Library Workshop for
LANG 2030 Technical Communication I

31 October Wednesday 11:15 - 12:15
31 October Wednesday 5:30 - 6:30

Scan HKUST card barcode to take attendance

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Engineering Librarian
lbeunice@ust.hk
Your LANG 2030 Proposal Report (p. 100)

An individual, 1000-1200 word, proposal report

- Describe a unique & innovative concept in your field
- Articulate the purpose of the innovation
- Demonstrate an understanding of the engineering theories and knowledge that underlie the innovation
- Outline alternative approaches and establish that your innovation represents the best solution
- Include appropriate sketches, models, design drawings or other visuals
- Evaluate the innovation in terms of benefits and limitations
Learning Objectives

- Identify 3 types of information sources for finding science & engineering innovation
  - Patents
  - Trade Magazines
  - Academic Journals
- Develop effective searching strategies
- Use appropriate search tools & search them wisely

Recall

In LANG 1002 library workshop (Game Changer), we covered:

- Find information sources:
  - Newspaper & Magazine Articles
- Tips on smart searching:
  - Google
  - PowerSearch
  - ProQuest
- How to cite sources in APA style
In-class activity 1

Name an innovative company/product and give reasons (why it is innovative):

http://tinyurl.com/eunicewong

Failure is an option here. If things are not failing, you are not innovating enough.

Elon Musk

Innovation distinguishes between a leader and a follower.

Steve Jobs

我費了一生的精力，集合十種殺人武器於一身的超級武器霸王，攞你命三千

達聞西
# The 2018 Most Innovative Company (top 10)

<table>
<thead>
<tr>
<th>Forbes</th>
<th>USA Today</th>
<th>Fast Company.com</th>
</tr>
</thead>
<tbody>
<tr>
<td>ServiceNow (Software &amp; Services)</td>
<td>IBM</td>
<td>Apple</td>
</tr>
<tr>
<td>Workday (Software &amp; Services)</td>
<td>Samsung</td>
<td>Netflix</td>
</tr>
<tr>
<td>Salesforce.com (Software)</td>
<td>LG Electronics</td>
<td>Square</td>
</tr>
<tr>
<td>Tesla</td>
<td>Intel</td>
<td>Tencent</td>
</tr>
<tr>
<td>Amazon</td>
<td>Canon</td>
<td>Amazon</td>
</tr>
<tr>
<td>Netflix</td>
<td>Alphabet</td>
<td>Patagonia</td>
</tr>
<tr>
<td>Incyte (Pharmaceuticals, Biotech)</td>
<td>Qualcomm</td>
<td>CVS Health</td>
</tr>
<tr>
<td>Hindustan Unilever (household)</td>
<td>Toyota Motors</td>
<td>The Washington Post</td>
</tr>
<tr>
<td>Naver</td>
<td>Microsoft</td>
<td>Spotify</td>
</tr>
<tr>
<td>Facebook</td>
<td>Taiwan Semiconductor Manufacturing</td>
<td>NBA</td>
</tr>
</tbody>
</table>

Forbes: [https://www.forbes.com/innovative-companies/#fd1ce4d1d654](https://www.forbes.com/innovative-companies/#fd1ce4d1d654)
USA Today: [https://www.usatoday.com/story/money/business/2018/01/12/worlds-50-most-innovative-companies/1023095001/](https://www.usatoday.com/story/money/business/2018/01/12/worlds-50-most-innovative-companies/1023095001/)
Information Sources for Innovation

- Demonstrate an understanding of the **engineering theories & knowledge** that underline the innovation
- Outline **alternative approaches** and establish that your innovation represents the best solution

**Patents**

**Trade Magazines**

**Research Articles**

**Web - Ted.com, ...**
Patent (專利)

**International Business Machines**
- 2017 patent grants: 9,043
- 2016 patent grants: 8,090
- Country: United States
- Products: Data management, IT services, application development

**Samsung**
- 2017 patent grants: 8,894
- 2016 patent grants: 8,470
- Country: South Korea
- Products: Mobile phones, televisions, home appliances

**LG Electronics**
- 2017 patent grants: 4,469
- 2016 patent grants: 4,013
- Country: South Korea
- Products: Mobile phones, televisions, home appliances

Source: https://www.usatoday.com/story/money/business/2018/01/12/worlds-50-most-innovative-companies/1023095001/
Patents (專利)

HK start-up firm beats Tesla to award Helmet and helmet system (patent)

An exclusive intellectual property right granted for an invention

Assignee/applicant of the invention can exclude others from making, using, selling/importing the invention

Assignee/applicant must disclose sufficient technical details of the invention
In-class Activity 2

Go to (http://tinyurl.com/eunicewong)

Major sections included in a patent document (https://patents.google.com/patent/US20170119078A1/)

Submit your answers
## Google Patent Search

Granted patents & published patent applications from:

<table>
<thead>
<tr>
<th>Source</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States Patent &amp; Trademark Office (USPTO)</td>
<td>1790 (old) – present</td>
</tr>
<tr>
<td>European Patent Office (EPO)</td>
<td>1978 – present</td>
</tr>
<tr>
<td>World Intellectual Property Organization (WIPO)</td>
<td>1978 – present</td>
</tr>
<tr>
<td>Canada, China &amp; Germany Patent Office</td>
<td>unknown coverage</td>
</tr>
</tbody>
</table>

- All patents are available in both their original languages and in English
# Google Patent Search Exercise

