Scientific Journals and Conferences

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Outline

- Research Fora
- Conference vs Journals
- How to identify a good Journal

Research Publication Venues

Journals and Conferences

- Intended to further the **progress** of science
- Reporting **new** research
- **Written** by scientists instead of professional journalists.
- **Read** by scientists in the field
- (peer) **reviewed** by scientists
- Ruled with high **ethical** standards (highly based on **trust**)

Research dissemination does not fit into this definition

Peer Reviewing

Peer reviewing

Peer reviewing is the standard method to filter out bad research

- Peer Reviewing: A researcher submits a paper to a journal and several colleagues (called **referees**) **anonymously** assess its quality
- Peer Reviewing is a time-consuming, non-trivial, non-rewarded task
- The next lecture we will cover it
- one of your assignments will be to peer-review a paper

Does it work?

Bohannon's experiment: fake paper accepted in 60% of journals

An Inflationary Model?

Fact

There are about $30,000$ scientific journals managing around 2 million papers per year.
There has been an exponential growth in the last decades

This is clearly too much...

- Scientists are evaluated by their papers (Publish or perish)
- It is important to know what to read and where to publish

Journals

Fact

Scientific Journals are the most reliable source of (new, specialized) knowledge...

- Is drinking 8 cups of water per day good for your health?
- Is vitamin C good for colds?
- How should we sit on the toilet?

- Is dental floss useful?

Fact

... but the language is not accessible to everybody.

Research Fora

Conferences in CS

Unlike most other Sciences, Conferences are important publishing venues.
Warning: most disciplines use journals as the only important place for publishing

- Great for a rapidly evolving discipline
- Not always well-understood by colleagues from other fields

Research Fora

Acceptance is based on a **peer review** process

- **Workshops**
  - preliminary work (some times just prospective ideas)
  - light review process
  - the emphasis is on discussion (having feedback from others)
  - non-archival proceedings
- **Conferences**
  - An atomic piece of original work (months of work)
  - medium review process
  - the emphasis is on discussion (convincing the other to take home the learned lesson)
  - archival proceedings (**original** contribution)
- **Journals**
  - A well presented substantial piece of original work (1 year of work)
  - heavy review process
  - the emphasis is on increasing knowledge corpus
  - original work (may be extended from a conference)

Books

- **Monographs** (comprehensive presentation of several years of coherent work by one or a few groups)
- **Handbooks** (compilation of main results on main sub-topics)
- **Textbooks** (it somehow proofs that the topic is consolidated) $\longrightarrow$ can be tought at graduate and master level

Peer Review: conferences vs journals

Journals:

- 3-5 reviewers
- unbounded number of reviewing iterations (typically 1 or 2)
- Slow turnaround (from months to years)

Conferences:

- 2-3 reviewers
- 0 or 1 reviewing iterations
- Time constraints
- Fast turnaround (1-2 months)

Types of Conferences

- General
  - Hundreds of presentations, thousands of attendees
  - Parallel sessions, satellite events
  - Many tracks
  - Best place to see (and even talk to) the big guys
- Specific
  - $<$ 100 presentations, few hundred attendees
  - Best place to socialize

Warning: Beware of **fake** conferences!!

Conferences

Types of submissions:

- full paper
- short paper
- (extended) abstract
- Specific tracks (e.g. applications, doctoral,...)

Warning: Attendance is (in theory) mandatory

Choosing a Conference

How likely am I am...

- to be cited
- to talk to researchers that I want to talk
- to get my paper accepted
- to get a visa
- to get funding

Chosing a Journal: Scope

Different scientific journals have different level of generality:

- Very High (*Science*), High (*Journal of the ACM*), Low (*Constraints*)
- Papers published on **generalistic** journals should report results of interest to a larger audience.
- Doing Research of interest to a large community is nice, but...
- ...it **does not** mean that research is better.

Journals: Scientific Structure

Fact

Journals have two parallel structures: Scientific and Editorial

Journal (scientific) structure:

- *Editor-in-Chief:* Ultimate responsability
- *Area editors:* Responsible for all the editorial process of assigned papers
- *Reviewers:* Responsible for reading and evaluating papers

All these people are researchers affiliated to research institution

Open Access Journals

Fact

Closed access Journals had been increasing their price while decreasing their work-load

- **Open Access Journals** are freely available on-line
- There are several sponsorship models (institutions, authors,...)
- Journals vs Repositories
- **Critics:** may lack professionalism (there is no clear evidence)
- **Predatory Journals:** charging publication fees ($200) to authors without providing the editorial and publishing services associated with legitimate journals
  - exponential growth (from 50000 to 400000 papers in 4 years)
  - **Bohannon's experiment:** fake paper accepted in 60% of journals

Journal Quality

Fact

There are good (reliable) and bad (unreliable) journals. The frontier is fuzzy and well populated.

