Research Foundations in Computer Science

Unit II

Accessing the Research Literature

Outline for Today

1) The research literature

2) Resources for finding the Literature

3) Accessing the research literature

4) Accessing current research

1) The Research Literature

- **Why read research literature ?**

- **To get ideas**
- **To get new idea**
- **To explore new branches in a area**
- **To know about other researches, carried out by other researchers**
- **To change our idea (if it is necessary)**
- **To know the terminology in the area**
- **To know and learn about the methods of research in the area**
- **To know the people who are doing research in the area**
- **To analyze the available researches, accurately.**
- **…**

1) The Research Literature (Cont.)

- **Why read research literature ?**

– **You do not repeat what someone else has already done**
  - **2.9 million articles in computer science, growing every day**
  - **Difficult to defend "this has not been done before"**

– **Compare what you have done with other people's work**

A week of reading can save a year of hard work

2) Resources for finding the Literature

1) Primary resources

1) Theses
2) Conference papers
3) Journals
4) Technical reports
5) Preprints
6) University departmental web sites
7) …

2) Secondary resources

1) Books
2) Bibliographies
3) …

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

Primary resources including : Theses, Conference presentations, Journals, Technical reports, and so on. But they are very widespread and it is difficult to locate a specific research. Hence, the researchers usually use helpful resources such as :

Indexes and Databases

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-1: Theses

– **Dspace@MIT**

- **MIT's institutional repository built to save, share, and search MIT's digital research materials including an increasing number of conference papers, images, peer-reviewed scholarly articles, preprints, technical reports, theses, and more.**

– **Guide to Computing Literature**

- **A collection of bibliographic citations and abstracts of works published by ACM and other publishers. More than 1,300,000 citations from 3,200+ publishers covering: books, journal articles, conference proceedings, doctoral dissertations, master's theses and technical reports**

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-1: Theses

– **Inspec**

- **Indexes the literature of physics, electronics, electrical engineering and computer science comprehensively. Covers 3500 journals and 1500 conferences as well as books, reports and dissertations.**

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-2 : Conference Papers

– **ACM Digital Library**

- **Complete full text of all Association for Computing Machinery journals, magazines and conference proceedings since 1954.**

– **DBLP Bibliography**

- **DBLP provides bibliographic information on major computer science journals and proceedings. Initially focused on DataBase systems and Logic Programming (DBLP), now it is gradually being expanded toward other fields of computer science, and "DBLP" has become "Digital Bibliography & Library Project".**

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-2 : Conference Papers

- **Inspec**
  - **Indexes the literature of physics, electronics, electrical engineering and computer science comprehensively. Covers 3500 journals and 1500 conferences as well as books, reports and dissertations.**
- **Lecture Notes in Computer Science (LNCS)**
  - **Full text of conference proceedings in computer science. Roughly 100 conferences on timely topics published per year.**
- **IEEE Xplore**
  - **Complete full text of all IEEE/IEE journals, conferences and standards since 1988. Important for all fields of computing.**

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-2 : Conference Papers

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2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-3 : Journals

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2 - 1) Primary Resources

2-1-3 : Journals

– **Inspec**

- **Indexes the literature of physics, electronics, electrical engineering and computer science comprehensively. Covers 3500 journals and 1500 conferences as well as books, reports and dissertations.**

– **Web of Science**

- **Indexes 8,500 research journals across the Social Sciences, Sciences and Arts & Humanities. Has good coverage of interdisciplinary scientific topics. Allows you to search for articles by subject, author, journal, and author address as well as for articles that cite a known author or work (citation searching). Coverage is from 1945 - present.**

2) Resources for finding the Literature (Cont.)