<table>
<thead>
<tr>
<th>Inventor</th>
<th>Assignee</th>
<th>Phrase Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steve Jobs</td>
<td>Apple</td>
<td>Eye tracking vs “eye tracking”</td>
</tr>
<tr>
<td>Kwok Hoi Sing</td>
<td>Facebook</td>
<td>&quot;eye tracking&quot; – will miss documents which use tracking eye, eye movement tracking...</td>
</tr>
<tr>
<td>Elon Musk</td>
<td>Google</td>
<td>&quot;phrase search&quot; is useful when the distinct phrase is made up of common words, e.g., <em>system on chip, big data</em></td>
</tr>
<tr>
<td>Mark Zuckerberg</td>
<td>Samsung, Sony</td>
<td></td>
</tr>
</tbody>
</table>
### Search with Keywords

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Alternative Terms (Similar Meaning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy saving</td>
<td>• Power saving</td>
</tr>
<tr>
<td></td>
<td>• Energy efficient</td>
</tr>
<tr>
<td>Waterproof</td>
<td>• water resistant</td>
</tr>
<tr>
<td></td>
<td>• water-repellent</td>
</tr>
<tr>
<td></td>
<td>• weatherproof</td>
</tr>
<tr>
<td></td>
<td>• watertight</td>
</tr>
<tr>
<td></td>
<td>• impermeable</td>
</tr>
</tbody>
</table>

Keywords describing technologies similar to [WhatsApp](https://www.whatsapp.com)? Features, functions
Keywords describing technologies/materials similar to [GORE-TEX](https://www.gore-tex.com)? Properties
Google Patent Search Exercise
Find the patent of iPhone X
Type: waterproof shoe, compare results

? Number of documents found

? Most of the results are... (Source type vs Document type)

? Suggest keywords or subjects?
Trade (Professional) Magazines

- Industry trends, product news, new techniques and other information of interest to a specific industry or profession

- Databases: ProQuest, Ebscohost
Trade (Professional) Magazines

Look at results & Subjects for more keywords and ideas

Narrow your results by Source Type (trade journals)
ProQuest – Practice Exercise

Find trade magazine articles about anti-snoring pillows published after 2010...

snor* - snore, snores, snoring, snoreless
antı, reduce, abate, alleviate
Related Subject Words: Insomnia, Sleep apnea

Related HKUST innovation:
Scopus – Scholarly Research Articles

Search: waterproof shoes

? Number of results?
? Document type?
? Subject?

Authors: professors, researchers, subject experts
Peer-reviewed
Lots of references
Pioneer research – not for commercial implementation yet
Scopus - Scholarly Research Articles

✓ Phrase search – "search as a phrase"

✓ Variants
  o 3d or "3 d" or "3 dimensional" or "three dimensional"
  o vr or "virtual reality"

✓ Get Full-text
  ✓ View at Publisher
  ✓ Find@HKUST
  ✓ Interlibrary loan: Obtain articles from other libraries
Effective Use of Library Databases

√ Databases are well structured system for storing & retrieving information

√ Smart searching = know

1. What contents (or subjects) each database covers
2. How to make use of each database’s special functions

√ Search the right tool using selective filters
Engineering Innovation

1. Think of what you have learned (or will learn) in your program and choose an aspect to focus on for your innovation proposal, e.g.,
   ✓ Speech recognition technology for mobile device
   ✓ Green buildings that produce lower CO2 emissions
   ✓ AI & robotics to develop an autopilot aviation system

2. Use 2 – 3 keywords to describe your innovation

3. Search for patents, trade magazines or scholarly research articles
# Engineering Innovations

Examples from previous years:

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Keywords/description</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-book reader for blind people</td>
<td>able to produce sounds, able to convert image and chart to text</td>
</tr>
<tr>
<td>Multiplayer first person shooter game</td>
<td>motion detecting action game that requires the player to move or run around and shoot, hide behind obstacles, etc.</td>
</tr>
<tr>
<td>dream recorder</td>
<td>capture lost dreams, especially good ones</td>
</tr>
<tr>
<td>electricity generation shoe</td>
<td>emergency charging for mobile device, light, high efficiency</td>
</tr>
<tr>
<td>iAlarm</td>
<td>shake vigorously to mute alarm, can set favorite alarm song</td>
</tr>
<tr>
<td>UST RICE</td>
<td>Android App, Food Recommendation, Online Food Ordering</td>
</tr>
<tr>
<td>hand free umbrella</td>
<td>portable design, durable material, lightweight</td>
</tr>
</tbody>
</table>
Cite Sources – Give Credits for Ideas

• New designs, products, processes or technologies often build on previous works of others.

• One must acknowledge sources used to give credits for ideas

Example

▪ *Development of a Low-Cost Underwater Acoustic Communication System* is a winning project of the President’s Cup Prize 2017.

▪ In the full report, see how they cite sources within the text (in-text reference) and at the end of report (reference list).
Tools to Help U Cite

Free Web Tools
- Citethisforme
- Mendeley
- Son of Citation Machine

Advanced, $$ subscribed by the Library
- RefWorks
To Get Good Grade, you should

1. Develop interesting topic for my report
2. Find trade publication & scholarly journal articles to get creative, feasible, useful innovation idea
3. Locate patent and technical description
4. Refine search result & get related innovation’s details for comparison & enriching my content
5. Use proper, consistent IEEE citation style in my reference list
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lbeunice@ust.hk / lbref@ust.hk

Whatsapp : 9701-1055

  • Making Proper Citations (IEEE Style)
  • Check list for your report