SE SOFTWARE ENGINEERING

RWTH AACHEN UNIVERSITY

An Extended Systematic Mapping Study on Modeling Languages for Industry 4.0

The data collection

A. Wortmann,
B. Combemale,
O. Barais,
M. Wimmer

Overview

Total Papers

- Google Scholar: 971 + 606 papers = 1577
- IEEE Xplore: 151 + 104 papers = 255
- ACM DL: 104 + 34 papers = 138
- SpringerLink: 240 + 102 papers = 342
- Scopus 504 papers
- Web of Science 32 papers
  = 2848 papers

- Removed 561 duplicates = 2287 papers left

- Removed 1369 papers by criteria = 918 papers left

- Read and considered irrelevant 570 papers = 348 papers left

- Yields 348 relevant papers

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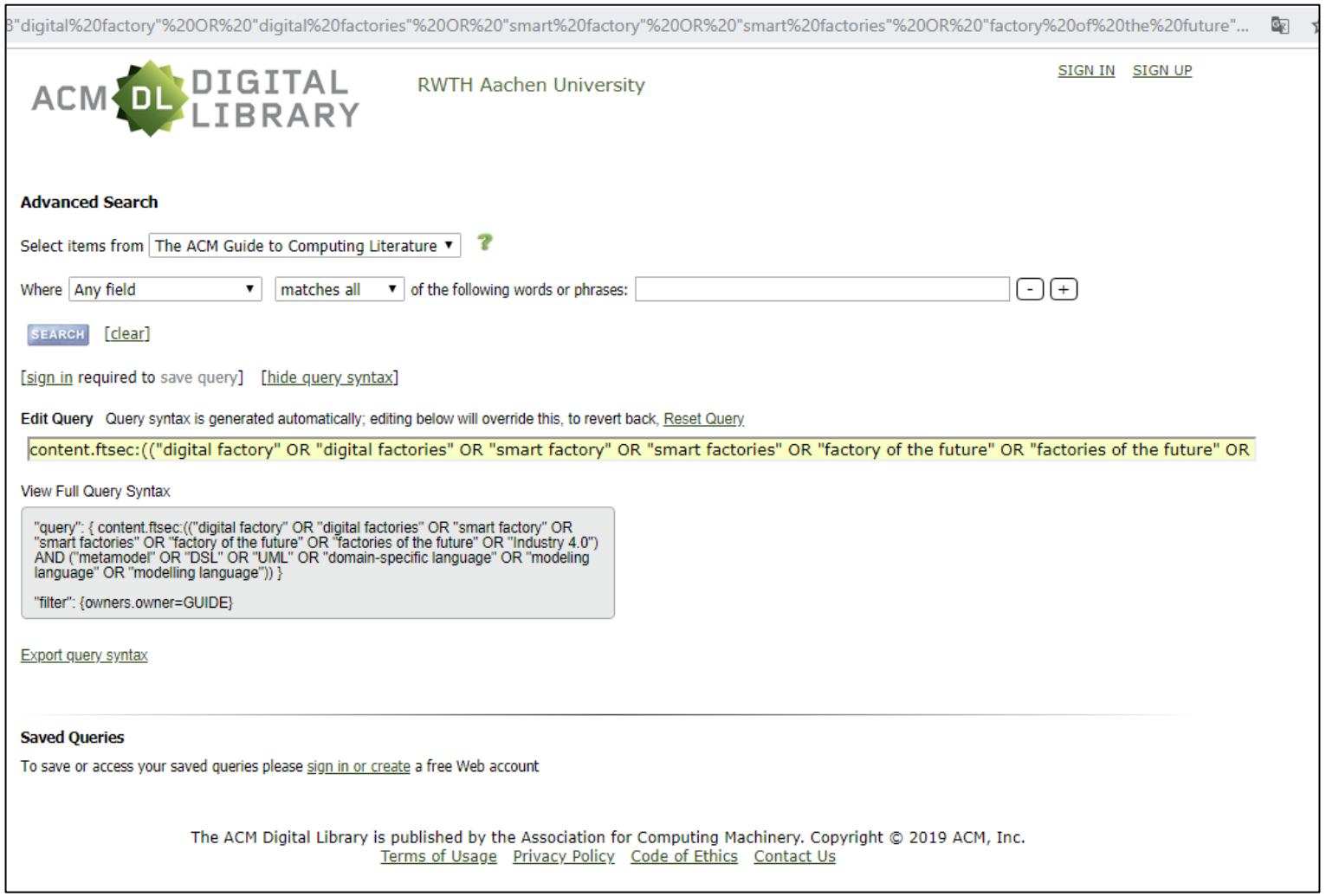
ACM Digital Library: Restrictions and Query

- Full text search with complex query only possible by editing the Query manually



