MAPPING THE INTELLECTUAL STRUCTURE OF THE INTERNATIONAL JOURNAL OF COMPUTERS COMMUNICATIONS & CONTROL: A CONTENT ANALYSIS FROM 2015 TO 2019

8TH INTERNATIONAL CONFERENCE ON COMPUTERS COMMUNICATIONS AND CONTROL (ICCCC)

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1. INTRODUCTION

CONTEXT

International Journal of Computers Communications & Control (IJCCC) is an open access peer-reviewed journal publishing original research papers and it is considered by professionals, academics and researches as one of the main sources of knowledge in the integrated solutions in computer-based control and communications, computational intelligence methods and soft computing, and advanced decision support systems fields.

OBJECTIVE

The main aim of this contribution is to develop a bibliometric analysis to evaluate the performance and conceptual evolution of the International Journal of Computers Communications & Control (IJCCC) from 2015 to 2019. The analysis is developed using SciMAT.

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2. METHODOLOGY

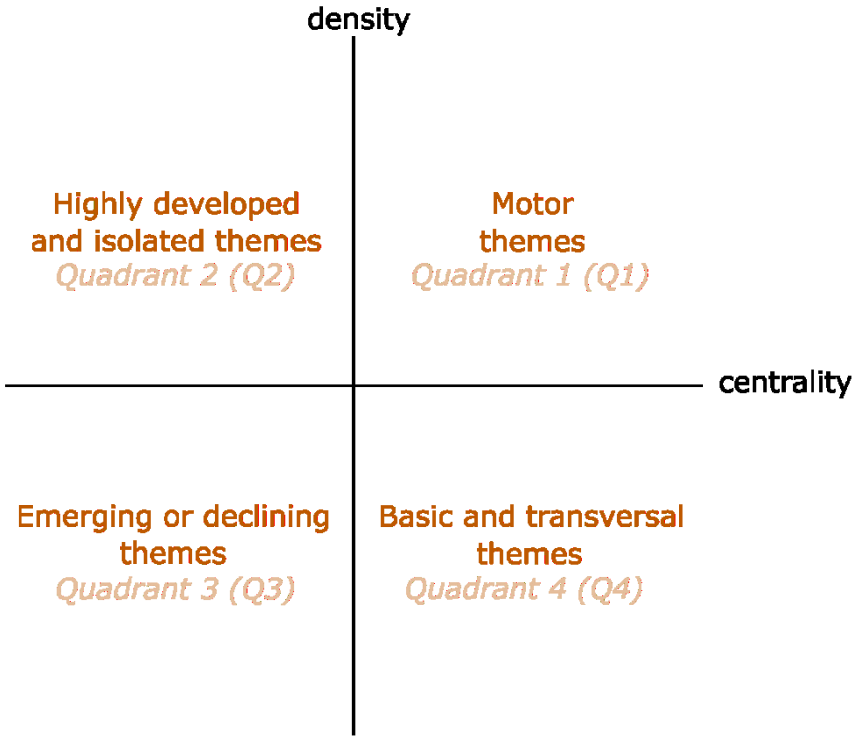
SOFTWARE TOOL

SciMAT was employed to develop a longitudinal conceptual science mapping analysis based on co-words bibliographic networks.

