Peer Review in Computing Research

Richard Baraniuk
Rice University
20th Century Peer Review

• Paper-based distribution
  – scarcity of resources

• Aimed at ensuring all published scholarly materials meet a certain level of quality/merit

• Voluntary labor from the scholarly community
21\textsuperscript{st} Century Peer Review

- Electronic distribution
  - \textbf{no scarcity} of resources

- **Challenge 1: Volume** of materials is enormous and growing rapidly
  - existing system cannot scale to accommodate
    - long publication delays
    - difficulty finding reviewers
    - unavailability of content while under review
21st Century Peer Review

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• Challenge 1: Volume of materials is enormous and growing rapidly
  – existing system cannot scale to accommodate
    ▪ long publication delays
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• Mode of distribution has changed dramatically while the mode of review is virtually unchanged
21st Century Peer Review

- **Challenge 2:** Authors/users/organizations calling for review of increasingly diverse materials
21st Century Peer Review

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- Unconventional communities are developing new ways and means of managing quality

- Conventional scientific community should take note
Fallacy of *Misplaced Finality*

- Or, there is one definitive final content object

What’s emerging:

- Content **versioning** and **open licensing** to enable reuse
Fallacy of Misplaced Finality

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What’s emerging:

• Content **versioning** and **open licensing** to enable reuse

• Reviews as separate, **public objects**

• **Post**-publication review
Fallacy of *Misplaced Focus*

- Or, must have careful selection of just the right reviewers to do justice to a submission

What’s emerging:

- **Let anyone review everything**, including individuals, institutions, professional societies, ...
Connexions’ lenses

social software for quality control

inspiration: del.icio.us social bookmarking
Connexions’ lenses

social software for quality control

inspiration:

del.icio.us
social bookmarking

IEEE.org/cnx
Connexions’ *lenses*

**social software** for quality control

inspiration:

- rice.edu/cnx
- IEEE.org/cnx
- cnx.org/lenses/johnDoe
- del.icio.us
- social bookmarking
Fallacy of *Misplaced Focus*

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What’s emerging:

• Open review with **persistent pseudonyms** to build **reputation** and to make reviews more **valuable**
Fallacy of Misplaced Focus

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Moshe Vardi = CaptainLogic
Fallacy of *Misplaced Focus*

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- Open review with persistent pseudonyms to build reputation and to make reviews more valuable

- Realization of importance of context of use
  - some reviewers are more useful than others
  - ex: student reviews of educational materials
Conclusions

- “Exciting times” for peer review in the electronic age
  - conference vs. journal debate is just the beginning

- **New kinds of materials and communities** are blurring the line between scientific publications, educational materials, etc. and are inventing **new mechanisms for “peer review”**

- Trends:
  - increasing **openness** of content and reviews
  - careful consideration of **context** of reviews