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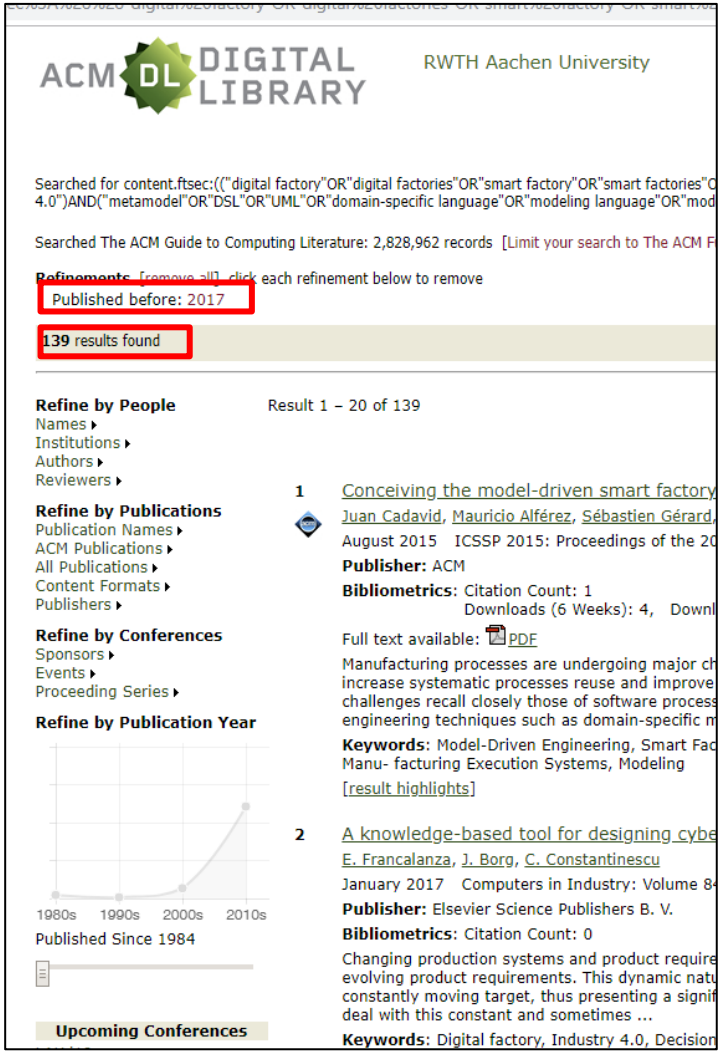
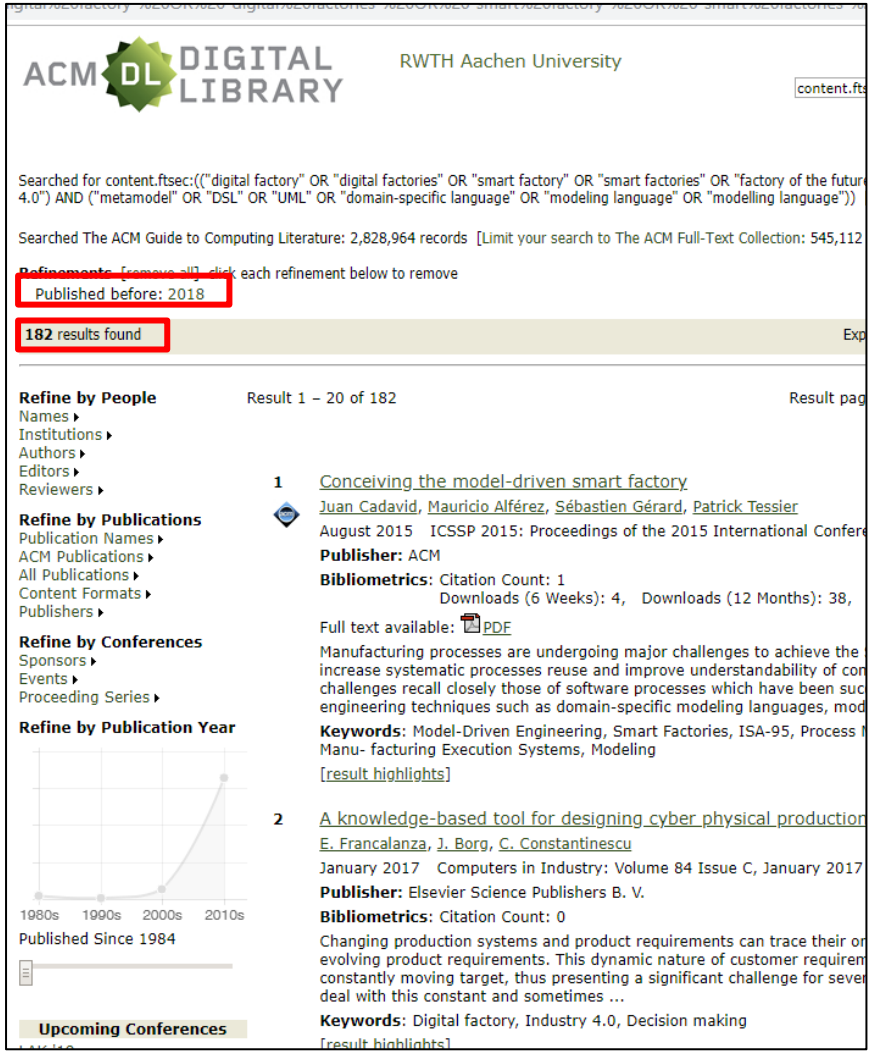
ACM Digital Library: Results of 2017 and 2018