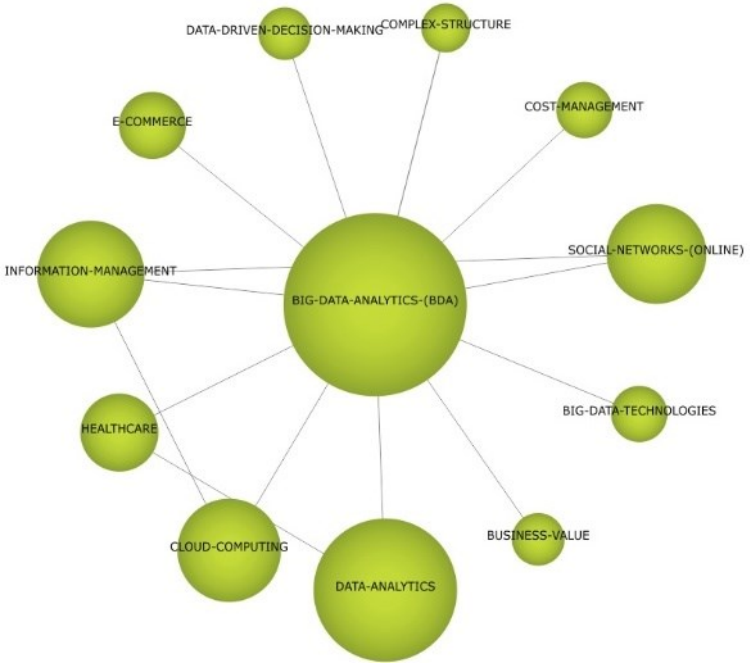
METHODOLOGY STAGES

1. **Detection of the research themes.** Co-word analysis, followed by a clustering of keywords to topics/themes. The similarity between the keywords is assessed using the equivalence index.
2. **Visualizing research themes and thematic network.** Strategic diagram and thematic network (centrality and density). Research themes mapped in a two-dimensional strategic diagram and classified into four groups (Figure 1): i) motor, ii) basic/transversal, iii) highly developed-isolated, and iv) emerging/declining
3. **Performance analysis.** Relative contribution of the research themes to the whole research field: number of published documents, number of citations, and different types of bibliometric indices (h-index).

2. METHODOLOGY



(a) Strategic diagram



(b) Thematic network

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3. DATASET

CORPUS AND DATABASE

International Journal of Computers Communications & Control (IJCCC) documents published from 2015 to 2019 in the Web of Science.

QUERY

IS=("1841-9836") Refined by: PUBLICATION YEARS:(2019 OR 2015 OR 2018 OR 2017 OR 2016) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years.

