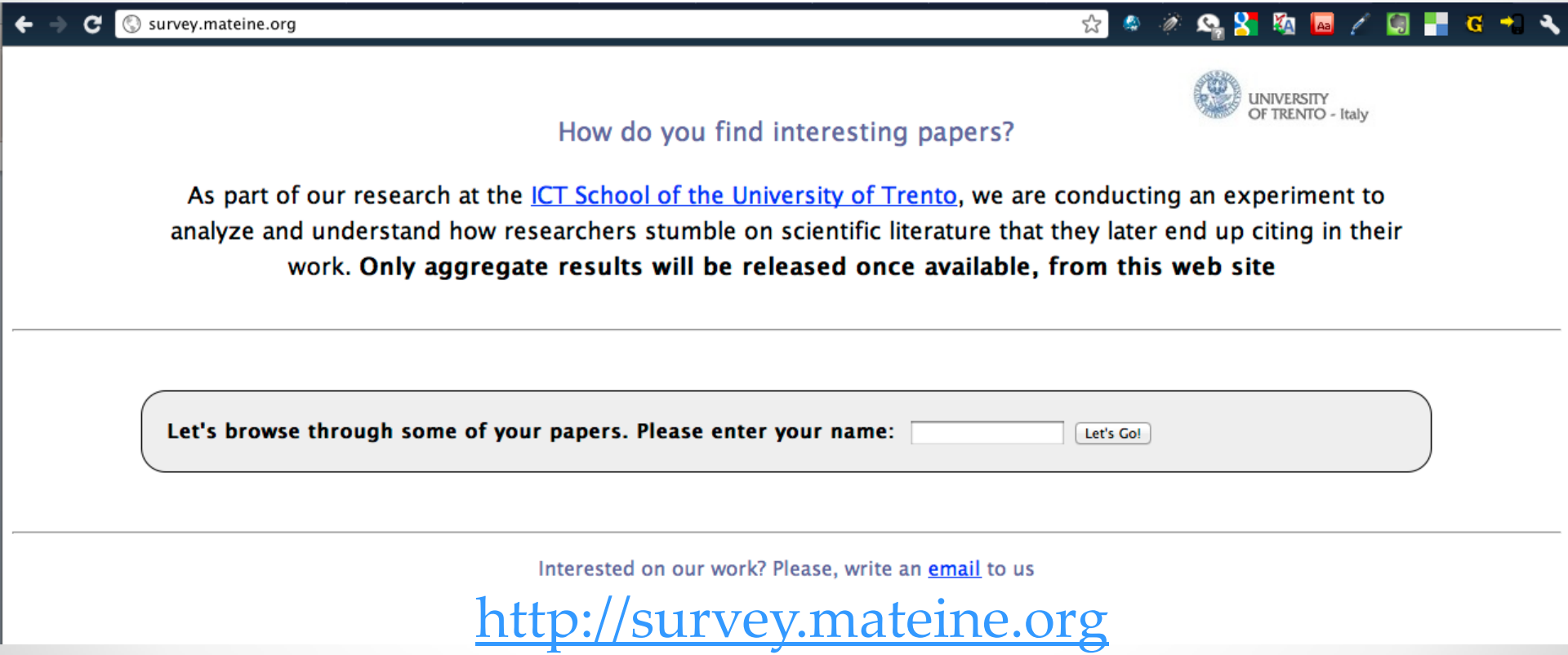
~ 700 interview notes. ~ 250 references. ~16% of Self citations.