Please note that these and the following figures were created significantly after the submission and hence the illustrated numbers of results do not match exactly.

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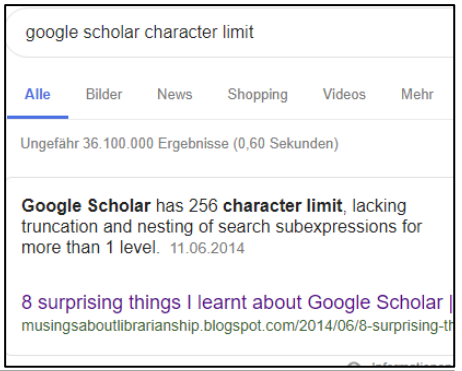
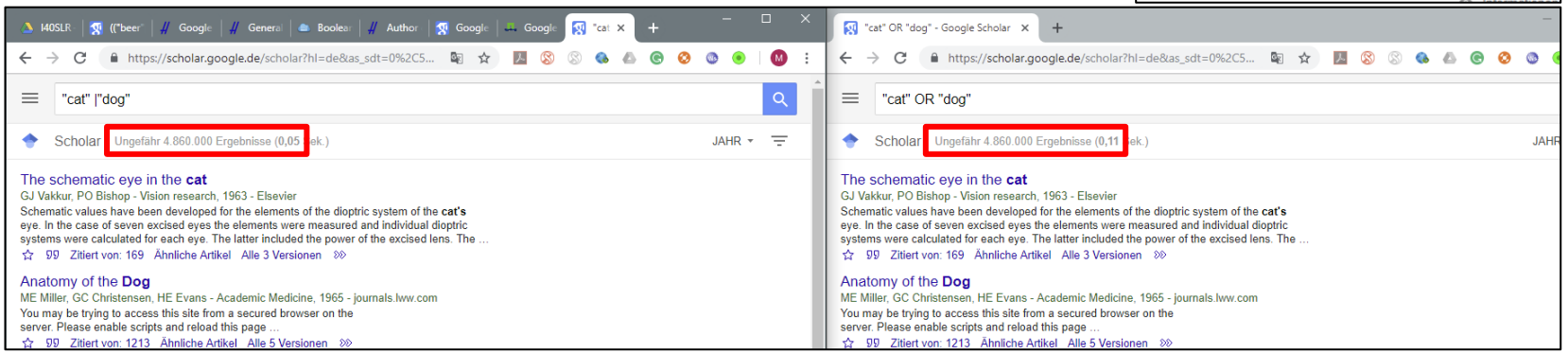
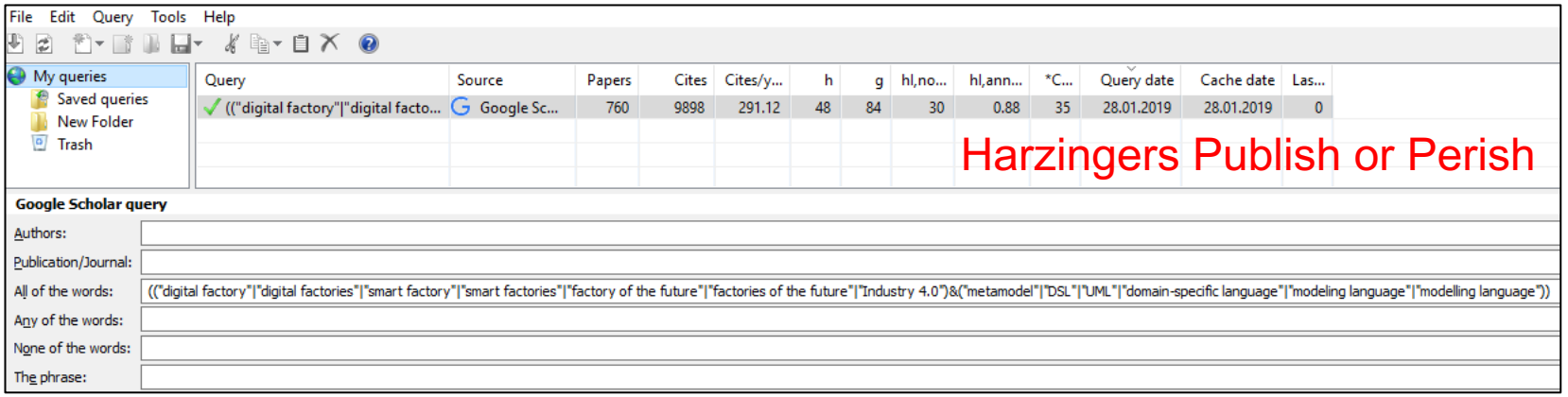
Google Scholar via Harzingers “Publish or Perish”: Restrictions and Query