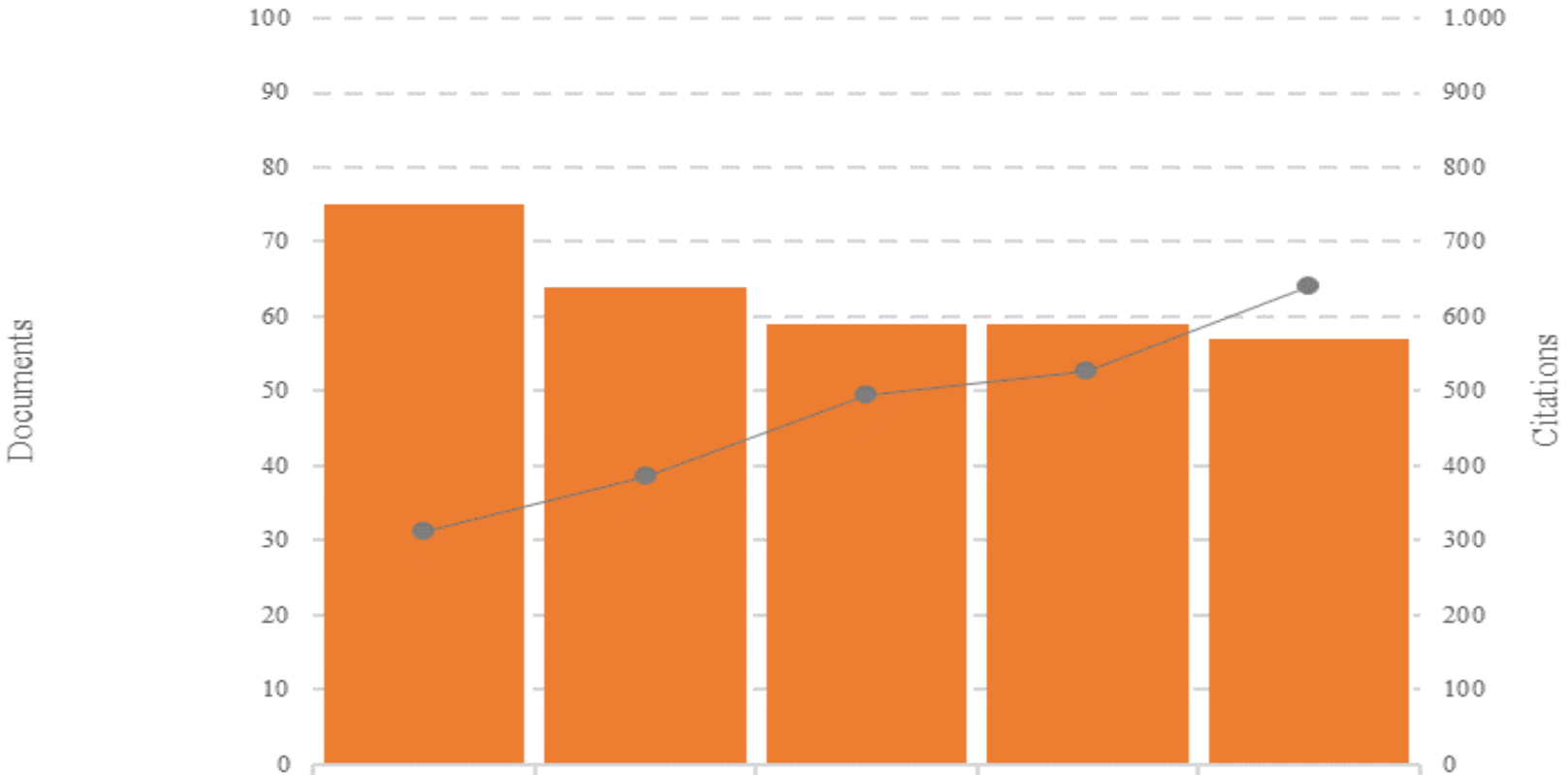
TIME PERIOD

The corpus was evaluated in a single period from 2015 to 2019.

CORPUS SIZE

- 314 documents (articles), 1.093 cites and 2.094 keywords.
- Citations count up to 6th January 2020.
- 2015: 75 documents, 373 cites and 468 keywords.
- 2016: 64 documents, 283 cites and 359 keywords.