Qualitative Results



Social Networks

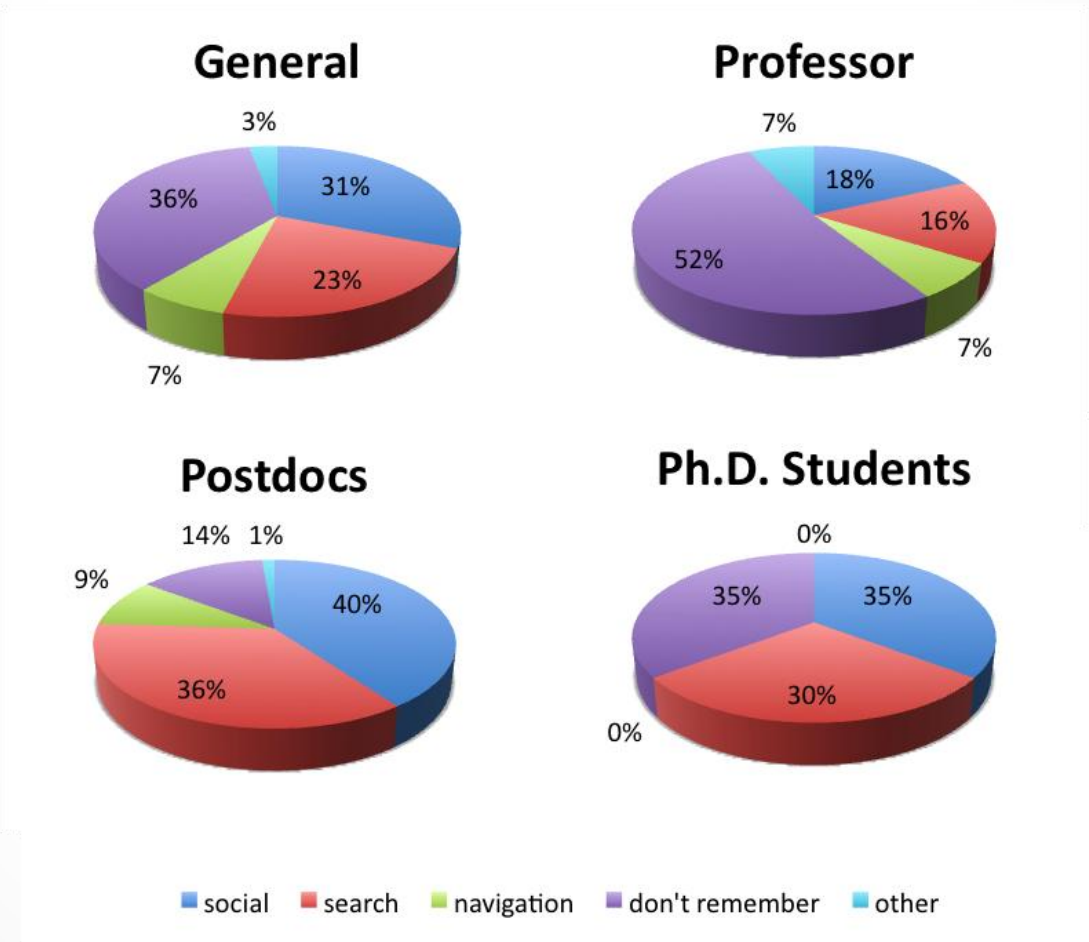
Quantitative Study



http://survey.mateine.org

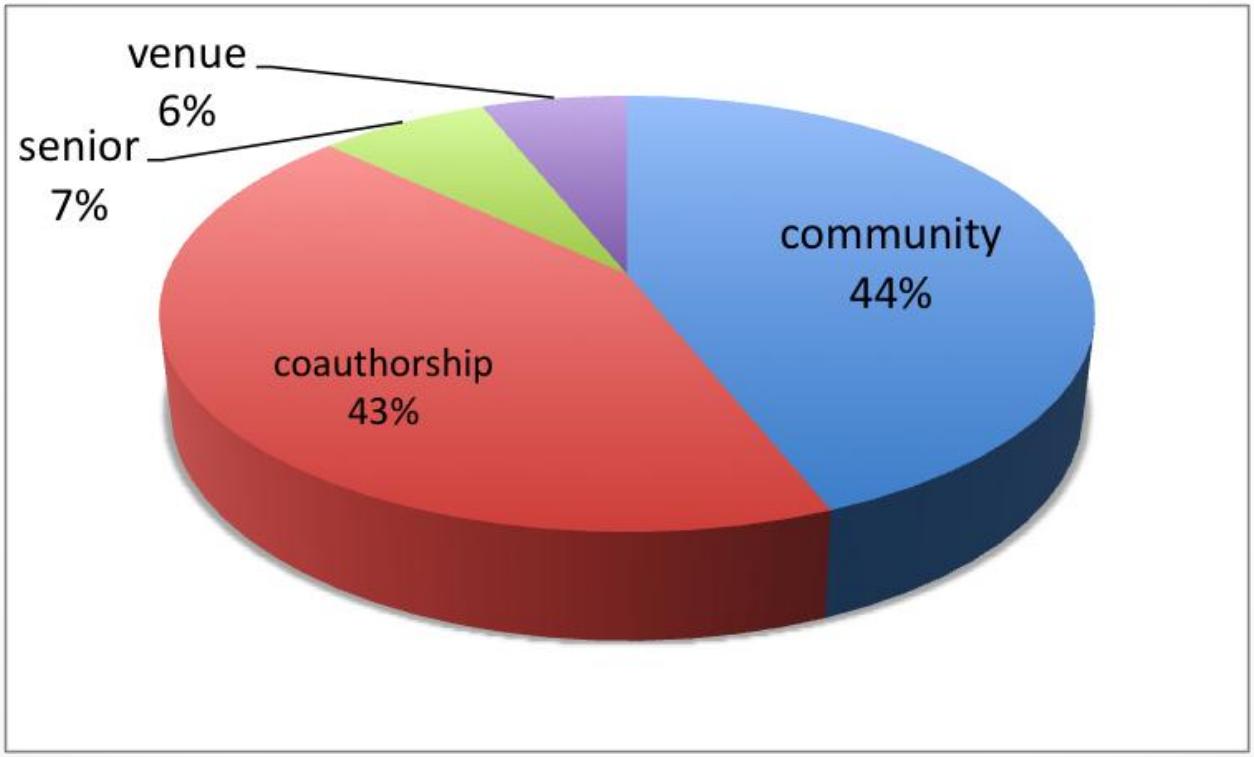
~ 5 x 10^6 publications with references from Microsoft Academic Search