- 256 Character limit → Replace “ AND “ with “&” and “ OR “ with “|”
- (("digital factory"|"digital factories"|"smart factory"|"smart factories"|" factory of the future"|"factories of the future"|"Industry 4.0") & ("metamodel"|"DSL"|"UML"|"domain-specific language"|" modeling language"|"modelling language"))







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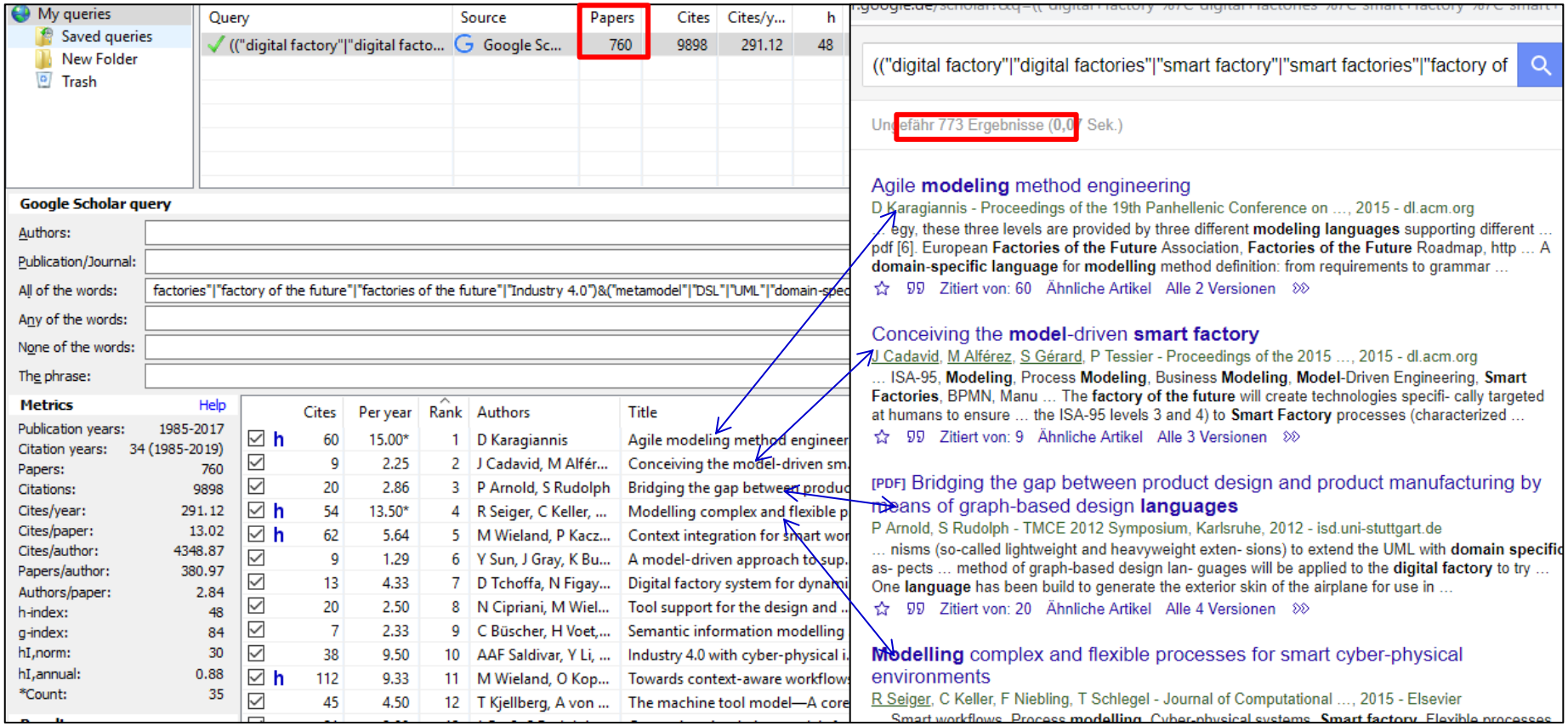
Scholar 2017