Some guidelines to identify good journals:

- Scientific staff:
  - rotates periodically (no loops, no *blood* line)
  - affiliated to prestigious institutions
  - (truly and honestly) international
- Authors: prestigious researchers publish good work

Journal Quality (Metrics)

Fact

Quantifying journal quality is impossible, but metrics are here to stay (and sometimes can help)

- **Citations**: It is generally believed that good papers are highly cited
  - Critiques: negative references, hot topics, self-references, group-of-friends references...
- **Impact factor (IF):**
  - average number of citations received per paper published in that journal during the two preceding years
  - used to compare the **quality** different **journals within** a certain field
  - for those journals that are indexed in the *Journal Citation Reports* (JCR) (Thomsom Reuters)
- **Journal Citation Ranking (Quartile):** Journals of each field are ordered by IF. First quartile journals (Q1) are the 25% ranked first.

Impact Factor

T. McGlynn (realscientists) 2015

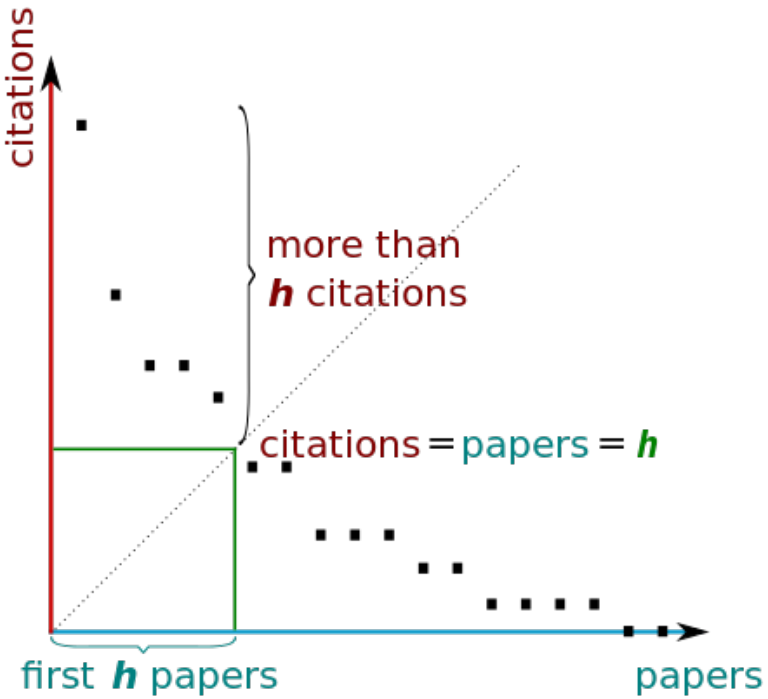
I have been in a number of committees. I do not remember anybody looking at anybody's papers. Number and IF of publications are what counts

The use of IF has many critiques:

- based on arithmetic mean,
- unstable along time
- editors play the game
- JCR controlled by a corporation (Thomsom)
- moderate correlation with expert's opinion
- Useless when comparing different disciplines
- In CS, people often references conference papers

h-index

Metric proposed by Jorge E. Hirsch (2005, physicist at UCSD)



- Most popular author-level metric
- Measures number of impact papers

On the use of Quantitative Indicators

Fact

Researchers, groups, labs, institutions are frequently evaluated and metrics are heavily used (simple, objective)

- Arguably, a researcher is assessed positively if he/she publishes many papers and they have many citations
  - publish or perish
  - If number of papers is considered, researchers publish junk papers
  - If number of papers with citations is considered, researchers do not publish some types of research
- The IF should not be used to assess researchers (although in Spain it is customary)

On the use of Quantitative Indicators

Goodhart's Law

When a measure becomes a target, it ceases to be a good measure

- Cited papers have doubled every 9 years since the 40's
- Poor methods get results (closed-door symposium on biomedicine 2015)
- No one is incentivised to be right (Horton, The Lancet, 2015)

D.T. Campbell 76

The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor

- Northeastern University rose from #162 to #42 in US News ranking by aesthetic changes
- several US Colleges have been caught cheating