Quantitative Results



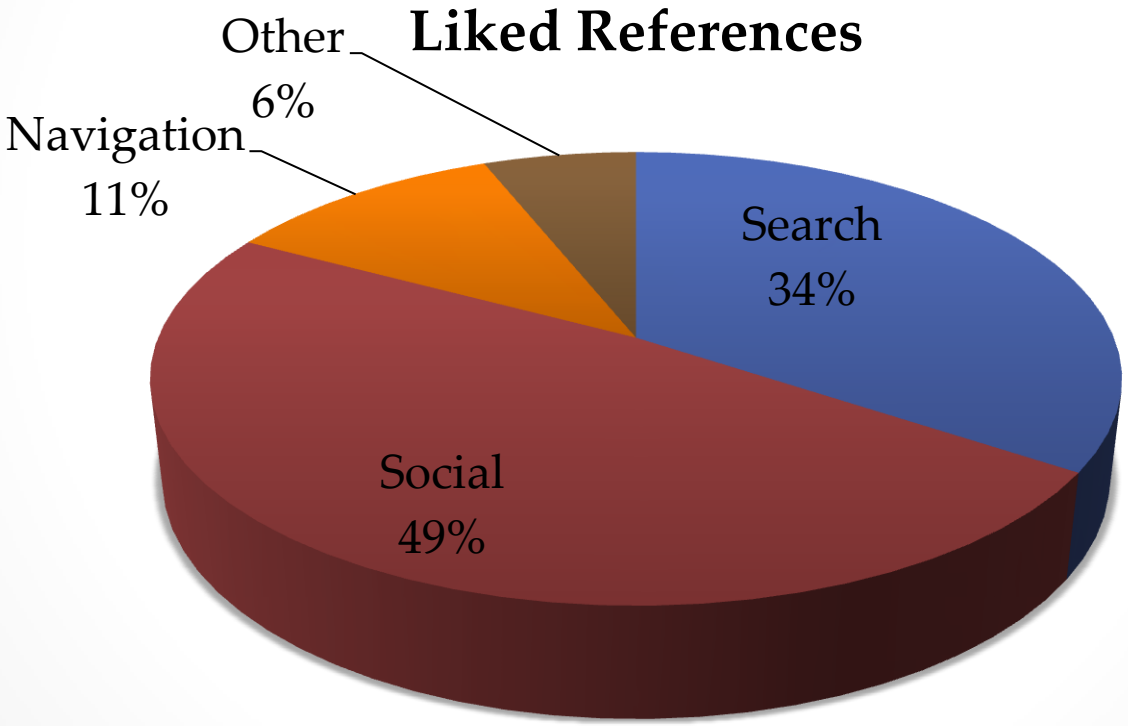
~ 226 References. ~ 23 different publications. ~ 25 different authors

Quantitative Results



Social Networks

Quantitative Results



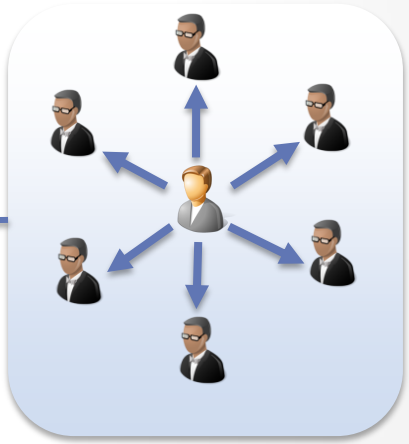
Our Understanding

Finding scientific knowledge has a strong social component to be leveraged

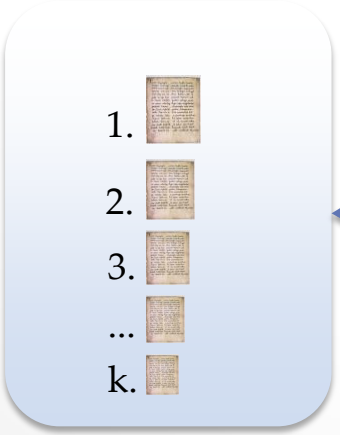
Supporting: Our Goal

Incorporating the social component in scholarly search by using the knowledge of researcher's social networks