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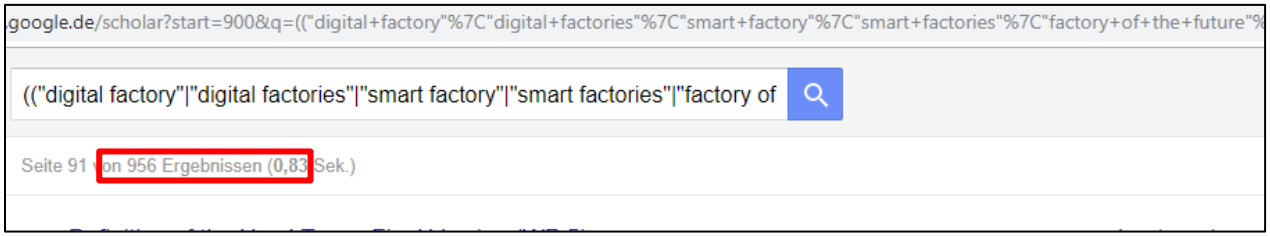
Scholar 2018



Harzing's Publish or Perish 6.33.6259.6749

File Edit Query Tools Help

My queries
Saved queries
New Folder
Trash

Query	Source	Papers	Cites	Cites/y...	h	g	hl,no...	hl,ann...	*C...	Query date	Cache date	Las...
(("digital factory"|"digital facto...	Google Sc...	956	10269	302.03	48	85	30	0.88	39	28.01.2019	28.01.2019	0

Google Scholar query How to search with Google Scholar

Authors:
Publication/Journal:
All of the words: ...ctories"|"factory of the future"|"factories of the future"|"Industry 4.0")&("metamodel"|"DSL"|"UML"|"domain-specific language"|"modeling language"|"modelling language")) Title words:
Any of the words:
None of the words:
The phrase:

Metrics Help

Publication years:	1985-2018
Citation years:	34 (1985-2019)
Papers:	956
Citations:	10269
Cites/year:	302.03
Cites/paper:	10.74
Cites/author:	4448.03
Papers/author:	469.15
Authors/paper:	2.88
h-index:	48
g-index:	85
hI,norm:	30

	Cites	Per year	Rank	Authors	Title	Year	Publication	Publisher	Type
h	417	83.40*	632	O Vermesan, P Fri...	Internet of things-from research ...	2014		researchgate.net	BOOK
h	325	14.13*	625	MP Bender, JP Mc...	Icon based process design and co...	1996	US Patent 5,576,946	Google Patents	
h	264	37.71*	467	F Puppe	Systematic introduction to expert...	2012		books.google.com	BOOK
h	253	13.32*	538	A Kusiak	Computational intelligence in de...	2000		books.google.com	BOOK
h	222	13.88*	486	I Crnkovic, U Askl...	Implementing and integrating pr...	2003		books.google.com	BOOK
h	213	23.67*	555	S Terzi, A Bouras, ...	Product lifecycle management-fr...	2010	International Journal of ...	academia.edu	PDF
h	207	69.00*	557	J Mineraud, O Ma...	A gap analysis of Internet-of-Thi...	2016	Computer Communicatio...	Elsevier	
h	192	21.33*	634	PG Maropoulos, D...	Design verification and validation...	2010	CIRP Annals-Manufacturi...	Elsevier	
h	192	8.35	883	DH Sebastian	Concurrent engineering design t...	1996	US Patent 5,552,995	Google Patents	
h	160	84.50*	459	S Jeschke, C Brech...	Industrial internet of things and c...	2017	Industrial Internet of ...	Springer	