- 2017: 59 documents, 202 cites and 416 keywords.
- 2018: 59 documents, 157 cites and 445 keywords.
- 2019: 57 documents, 78 cites and 406 keywords.

DOCUMENTS AND CITATIONS BY YEAR



	2015	2016	2017	2018	2019
Documents	75	64	59	59	57
Cites	313	385	494	526	641

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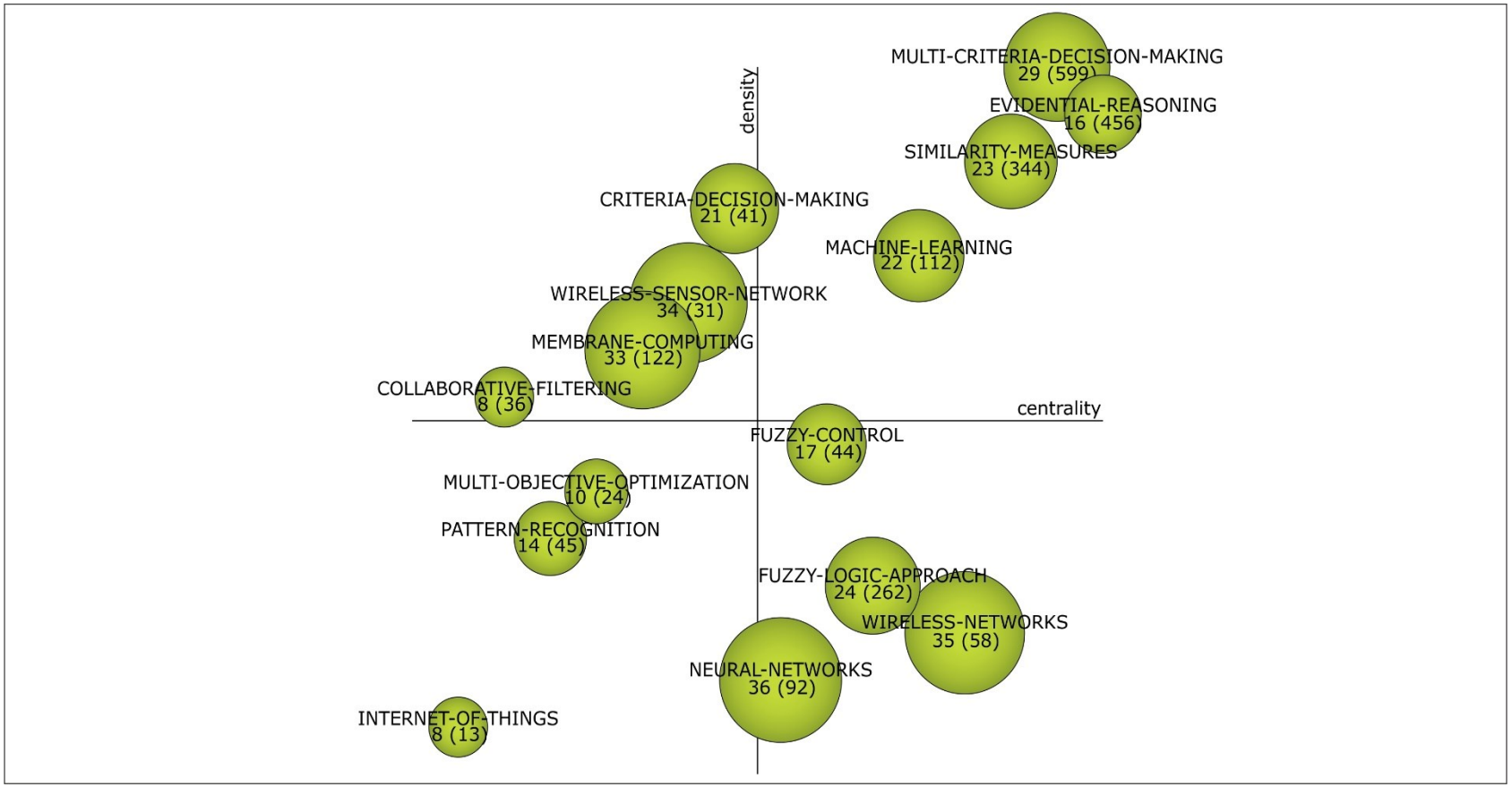
4. CONCEPTUAL ANALYSIS