2 - 1) Primary Resources

2-1-3 : Journals

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  - **Complete full text of all IEEE/IEE journals, conferences and standards since 1988. Important for all fields of computing.**

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2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-4 : Technical Reports

http://www.cs.rochester.edu/trs/

http://archives.cs.iastate.edu/

http://reports-archive.adm.cs.cmu.edu/cs.html

– Guide to Computing Literature

- **A collection of bibliographic citations and abstracts of works published by ACM and other publishers. More than 1,300,000 citations from 3,200+ publishers covering: books, journal articles, conference proceedings, doctoral dissertations, master's theses and technical reports.**

2) Resources for finding the Literature (Cont.)

2-1) Primary Resources

2-1-5 : Pre-prints

- **Computer Science Preprints**

- **Computer Science Preprint Archive** **from SciencDirect**

2) Resources for finding the Literature (Cont.)

2 – 1) Primary Resources

2-1-6 : Universities Departmental Web Sites

2) Resources for finding the Literature (Cont.)

Primary Resources

Other Indexes and databases

- **CiteSeer X**
  - **A scientific literature digital library, including computer science, that aims to improve the distribution and feedback of scientific literature, and to provide improvements in functionality, usability, availability, cost, comprehensiveness, efficiency, and suitability.**

- **Computing Research Repository (CORR)**
  - **CoRR allows researchers to search, browse and download papers through its online repository. CoRR is available to all members of the community at no charge.**

2) Resources for finding the Literature (Cont.)

Primary Resources

Other Indexes and databases

- **TechXtra**
  - **TechXtra is a free service which help to find articles, books, websites, industry news, technical reports, technical data, full text e-prints, the latest research, teaching and learning resources, in engineering, mathematics and computing.**

2) Resources for finding the Literature (Cont.)

2 – 2 : Secondary Resources

2–2–1 : e-Books

- **Safari Books Online**
  - **An ebook collection with 150 titles from O'Reilly and other publishers. Topics covered include: java, javascript, perl, c/c++, DB2, SQL, html, xhtml, xml, unix, linux, wireless/802.11. Microsoft applications and systems covered include: Access, ASP, C#, Frontpage, Word, Excel, Powerpoint, Visual Basic. Many other topics are covered.**

- **Books24x7 IT Pro**
  - **An e-book collection of books covering all areas of computer science and information technology, including programming languages, operating systems and various software packages.**

2) Resources for finding the Literature (Cont.)

2 – 2 : Secondary Resources

2–2–1 : e-Books

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2) Resources for finding the Literature (Cont.)

2 – 2 : Secondary Resources

2–2–2 : Bibliographies

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2) Resources for finding the Literature (Cont.)

- Searching for the information

  - Browsing

  - Targeted searching
    - **e.g. through Google Scholar http://scholar.google.com/ use Advanced Scholar Search**

  - Using indexes and databases

3) Accessing the Research Literature (Cont.)

- Be information literate

  – Knowing when and why you need information, where to find it, and how to evaluate and use it in an ethical manner

3) Accessing the Research Literature (Cont.)

- Start with the question: What information do I need?
  - **Read widely**
  - **Know the terminology of the field**
- Know the key journals
- Know the key conferences
- Know the key authors

- Identify key papers

- Using key papers
  - **Backward searching – what are the papers that are cited in that paper – search manually, or use ACM, CiteSeer, etc.**
  - **Forward searching – what papers that cite this paper – use ACM, Google Scholar, CiteSeer**

3) Accessing the Research Literature (Cont.) Review

Accessing the information

- Identify the information you need
- Explore the various resources
- Target selected resources
- Retrieve the information
- Organize the information
- Present the information

Assignment 2:
Identifying Related Resources
Published [past] research

Objective :

Based on your area of interest for your research (Assignment 1), provide a list, comprising at least 20 items, of published articles in your selected area

Approach:

1. **Identify at least 10 computer science key journals and conferences in your selected area, that are available for you, and note down titles.**
2. **Select two articles from each journal or conference proceeding, and download them for yourself.**

Submit the list of above articles as an e-mail attachment by Wednesday 12 Esfand 1394 to <mashaygan2005@yahoo.com>

Format for Report

نام و نام خانوادگی :
شماره دانشجویی :
شماره تمرین : 2
تاریخ تحویل : 12 / 12/ 1394

Published Research in ….. [Area of Research] …..