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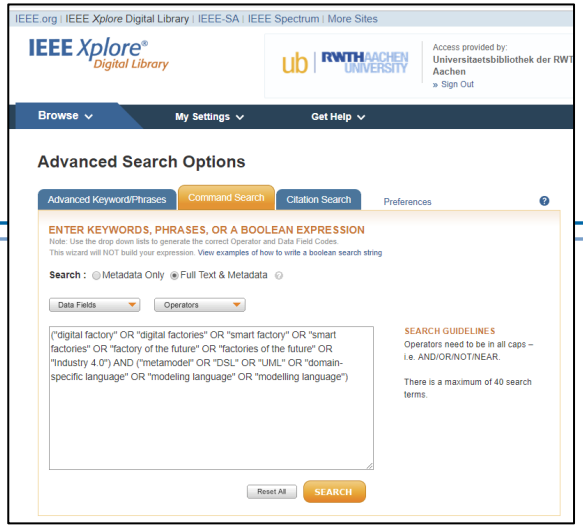
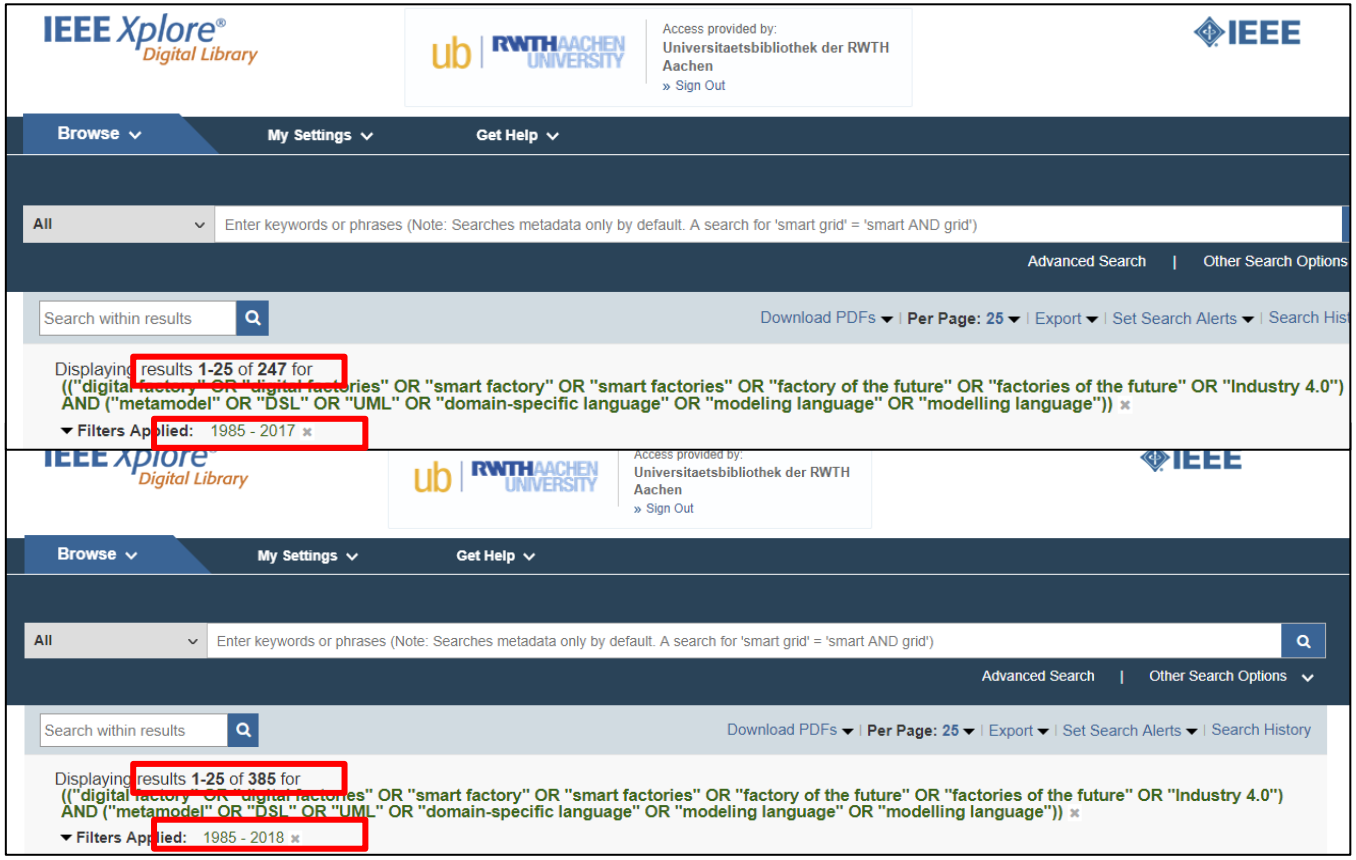
IEEE Xplore: Restrictions and Query



- 40 Search terms (no issue)