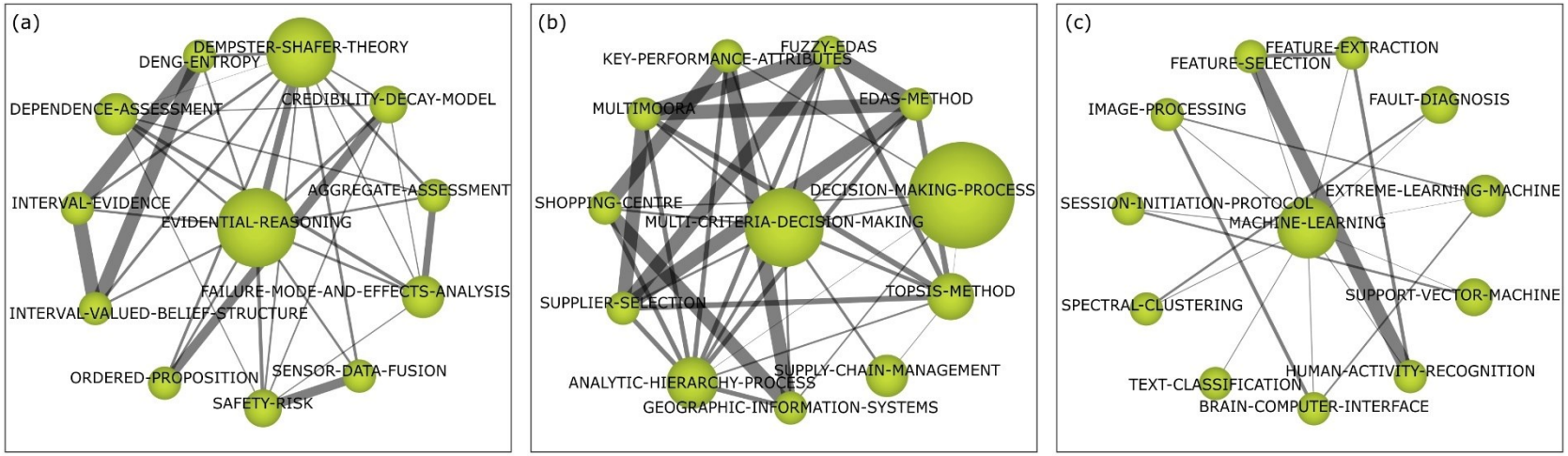
Strategic diagram 2015-2019

4. CONCEPTUAL ANALYSIS

Theme	Quadrant	Documents	Citations	h-index
MULTI-CRITERIA-DECISION-MAKING	Q1	29	599	12
EVIDENTIAL-REASONING	Q1	16	456	10
SIMILARITY-MEASURES	Q1	23	344	7
MACHINE-LEARNING	Q1	22	112	5
MEMBRANE-COMPUTING	Q2	33	122	6
CRITERIA-DECISION-MAKING	Q2	21	41	4
COLLABORATIVE-FILTERING	Q2	8	36	4
WIRELESS-SENSOR-NETWORK	Q2	34	31	3
PATTERN-RECOGNITION	Q3	14	45	3
MULTI-OBJECTIVE-OPTIMIZATION	Q3	10	24	3
INTERNET-OF-THINGS	Q3	8	13	2
FUZZY-LOGIC-APPROACH	Q4	24	262	6
NEURAL-NETWORKS	Q4	36	92	6
WIRELESS-NETWORKS	Q4	35	58	4
FUZZY-CONTROL	Q4	17	44	4

In terms of productivity, the most productive theme of the IJCCC is NEURAL-NETWORKS, which is related mainly with DEEP-LEARNING, COMPUTATIONAL-INTELLIGENCE, ARTIFICIAL-INTELLIGENCE, MODEL-PREDICTIVE-CONTROL and SENTIMENT-ANALYSIS.

4. CONCEPTUAL ANALYSIS



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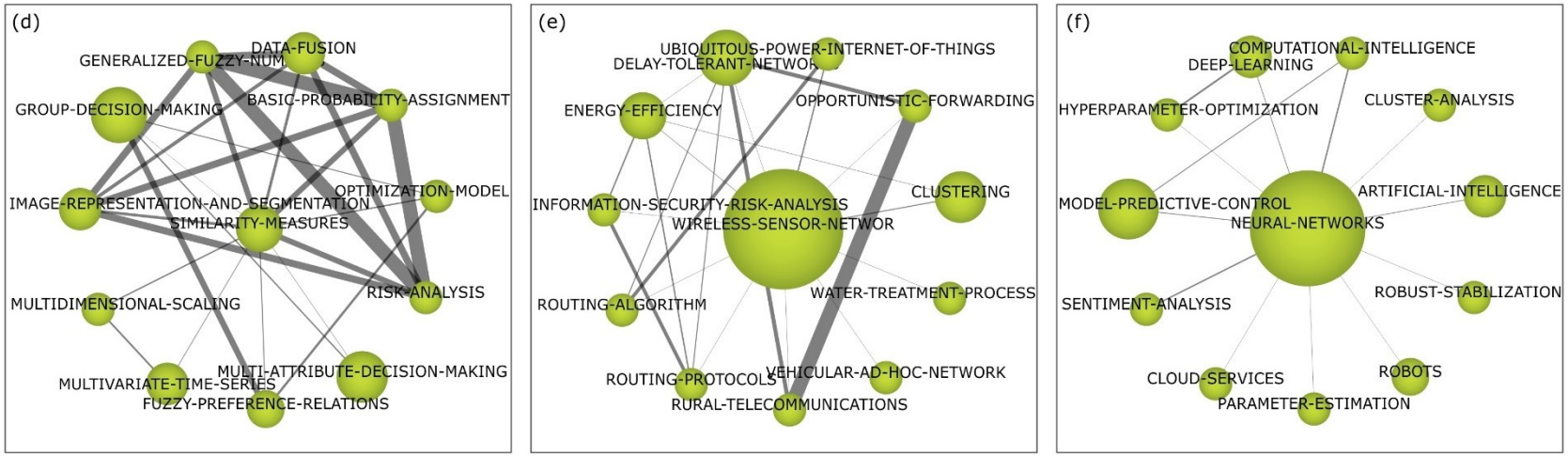

