# Searching the Library for literature reviews: how does a librarian do it?

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I would like to respectfully acknowledge the Traditional Owners of the land on which we gather, and pay respects to all Aboriginal and Torres Strait Islander Community Elders, past and present, who have resided in the area and have been an integral part of the history of this region.

I also pay my respects to any Aboriginal and/or Torres Strait Islander people present.

- One-shot lecture I give covers more than just searching, as do my slides of that lecture…

- Half of private student consultations after that just require demonstrations of searching using their topic in detail

- A Rubric was considered as an option: Biggs & Tang; Oakleaf

- Zoom Fatigue, videorecording overload – so, go retro

- Uncertain times - sometimes 'tried and trusted' is best

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Hello, Masters students!

Some of you have already met me during a lecture.

This is a example of how a librarian would start searching for articles that can help with building a literature review (as well as suggest avenues of research, experiments to try, or see what prior research has been done).

It expands greatly on what you saw me do during the lecture.

The searches I do here in Scopus can also be tried in the Web of Science database, without changing anything about them…I can just copy and paste them straight into the Web of Science database search box.

Let's begin by looking at project selection, and how to start building searches by using words and phrases that appear in the project topic itself.

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*The first step is to identify some phrases and individual words from the project title and description. Those words and phrases will be used in the first few searches tried.*

*I have highlighted (using Bold Font) what I consider the most important words and phrases :*

Project Title: Energy Saving **Motion Path Planning** of **Industrial Robots**

Brief Description:

**Industrial robots** are a major consumer of **electrical energy** in industrial applications. **Path motion planning** has been shown to be able to reduce the **energy** required to move a **robot** from point to point. The intent of this project is to create a **mathematical model** that describes the relationship between robot **axis motion** and **electrical energy** required to create the **motion**. The project includes developing/testing an interface between MATLAB and the existing 3D **robot simulation tool** such as Process Simulate or equivalent.

"industrial robot" AND ("motion path" OR "path motion") = 58 results.

This is a good number of results – not too few, nor too many. It would seem that the search works better without 'planning'.

I can check to see if I am missing out on articles about 'industrial robotics', by placing an asterisk ( * ) immediately after the 't' in 'robot', and trying the search again.
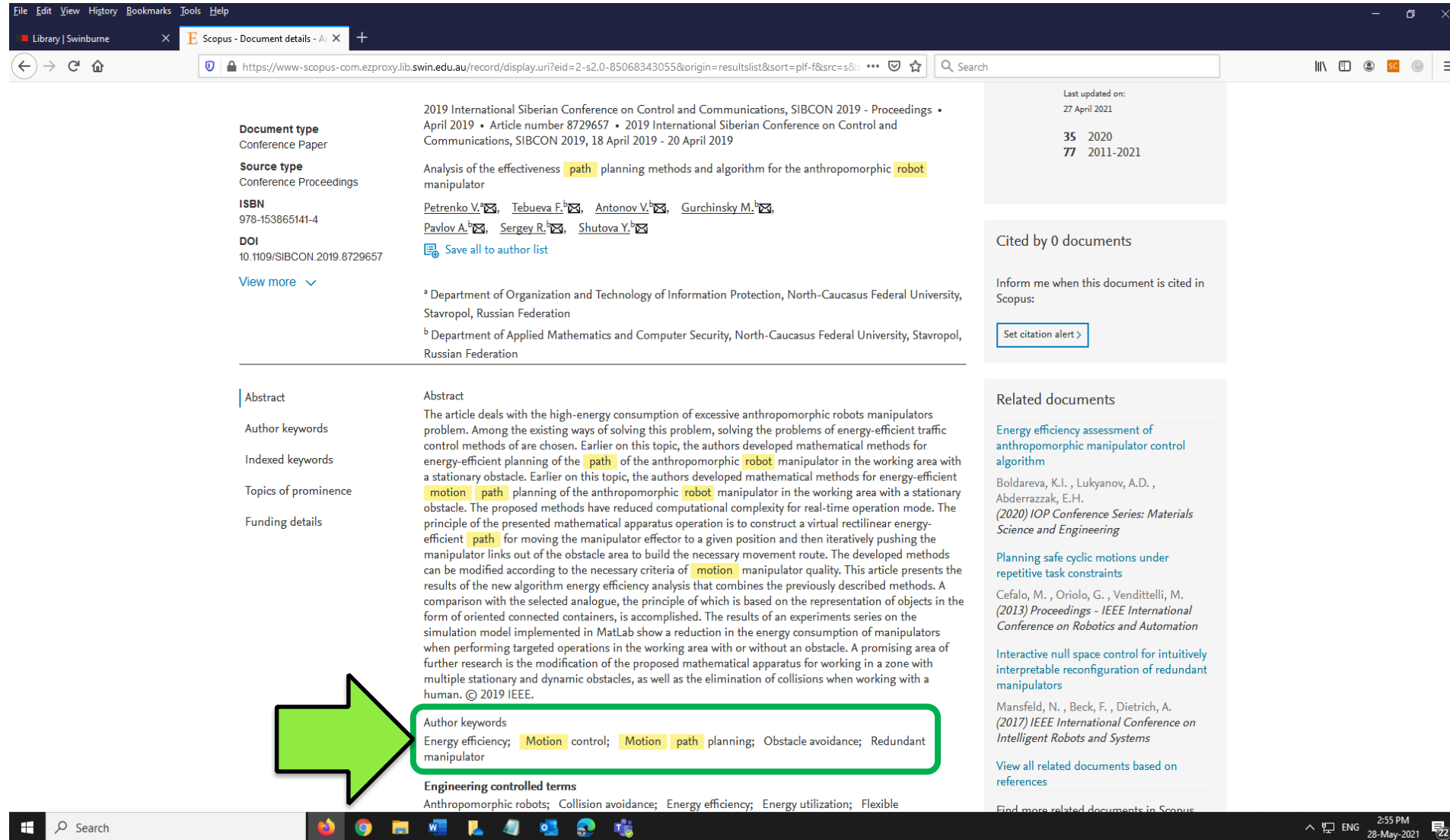
So, I edit the search to:

"industrial robot*" AND ("motion path" OR "path motion") = 60 results.

I haven't gained a significant number of results, so I don't have to worry that I may have been missing out on some good articles so far.

It seems that I now have my core search. If my search had obtained 600 results instead of 60, then I would have to add a word or phrase, to bring numbers down again.

# The **Author Keywords** show three very important phrases:



Motion control; Motion path planning; and also, for later, Energy efficiency

The edited search is now:

"industrial robot*" AND ("motion path" OR "path motion" OR "motion control*") AND (energy OR electric*) AND (reduc* OR minimi* OR limit* OR effici*)

...which gives 58 results. Reasonably good. I would examine these results for useful articles, and also see if there are Author Keywords that might give me more ideas for searches.

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So far, I've been focussed on industrial robots, but there are some synonyms I could try that could find my more helpful results.

The most immediate one I can think of is "factory robot".

So, I can edit my search:

("industrial robot*" OR "factory robot*") AND ("motion path" OR "path motion" OR "motion control*") AND (energy OR electric*) AND (reduc* OR minimi* OR limit* OR effici*) = 58 results.

58 results...same as above...adding in this synonym didn't find anything extra.

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I've looked at the energy aspect of the project topic, so now I need to look at the other aspect, which is the mathematical modelling and simulation.

From the previous searches, I'll keep

robot* AND (industrial OR "factory floor") AND ("motion path" OR "path motion" OR "motion control*")

I'll choose to start by looking at modelling.

In Australia, we spell modelling with two L's. In the US, they spell it with one L.

I can use '?' in the search to look for both versions of that word simultaneously.

So, my starting search will be:

robot* AND (industrial OR "factory floor") AND ("motion path" OR "path motion" OR "motion control*") AND model?ing

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# And this fifth result is where I'll finish.