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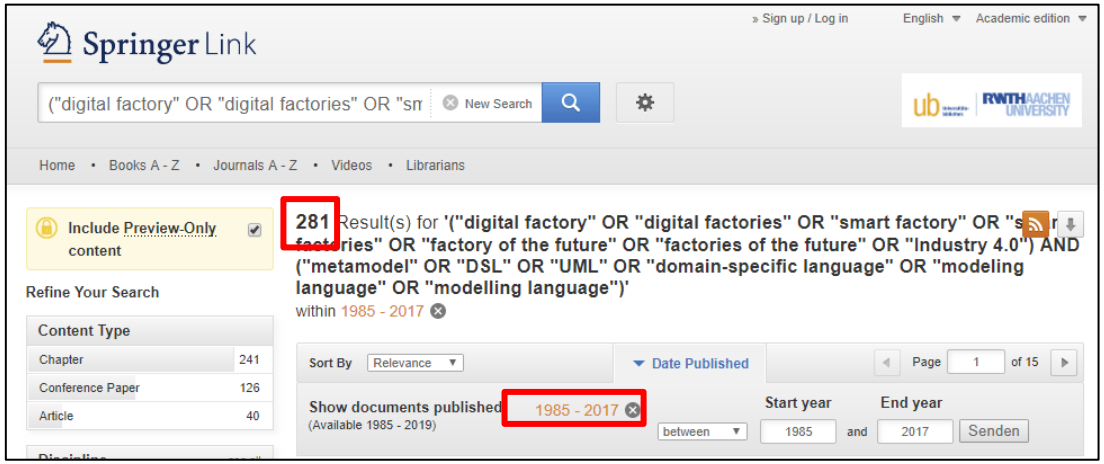
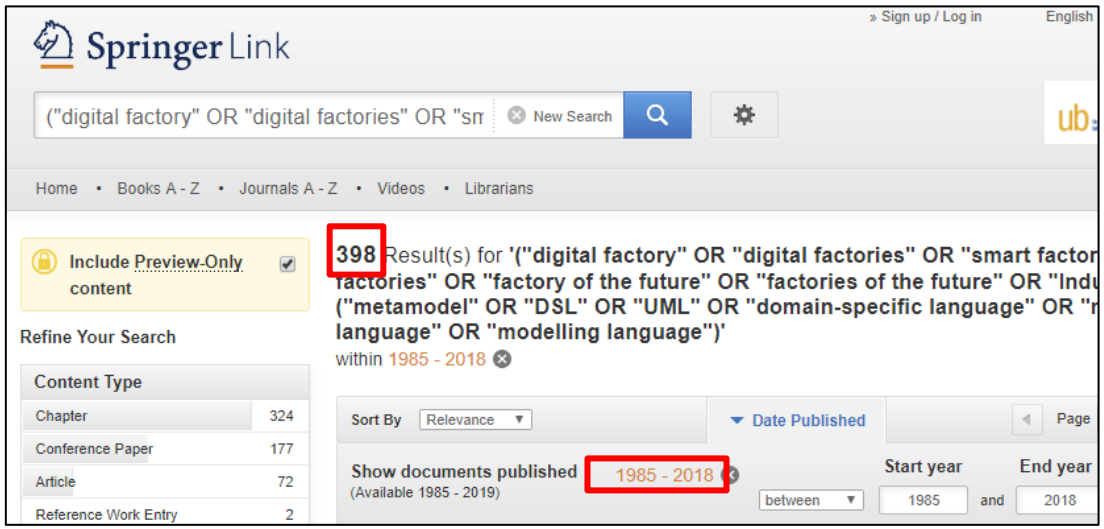
SpringerLink: Restrictions and Query

- No restrictions: copied and pasted query into search field





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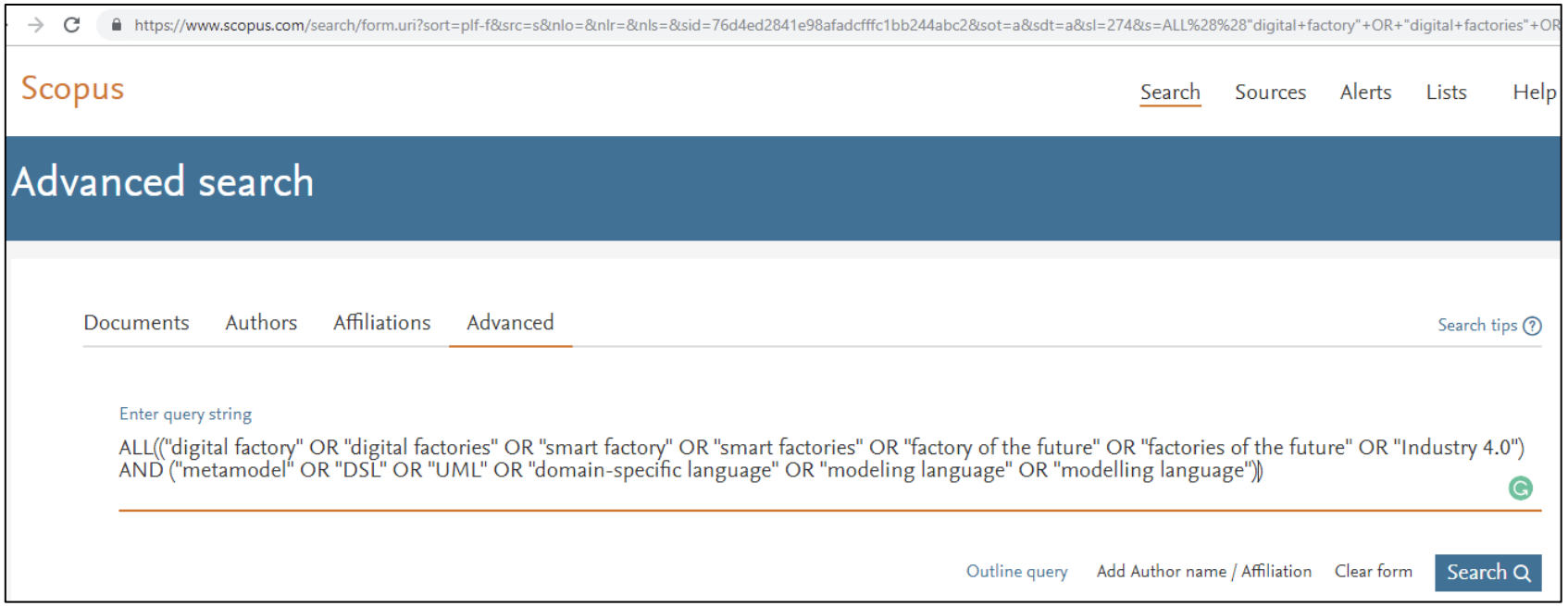
Scopus: Restrictions and Query

