Literature Search Engineering, Science & Technology

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Lead, Engineering Resource Team
NUS Libraries
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10am – 12nn
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1- What is Literature Search

• Systematic search of all **types of published literature** to identify **good quality research** relevant to a **specific topic**.

Can you do a research project without Literature Search?
Types of Published Literature

- Books
- Journal Articles
- Magazine Articles
- Newspaper Articles

“Not-so-familiar”
- Patents
- Standards
- Dissertations
- Theses
2- Why

Why Literature Search? Is there a need?
Literature Search

• To find out existing literature to a specific topic
• To identify current research findings
• To identify potential research methods or models
• To compare with your research findings
• To identify the gaps
3- When

Literature Search: When you need information

• Scenario 1:
I am doing an assignment/ writing a research paper/ working on a research project. Do I need to do a literature search?

• Scenario 2:
I am planning to go for PhD. and I have to submit my PhD. application. Do I need to do a literature search?
“We need information all the time...... and we dream, we will get it?
The Dream Vs The Reality

Different databases have different content and date coverage! Make sure you choose the appropriate one!

For more information, please refer to http://libguides.nus.edu.sg/
How to do literature search?
How to do systematic Literature Search?

1. **Work with your Title/ Topic**
   - Identify Search terms
   - Identify similar terms/ synonyms/ alternative terms
   - Identify related terms

2. **Select Sources**
   - Internet Sources such as Google Scholar
   - FindMore@NUSL
   - Academic Databases

3. **Search**
   - Apply Search Techniques
     1. Narrow/broaden
     2. Advanced Search Techniques

4. **Look at Results?**
   - Change one or more

5. **Set Alerts**
6. **Access Full Text**
4 - How

Frameworks - To analyse a topic

Useful links:
https://www.ideou.com/pages/design-thinking
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4310146/

http://pestleanalysis.com/what-is-pestle-analysis/

Innovation Framework - Mapping information:

Political information: What are government’s plans in helping this research?

Social Information: What is the level of acceptance by people?

Viability:
1. Identity Market Segment
2. What are the customer’s problems/needs are we helping to solve?
3. How much are they paying and willing to pay?
4. Who are the competitors?
5. Is the field saturated?

Feasibility:
2. What technology is easy for people to use?
3. Is it environment friendly and respond to changing environmental conditions?
PESTLE framework – Mapping information

- **Political**: What are government’s plans?
- **Economic**: How much is people willing to pay for it?
- **Social**: What is the level of acceptance?
- **Technology**: What technology to use?
- **Legal**: What regulations?
- **Environmental**: Is there any environmental issues?
Write down the research topic on the worksheet
The world’s population of older people is growing and caring for the elderly is a key challenge. Countries like Japan, Singapore has experimented using robots to assist in different sectors such as Health care, Smart homes, to improve quality of life. I am interested in the use of robots to help the elderly in independent living.
Internet Sources

Refer to: http://www.lib.nus.edu.sg/ilp/engcs/201803_EG5911_GoogleScholarTips.pdf

Stand on the shoulders of giants

Refer to: http://www.lib.nus.edu.sg/ilp/engcs/201803_EG5911_GoogleScholarTips.pdf
# Identify Search Terms/ Keywords

<table>
<thead>
<tr>
<th>Keyword 1</th>
<th>Keyword 2</th>
<th>Keyword 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>robots</td>
<td>elderly</td>
<td>Independent living</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
<td>OR</td>
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<tr>
<td>OR</td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>Alternative terms</td>
<td>Alternative terms</td>
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<tr>
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<td>OR</td>
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</tbody>
</table>
Basic Search

<table>
<thead>
<tr>
<th>Operators</th>
<th>Used for</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>To combine different keywords/concepts</td>
</tr>
<tr>
<td>OR</td>
<td>To combine synonyms/ alternative terms or similar keywords</td>
</tr>
<tr>
<td>“”</td>
<td>Quotes for Phrases (more than one word)</td>
</tr>
<tr>
<td>*</td>
<td>Truncation to retrieve word variants.</td>
</tr>
</tbody>
</table>

- How to apply the above operators and construct a search statement and improve search statements
# Identify Search terms/ Keywords

<table>
<thead>
<tr>
<th>Keyword 1</th>
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<th>Keyword 2</th>
<th>AND</th>
<th>Keyword 3</th>
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<tbody>
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<td></td>
<td>elderly</td>
<td></td>
<td>Independent living</td>
</tr>
</tbody>
</table>

**Search Statement #1:**

robots and elderly and “independent living”
3- Look at the results and add alternative terms