Researcher's network



Coauthorship, Venue, Topic



Social-Aware Search Results

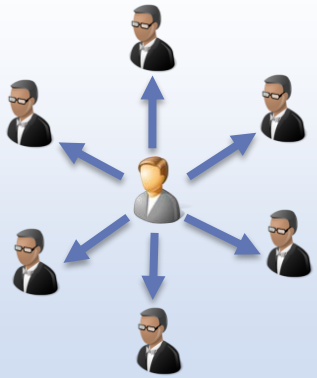
Experiment setup

T = year 2005

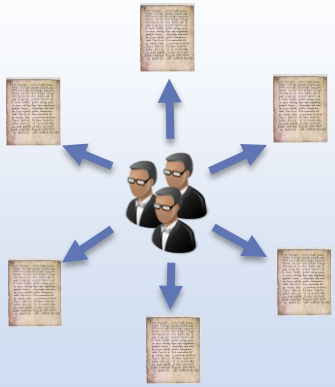
"past" "future"

Sample of 1000 researchers

Researcher's network at time T



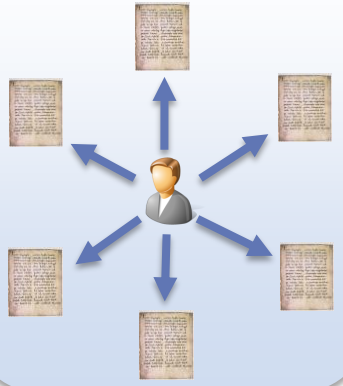
"Past" references of the network



Top k recommendations

1.
2.
3.
...
k.

Researcher's "future" references



Calculate:

precision

recall

depending on

the **number of recommendations**

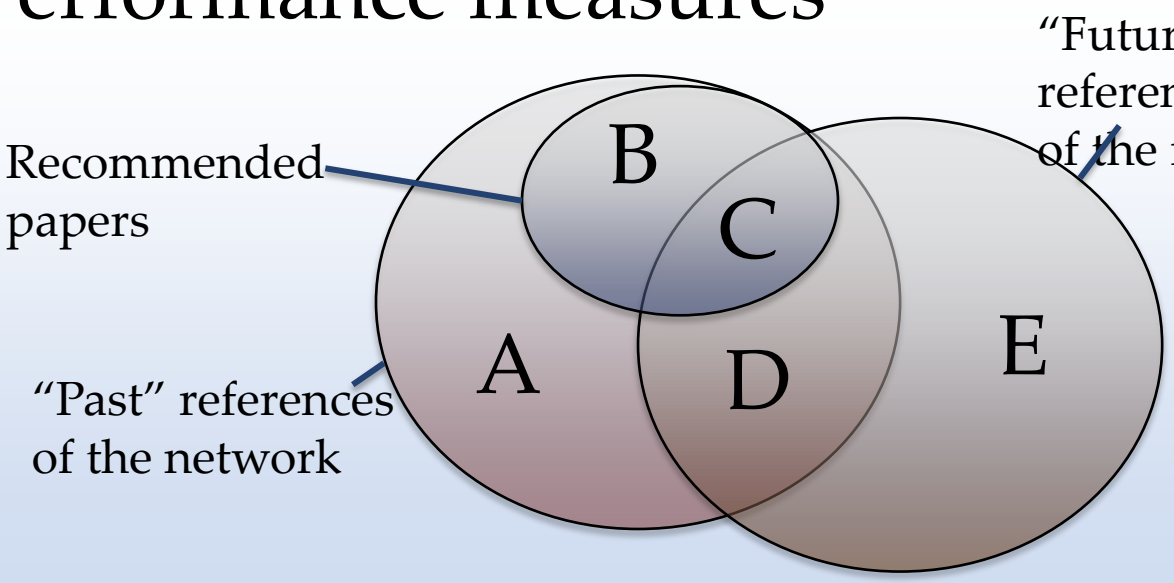
popularity measure

Experiment setup

Popularity metrics:

network – papers most cited in the network, **overall** – papers most cited overall, and **random** – random set of papers