Library | Swinburne                E  Scopus - Document details - A  ×        +

https://www-scopus-com.ezproxy.lib.swin.edu.au/record/display.uri?eid=2-s2.0-79961026213&origin=resultslist&sort=plf-f&src=s&sid=81f8(          🔍 Search

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**Document type**
Article

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Journal

**ISSN**
00256455

**DOI**
10.1007/s11012-010-9336-6

View more ⌄

Meccanica  •  Volume 46, Issue 4, Pages 771 - 784  •  August 2011

A statically balanced SCARA-like industrial manipulator with high energetic efficiency

Bruzzone L.✉,    Bozzini G.✉

📋 Save all to author list

PMARlab-DIMEC, University of Genoa, 16145 Genoa, Via All'Opera Pia 15A, Italy

| Abstract

Author keywords

Indexed keywords

Topics of prominence

Abstract
The purpose of the work is the improvement of the energetic efficiency of automated lines assisted by four-degree-of-freedom serial robots with three translations and one rotation about a vertical axis (Schoenflies motion). A novel robotic architecture (BalArm) has been designed. It is derived from a RRPR SCARA by substituting a four-bar mechanism for the vertical prismatic joint, in order to balance statically the robot by means of a counter-weight or a torsional spring. The kinematic and dynamic models of the manipulator are described. Using these models, different typical pick-andplace operations have been simulated; the results show that for low-speed motions the mass balancing is more efficient, while for high-speed motions the elastic balancing is preferable; the advantage threshold depends on the task trajectory, speed and acceleration and on the preload of the elastic element. From a constructive point of view, the BalArm robot can be realized with modular solutions, in order to easily change the static balancing. This allows to adapt the balancing to the specific working cycle to minimise the energy consumption, with potential economical and environmental benefits. © 2010 Springer Science+Business Media B.V.

Author keywords
Energetic efficiency;   Industrial robotics;   Static balancing

**Engineering controlled terms**
Computer simulation;   Energy utilization;   Manipulators;   Robotics
**Engineering uncontrolled terms**
Automated lines;   Elastic element;   Energetic efficiency;   Environmental benefits;   Four degree of freedom;   Four-bar mechanisms;   High-speed motion;   Industrial manipulators;   Industrial robotics;   Mass balancing;   Modular solution;   Preloads;   Prismatic joint;   Robotic architectures;   Serial robots;   Static balancing;   Torsional springs;   Vertical axis;   Working cycle

**Metrics** ⓘ          View all metrics ›

8    Citations in Scopus
     39th percentile

5    Views Count 2020 ⓘ
     Last updated on:
     27 April 2021

     1    2019
     38   2011-2021

0.15   Field-Weighted Citation
       Impact ⓘ

**Cited by 8 documents**

A host–parasite structural analysis of industrial robots
Wei, W. , Cai, G. , Gong, J.
(2020) International Journal of Advanced Robotic Systems

Design, construction and control of a scara manipulator with 6 Degrees of Freedom
Urrea, C. , Cortés, J. , Pascal, J.
(2019) Journal of Applied Research and Technology

Static Balancing of a Reconfigurable Linkage with Switchable Mobility by Using a Single Counterweight
Kuo, C.-H. , Nguyen-Vu, L. , Chou, L.-T.
(2018) 2018 International Conference on Reconfigurable Mechanisms and Robots, ReMAR 2018 - Proceedings

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I'm finishing on this fifth one because, of the 26 results, I've now gone back more than ten years in time (back earlier than 2011), and robotics is a fast-moving field.

Articles from before 2011 may be too old!

So, I'm fairly happy with some of the sets of results I've found.

This is when I would start using subject-specific databases, such as:

IEEEXplore,

and

ACM Digital Library,

to find more.

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Some things to consider…

1) It seems that with this project, there was some research into it in the mid 2010's, but since then, there has not been much more written.

There may be any number of reasons why research appears to have tapered off, but by pursuing this topic, **you** may be helping to recommence research worldwide into it, especially if there are now new technologies or processes to utilise. You may also find something worth making into a PhD thesis!

Some things to consider…

2) With articles you find beneficial, look at the reference list, and try to locate important articles that the articles you have refer to repeatedly, that match your topic.

This is an accepted academic practice, and can be very beneficial when keyword searching does not seem to be so successful.

References, that are also Further Reading:

Biggs, JB & Tang, CS 2011, *Teaching for quality learning at university: what the student does*, 4th edn, McGraw-Hill/Society for Research into Higher Education, Maidenhead.

Oakleaf, M 2009, 'Using rubrics to assess information literacy: An examination of methodology and interrater reliability', *Journal of the American Society for Information Science and Technology*, vol. 60, no. 5, pp. 969-983.

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