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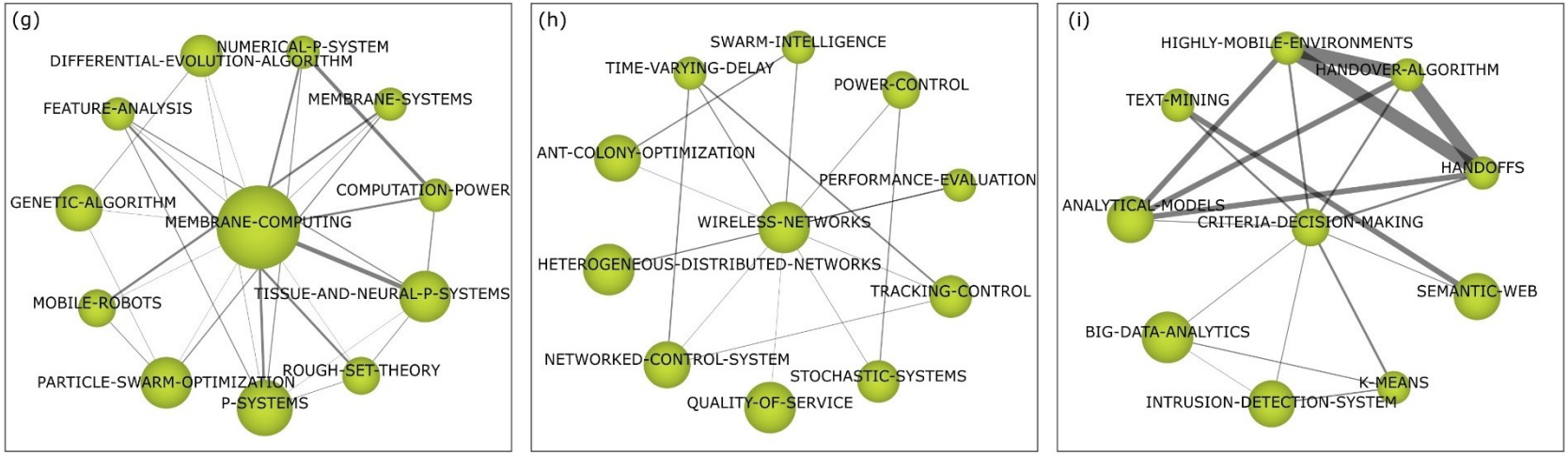

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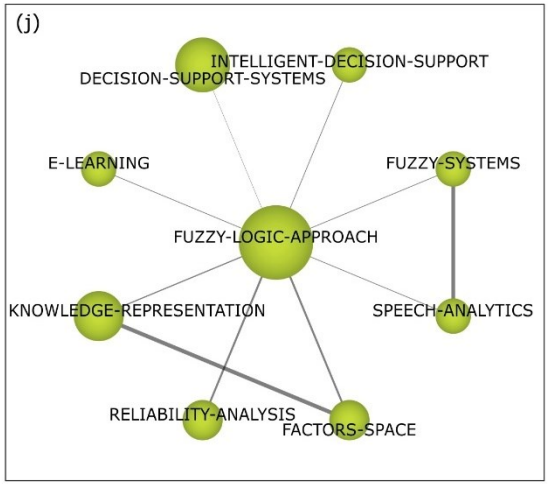
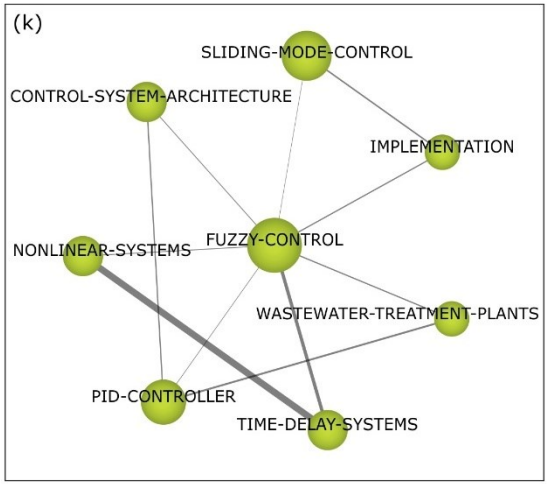
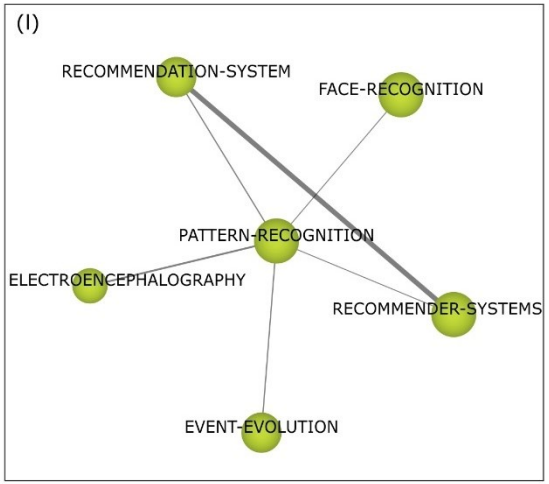
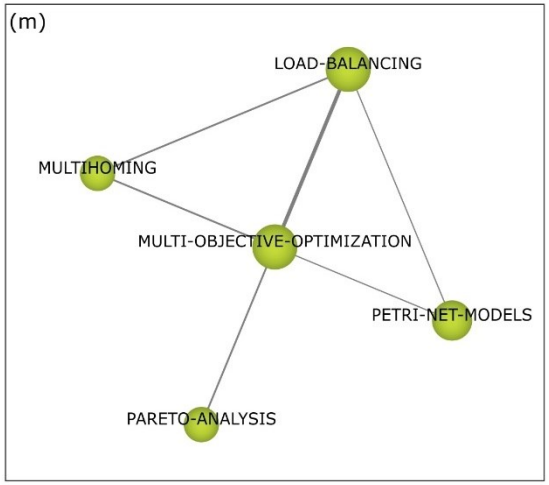
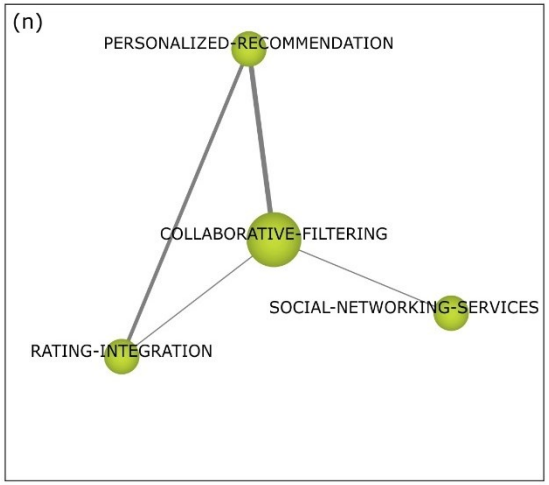