Performance measures

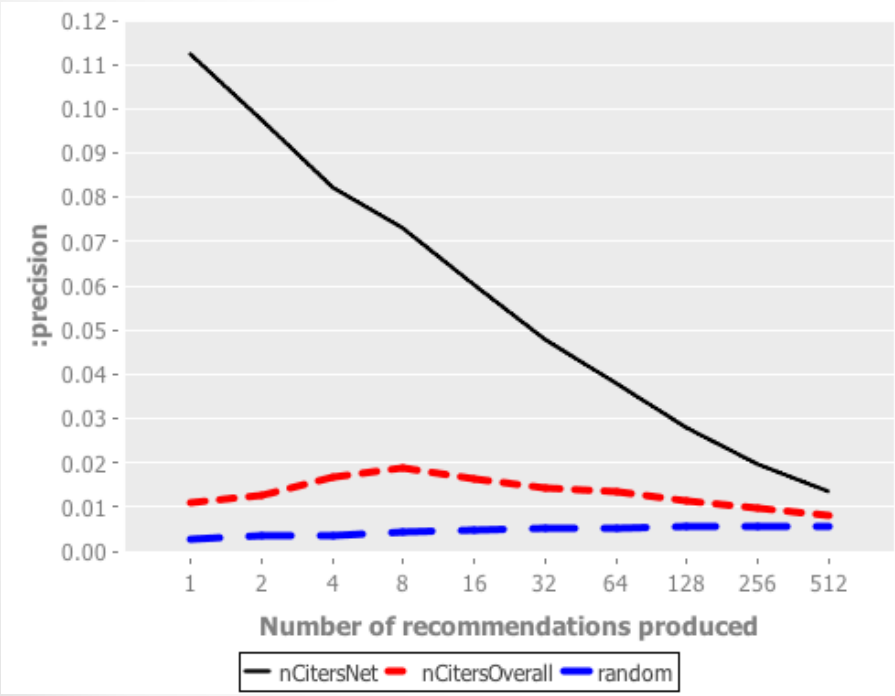


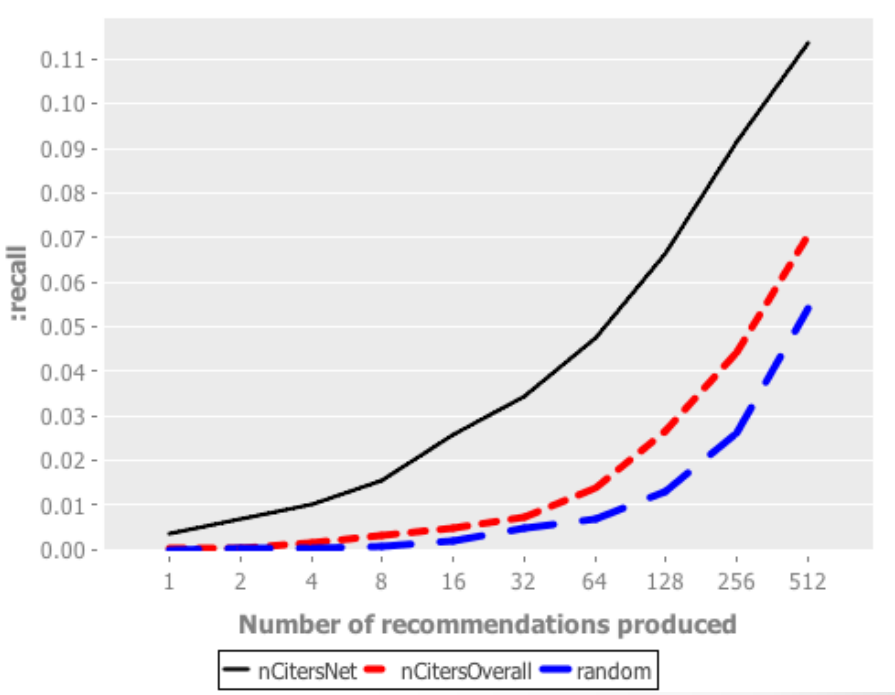
precision: $\frac{|C|}{|C+B|}$

recall: $\frac{|C|}{|C+D+E|}$

Results

11% = P(you will cite the paper most cited between your coauthors)
20% of the papers you are going to cite have been cited by your coauthors





Ideas: **Limiting** the number of coauthors
Weighting the recommendation with the number of coauthored papers
DID NOT improve the precision

Thanks for your Attention