<table>
<thead>
<tr>
<th></th>
<th>Keyword 1</th>
<th></th>
<th>Keyword 2</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>robots</strong></td>
<td><strong>AND</strong></td>
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<td><strong>Independent</strong></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td><strong>OR</strong></td>
<td><strong>OR</strong></td>
<td><strong>OR</strong></td>
<td><strong>living</strong></td>
</tr>
<tr>
<td>Alternative terms</td>
<td><strong>robotics</strong></td>
<td><strong>AND</strong></td>
<td><strong>Aged</strong></td>
<td><strong>AND</strong></td>
<td><strong>Self care</strong></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td><strong>OR</strong></td>
<td><strong>OR</strong></td>
<td><strong>OR</strong></td>
<td></td>
</tr>
<tr>
<td>Alternative terms</td>
<td><strong>robotically assisted</strong></td>
<td></td>
<td><strong>senior citizens</strong></td>
<td><strong>AND</strong></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td><strong>OR</strong></td>
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</tbody>
</table>
Search attempt #2 (Scopus)

robot*
AND
(elderly or aged or “senior citizen”)
AND
“independent living”
Advance Search Operator (Scopus):

Proximity Operator: W/5

robot*

AND

(elderly or aged or “senior citizen”)

AND

(independent w/5 living)
# 4- Access Full-text & Export Citations

## 91 document results

(TITLE-ABS-KEY((use* OR appli* OR feasibility)) AND TITLE-ABS-KEY((robot* OR "robotic systems" OR (robotically W/S assisted))) AND TITLE-ABS-KEY((elderly OR aged OR "senior citizen")) AND TITLE-ABS-KEY(independent W/S living))

- Edit  |  Save  |  Set alert  |  Set feed

## Analyze search results

<table>
<thead>
<tr>
<th>Document title</th>
<th>Authors</th>
<th>Year</th>
<th>Source</th>
<th>Cited by</th>
</tr>
</thead>
<tbody>
<tr>
<td>A survey on ambient-assisted living tools for older adults</td>
<td>Rashidi, P., Mihailidis, A.</td>
<td>2013</td>
<td>IEEE Journal of Biomedical and Health Informatics 17(3), pp. 579-590</td>
<td>334</td>
</tr>
</tbody>
</table>

- Show all abstracts  | Sort on:  | Cited by (highest)

## Refine results

- Limit to  | Exclude

## Access type

- Open Access  | Other

- (5)  | (86)
4- Set Alerts (Scopus)
Tips Engineering Village

• Turn off the auto stemming feature to control where to truncate.
• Proximity search using NEAR/5 (instead of W/5)
• Do not use truncation within quotes ("electric car*")
• NEAR cannot be used with truncation or quotes (electric NEAR/5 car*).

Tips Web of Science
Literature Search - Pearl Growing Strategy

Find this paper:

“Robotics to enable older adults to remain living at home”
<table>
<thead>
<tr>
<th>Document title</th>
<th>Authors</th>
<th>Year</th>
<th>Source</th>
<th>Cited by</th>
</tr>
</thead>
</table>
Robotics to enable older adults to remain living at home
## Search by Topic - Theses

### Search:

**Search for**

| Go | Start a new search |

**Refine Search Results**

### Discover

#### By Type
- Publications: 12751

#### By People
- ZHANG WEI: 12
- WANG YUE: 10
- WANG WEI: 9
- CHEN YU: 8
- LI YAN: 8

### Results

<table>
<thead>
<tr>
<th>Issue Date</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-Jun-2015</td>
<td>BECOMING AUTONOMOUS: STATE CAPACITY AND TEACHER ACCOUNTABILITY IN INDIA</td>
<td>PRISCILLA ANN VINCENT</td>
</tr>
<tr>
<td>31-Oct-2013</td>
<td>High-k Metal-Insulator-Metal (MIM) capacitors for RF/Mixed-Signal IC applications</td>
<td>KIM SUN JUNG</td>
</tr>
</tbody>
</table>
Search by Topic – Theses (Foreign)

ProQuest Dissertations & Theses Global

Basic Search  Advanced Search  Browse  About

"electric vehicles"

Full text  Doctoral dissertations only

Modify search  Recent searches  Save search/alert

Related searches  electric vehicles  vehicles

4,524 results

Search within

Select 1-20  0 Selected items

Relevance  ▼ Sort

Narrow results

Full text

Publication date ▲

Reinforcement learning in hybrid electric vehicles (HEVs) / electric vehicles (EVs)

...vehicles in use around the world. Electric vehicles (EVs) and hybrid electric

References (112)

Abstract/Details  Preview - PDF (656 KB)  Full text - PDF (3 MB)

Spatial-temporal stochasticity of electric vehicles in integrated traffic and power system

To find out more, refer to: http://libguides.nus.edu.sg/findthesis
Evaluate

http://libguides.nus.edu.sg/eng_research/evaluate
To find out more, refer to:
http://libguides.nus.edu.sg/citation
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To find out more, refer to:
http://libguides.nus.edu.sg/citationmanagers
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