

Information Collider

A novel approach to data mining that reveals new insights by using the human ability to make unconscious and instinctive connections.



As powerful as semantic search has become it is still missing the human ability to identify new connections or discover different avenues to investigate. This new technology allows this to happen in a structured and evidential way to deliver new insights to organisations that seek to gain more value from their structured ontologies and knowledge graphs.

Semantic search has been around for many years and powers the likes of Google to help people worldwide search online. However, such search technologies return limited results as they are unable to model that inner insight that we have to make unconscious links between search terms.

Information Collider

This new tool works as we would in testing, trying and re-tuning our search strategy to reveal new connections and relationships.

This is where this tool starts to bridge the gap between the traditional human approach and modern machine learning. Effectively, it is a semi-automated method of taking a human approach to traditional semantic queries.

Designed for deriving new business intelligence, it allows organisations to discover hidden insights from previously hidden but closely related information relevant to the search (e.g. what else?, who else?).

Benefits

- » **New Insights** - Changes to divergence (the importance of search parameters) combined with human preferences allow users to explore alternative avenues and derive new insights.
- » **Fast** - a semi-automated approach allows organisations to quickly derive more value from their data and is ideal for revealing fuzzy matches at scale.
- » **Evidential** - modern machine learning techniques can be a black box and very difficult to justify or explain. This tool produces evidenced recommendations that can be interrogated and justified.

Applications

- » **Defence & Security** - Intelligence analysis and policing
- » **Insurance** - Fraud detection
- » **Financial** - Money laundering
- » **Retail** - Customer insights engine

How it works

Information Collider uses pattern-based exploration and requires only some knowledge of a known pattern to find information that fits roughly with the known pattern.

It exploits an organisation's inherent database structures which store information and combines this (semantic) knowledge with the user's search preferences to reveal new insights.

It can reveal new connections that might be 'semantically distant' but that are still relevant and then further apply the learnt mapping to explore and reveal additional insights.

Using the tool

- » **Populate** the nodes and relationships of your ontology
- » **Define** the (partially complete) pattern of interest for searching, including the nodes relationships and divergences
- » **Run** the tool to find all patterns in the data that match
- » **Patterns** are revealed that match the precise semantics (objective) and user preferences (subjective)
- » **Insights** and new connections are revealed by modifying the importance of the search parameters (divergence)

Example use: Policing

The tool is ideally suited to finding the 'needle in a haystack', especially when the full details of the needle are not known.

An example could be the existence of a number of unsolved crimes where there are weak links in the data such as the location, date, vehicles and suspects involved. In traditional police work if no matches are found then the investigation may draw a blank.

This tool works by abstracting the search into a pattern of nodes and relationships to search existing structured data, using both an objective (semantic) and subjective (human) approach. This will find potentially distant but similar patterns in the data, and therefore generate new insights for investigation - such as closely related instances which involve similar interactions of locations, dates, vehicles and suspects.

Intellectual Property

GB Application: GB2000969.2

More information

For more information about licensing this technology, or to speak to us about our other software related IP, please contact us.

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