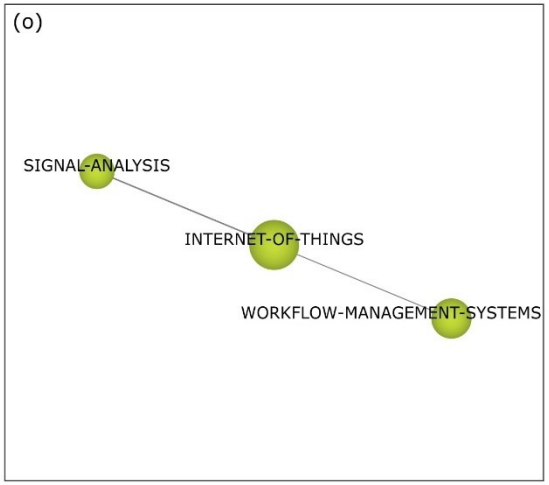




4. CONCEPTUAL ANALYSIS







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CONCLUSIONS

SUMMMARY

- An amount of 314 documents (articles) were retrieved from the WoS. This articles achieved 1.093 cites and 2.094 keywords.

- The corpus was evaluated in a single five-years period.
  - 2015: 75 documents, 373 cites and 468 keywords.
  - 2016: 64 documents, 283 cites and 359 keywords.
  - 2017: 59 documents, 202 cites and 416 keywords.
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- The impact achieved is summarized in the following indicators:
  - Average citations per publication: 1,08
  - Sum of Times Cited (without self-citations): 1.093 (963)
  - Citing articles (without self-citations): 834 (726)
  - h-index: 14 publications

CONCLUSIONS

MAIN CONCLUSION

- In view of the results from the performance and science mapping analysis, two main research themes groups were identified. The first group is the most productive themes (NEURAL-NETWORKS, WIRELESS-NETWORKS, WIRELESS-SENSOR-NETWORK and MEMBRANE-COMPUTING) covered in the last five years and the second one is the most cited themes (MULTI-CRITERIA-DECISION-MAKING, EVIDENTIAL-REASONING, SIMILARITY-MEASURES and FUZZY-LOGIC-APPROACH).

FUTURE WORKS

- A yearly analysis could be carried out taking into account a wider time span and enriching the analysis with the main authors, organizations, countries, among others.
- Furthermore, it will allows identify the evolution of the themes and its position in the quadrants.

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THANK YOU

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