

CS3910

Computational Intelligence

**Criteria**

A literature review is a critical, analytical summary, and synthesis of the current knowledge of a topic.

It should compare and relate different theories, findings, and so on, rather than just summarize them individually.

It should also have a particular focus or theme to organize the review, for example be aimed at answering a question. It does not have to be an exhaustive account of everything published on the topic, but it should discuss all the more significant academic literature important for that focus.

But in general, it is a relatively brief but thorough exploration of past and current work on a topic.

Ogranised via theme such as theories methodologies or specific issues and concepts.

Constrasts perspectives and approaches and findings to analyse strengths and weakness or even present gaps in research.

1. What practical applications has self-organisation been used in, and what was the impact of using self-organisation in those applications?

Literature searching strategy –

First planning my search based on a topic or area with what I already know and record it for the bibliography. As well as information that I do not currently know about the given subject and using focused and thought about keywords to find relevant literature using tools such as Aston’s library, and online bibliographic databases such as SCOPUS.

Developing keywords such as synonyms, alternative spellings etc to be able to find and extend to a wider range of publications that I can find involving the topic I care about and I will be using a keyword mind map to divide my searches into various subtopics which will help me see and visualise which nouns/synonyms are most effective for that given area.

Annotated Bibliography

1.[Christos Filelis-Papadopoulos](https://ieeexplore.ieee.org/author/38319869200), [Huanhuan Xiong](https://ieeexplore.ieee.org/author/37086019109), [Adrian Spătaru](https://ieeexplore.ieee.org/author/37086153679), [Gabriel G. Castañé](https://ieeexplore.ieee.org/author/38270725400), [Dapeng Dong](https://ieeexplore.ieee.org/author/37070380400), [George A. Gravvanis](https://ieeexplore.ieee.org/author/37282673000), [John P. Morrison](https://ieeexplore.ieee.org/author/37281881700). (2017). A Generic Framework Supporting Self-organisation and Self-management in Hierarchical Systems**.**[2017 16th International Symposium on Parallel and Distributed Computing (ISPDC)](https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=8119479)

This publication looks proposes a generic framework that supports the concepts of self-organisation and self-management which determine the structure of each level within the hierarchy to build complete functioning computer systems. Exploring how small local components evolve to achieve their goal. Making indications and findings where rate of evolution of these automated methods slow down as they get closer to the goal.

## 2. [Mirko Viroli](https://ieeexplore.ieee.org/author/37285078600), [Antonio Bucchiarone](https://ieeexplore.ieee.org/author/37564705400),[Danilo Pianini](https://ieeexplore.ieee.org/author/37586771300),Jacob Beal. (2016). [Combining Self-Organisation and Autonomic Computing in CASs with Aggregate-MAPE](https://ieeexplore.ieee.org/document/7789466/). [2016 IEEE 1st International Workshops on Foundations and Applications of Self\* Systems (FAS\*W)](https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=7784661)

This paper shows how using self-organisation in conjunction with autonomous behaviour MAPE (monitor-analyse-plan-execute) it is possible to create a framework which enables for a self-programming CAS (collective adaptive system) which can then be used in a given application, in this case crowd dispersal in a large scale smart mobility environment. It looks at how a system can be independently adaptive with no human interaction, to solve socio-technical problems using individual components (agents) which react to stimuli and adapt accordingly to address to problems in run-time.

3. Vivek Singh, Garima Singh, Suparna Pande. (2013). Emergence, Self-organization and Collective Intelligence - Modeling the Dynamics of Complex Collectives in Social & Organizational Settings. 2013 UKSim 15th International Conference on Computer Modelling and Simulation

This research explores how the emergent and self-organisation behaviours or products are often coincided with the concept of collective intelligence. Where behaviours of individuals may seem insignificant and small but combined with others can be seen as an intelligent behaviour which achieves a more significant or complex goal and uses an Agent-based modelling and simulation to demonstrate this.

# 4. Asia AL-Karkhi[Maria Fasli](https://ieeexplore.ieee.org/author/37281907700). (2017). Deploying Self-Organisation to Improve Task Execution in a Multi-Agent Systems. *2017 3rd IEEE International Conference on Cybernetics (CYBCONF) Cybernetics (CYBCONF), 2017 3rd IEEE International Conference on*. :1-8 Jun, 2017