A Post Doc and Scholarly Research: Now and the Future

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• About Me
  – Postdoctoral research fellow in the Harvard Biorobotics and Microrobotics Laboratories
  – Focus on humanoid robots (manipulation) and medical devices
  – Authored several publications (EE, ME, BME)

• Key Contributors
  – Colleagues in the Harvard Biorobotics and Microrobotics Labs
  – Colleagues at CERLab at Carnegie Mellon University
  – Harvard University Library staff
  – Carnegie Mellon University Library staff
  – University of Pennsylvania Library staff
• **How Scholars Access Information**
  – Libraries Essential to Academic Research
  – Common Modes of Access
  – Illustrative Research Project Example

• **Coping with Limited Access**
  – Roadblocks to acquisition
  – The “Middle Man”
  – Workarounds
  – Evolution in the Publication Paradigm

• **How Scholars See Libraries of the Future**
  – Simplicity, Smart Databases, Interactive Media
  – Open/Easy Access, but High Quality Publications
• Scholarly publications are “currency” for the academy
  – Serves as indication of research productivity and aptitude
  – Comprises individual, department, and institutional notoriety
  – Basis of qualification for government and private funding
  – “Publish or Perish”

• Commercial publishing facilitates “currency exchange”
  – Standardization of data format, access methods
  – Peer-reviewed articles, editorial rigor improves quality
  – Greater research visibility
• Most common information resources
  – Library access (~75%)
  – Collaborative exchange (~15-20%)
  – Nascent science/tech (~5-10%)
• Library use is a compulsory element of research
  – Literature surveys, reviews (25-100 papers)
  – Technical references (~10-30 papers)
  – Generation of new information (~1-3 papers)
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• Limited access to library-based resources
  – Lack of journal subscriptions often prevents access to relevant literature (~10-15%)

• 42 research papers searched for robot hand project
  – 36 accessible at Harvard Univ.
  – 38 accessible at Carnegie Mellon Univ.
  – 36 accessible at Univ. of Pennsylvania
• Libraries must acquire subscriptions AND satisfy the need of faculty and students with limited budget
  – Escalating subscription prices for journals/proceedings
  – Researchers complain about access
  – Cannot ‘simply’ switch to open-access (contracts)
  – Less popular fields of research lose visibility
• Working around access limitation 😊
  – Decreased use of certain commercial publishers
  – “Direct-from-author” or second hand acquisition
  – Webpage links to manuscripts
• Changing our publication paradigm
  – Focus publishing in peer-reviewed, visible, open-access forums, or in non-for-profit professional societies
  – Reduction in commercial article citation
  – Not penalizing authors for lack of ‘expensive’ citations
  – Working with libraries to ID most important resources, reducing need for subscription to under-utilized journals
  – Changing our perspective on “impact factor” and visibility
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Scholars like to keep it simple

• Most researchers prefer no-hassle, simple library access
  – Advanced, fancy interfaces not appealing
  – Database ‘searchability’ paramount

• Interactive media adds to information value
  – Research videos linked to online manuscripts
  – CAD drawings, source code
  – 3D-enabled files (3D PDFs)
• Commercial publications driven by research volume...
  – In part, but also by research community standards
  – Open access, circulation, and public dissemination (scalability) vs. publication quality and prestige through scarcity

• Open access ≠ reduction in publication standards
  – Open peer-review (for open access or commercial journals)
  – Self-policing, less research redundancy
  – Pay-to-submit and publish, but free (low-cost) access
**Scholars’ Take on Library Access**

- Library access is essential to academic research
  - Easy access to information, circulates knowledge efficiently
  - Streamlines publication process, improves quality and visibility
- Access limitations are our biggest concern
  - Lack of subscriptions impedes research progress, ‘forces’ research to seek alternatives methods of acquisition
  - Unfairly penalizes students/institutions with limited budget
  - Catalyzing the move toward open-access publications
- Scholars generally happy with current system
  - Content, methods of access are adequate (very good)
  - Fancy interfaces/apps not necessary
  - Broader range of media (videos, code, drawings, formulas)
  - Rigorous review leads to higher quality research, prestige
• Harvard BioRobotics and Microrobotics Labs
• CERLab at Carnegie Mellon University
• Harvard University Library staff
• Carnegie Mellon University Library staff
• University of Pennsylvania Library staff
Thank You