Key journals and conferences

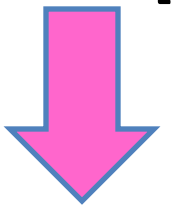
1. …
2. …
…
10. ….

Research Articles

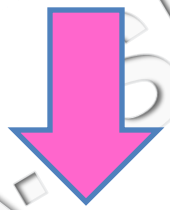
1. …
2. …
…
20. …

4) Accessing Current Research

Research literature [past research]



Current research



Future research

4) Accessing Current Research

- Who is doing the research?
  - Identifying researchers (authors of research articles)
- Where is the research being done?
  - Identifying institutions

4) Accessing Current Research (Cont.)

- Universities
  - Computer Science Research Work being done at various Universities

    http://www.topuniversities.com/university-rankings-articles/university-subject-rankings/top-computer-science-schools-2014

    http://www.greguide.com/comps.html

    http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-computer-science-schools/rankings

- News Services
  - ScienceDaily: Computer Science News

4) Accessing Current Research (Cont.)

- Research Laboratories

  e.g.

  – IBM Research http://www.research.ibm.com/

  – Microsoft Research http://research.microsoft.com/en-us/

  – CISCO Research Center http://www.cisco.com/web/about/ac50/ac207/crc_new/index.html

  – MIT Computer Science and Artificial Intelligence Laboratory http://www.csail.mit.edu/

Assignment 3:
Identifying Research in Progress
Current Research

Objective :

To develop a list, comprising at least 10 items, of people (researchers), departments and/or research labs currently engaged in research in selected area

Approach:

1. **Identify key authors (from journals or conferences), follow up with their home page**
2. **Identify institutional affiliations (universities, research organizations, etc.) of authors, follow up with their home page**
3. **Identify projects in research labs**

Submit the above list as an e-mail attachment by Wednesday 19 Esfand 1394 to <mashaygan2005@yahoo.com>

Format for Report

نام و نام خانوادگی :
شماره دانشجویی :
شماره تمرین : 3
تاریخ تحویل : 19 / 12/ 1394

Current Research in ….. [Area of Research] …..

Key researchers

1. **Name, Institution (including country), Web page**
2. **…**
3. **…**

Research Institutions

1. **Name, Name of parent institution (if any), Country, Web page**
2. **…**
3. **…**

Research Labs (if any)

1. **Name of lab, [related] research project**

Assignment 4:

Developing a Preliminary Bibliography to your Research Area

Objective:

To develop a preliminary bibliography, comprising at least 25 items published within last 3 years (2013 or later), comprising resources (conference papers, journal articles, dissertations / theses, technical reports, etc.) related to your research area

Approach:

1. **Search for resources related to your research area in various indexes and databases**
2. **Compile them into a bibliography, using the APA style**

Submit the above as an e-mail attachment by Wednesday 26 Esfand 1393 to <mashaygan2005@yahoo.com>

Format for Report

Name: ……
Student No.: ……
Assignment No.: 4
Date of Submission: ……..

Preliminary Bibliography on ….. [Area of Research] …..

Cummings, J. N., Butler, B., & Kraut, R. (2002). The quality of online social relationships. *Communications of the ACM, 45*(7), 103-108.

Fisher, D., Russell, D., Williams, J., & Fisher, D. (2008). Space, time & transfer in virtual case environments. *Kairos 12*(2), 127-165. Retrieved from http://kairos.technorhetoric.net/12.2/binder.html?topoi/fisher-etal/articleIntro.html

Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations: Getting to know one another a bit at a time. *Human Communication Research, 28*(3), 317-348.

Underwood, H., & Findlay, B. (2004). Internet relationships and their impact on primary relationships. *Behavior Change, 21*(2), 127-140.