- No restrictions



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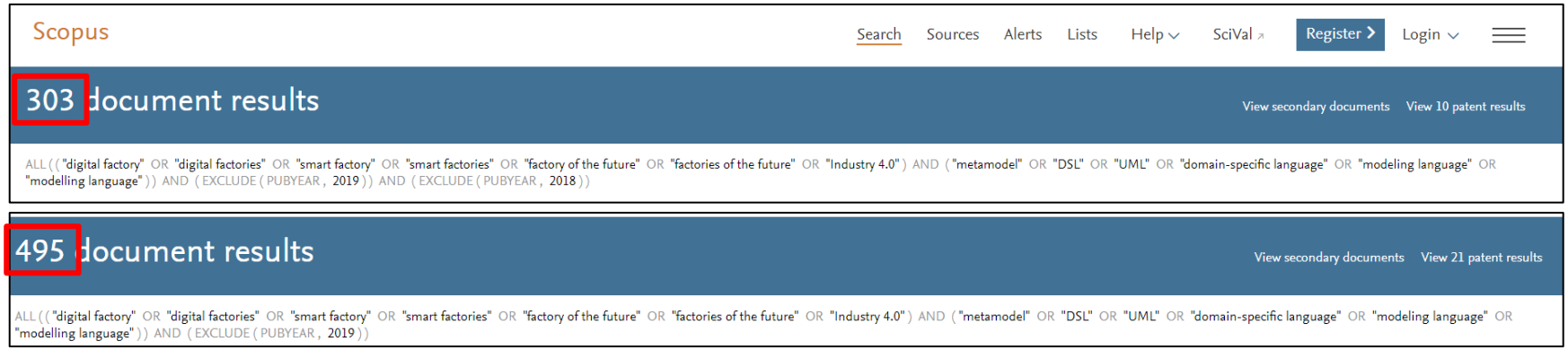
Scopus: Results of 2017 and 2018



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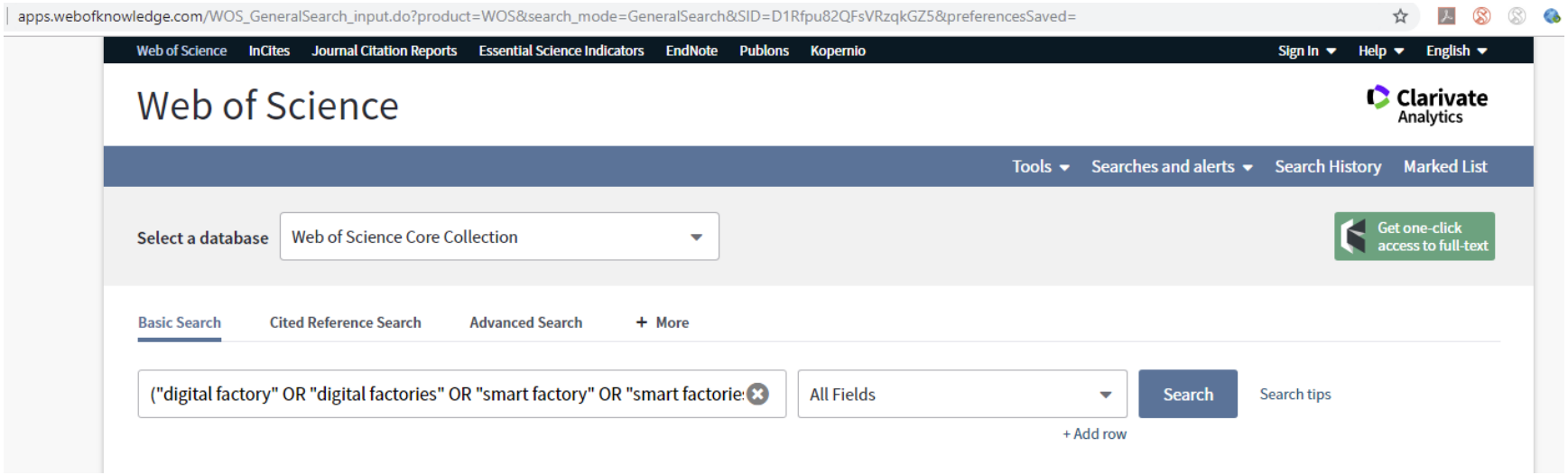
Web of Science



Web of Science