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| Title | Short Descripion | Author, year | Link | citations |  |
| Automatically Solving Number Word Problemsby Semantic Parsing and Reasoning | **DOL** is a meaning representational language to incorporate the specifics of word problems and parses the word problem as a tree containing constants, classes and functions. | Shuming Shi et al, 2015 | https://www.aclweb.org/anthology/D15-1135 | Okoye, Kingsley, et al. "A semantic reasoning method towards ontological model for automated learning analysis." *Advances in Nature and Biologically Inspired Computing*. Springer, Cham, 2016. 49-60. |  |
| Latent Relational Model for Relation Extraction | **ARES** is a tool developed to solve complex semantic analysis problems like word analogies which then can be adapted to be applied on relation extraction problem. | Gaetano etal, 2019 | <https://link.springer.com/chapter/10.1007/978-3-030-21348-0_19> | Rossiello, Gaetano, et al. "Latent Relational Model for Relation Extraction." *European Semantic Web Conference*. Springer, Cham, 2019. |  |
| Exploring Knowledge Graphs in an Interpretable Composite Approach for Text Entailment | The research proposes a way to separate different in ferential problems as syntactic and semantic and proposes methods to deal with both of them and produce inferences on how it derived that result. | Vivian S. Silva1, etal, 2019 | <https://www.alexandria.unisg.ch/255897/1/aaai2019_VSetal_camera-ready.pdf> | Silva, Vivian, Andre Freitas, and Siegfried Handschuh. "Exploring Knowledge Graphs in an Interpretable Composite Approach for Text Entailment." *Thirty-Third AAAI conference on artificial intelligence*. AAAI Press, 2019. |  |
| Understanding and Exploring Competitive Technical Data from Large Repositories of Unstructured Text | **TechTrakr**, encapsulates a suite of Natural Language Processing (NLP) and Machine Learning (ML) capabilities to perform automated extraction and support directed exploration of competitive technical data from unstructured text | James J. Nolan, 2019 | <http://ceur-ws.org/Vol-2327/IUI19WS-ESIDA-7.pdf> | Nolan, J., Mark Stevens, and Peter David. "Understanding and exploring competitive technical data from large repositories of unstructured text." (2019). |  |
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| Future Generation Computer Systems | **TKGE**  aims to learn superior representation of entities and relations from latent features and observable patterns. It uses an enhance kind of LSTM to model the semantic meaning of an arbitary length path. | Binling Nie, 2019 | |  | | --- | |  | |  | | APA |  |   <https://www.sciencedirect.com/science/article/pii/S0167739X17321593> | Nie, Binling, and Shouqian Sun. "Knowledge graph embedding via reasoning over entities, relations, and text." *Future Generation Computer Systems* 91 (2019): 426-433. |  |
| Semantically Aware Text Categorisation for Metadata Annotation | The work aims at annotating a document as philosophical or not philosophical on training on a huge set of unstructered and unlabelled data. |  |  |  |  |
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IOT

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| Unsupervised recognition of interleaved activities of daily living through ontological and probabilistic reasoning | This research paper proposes an unsupervised method to recognize complex ADLs exploiting the semantics of activities, context data, and sensing device. Major problems with the supervised approach like lack of quality datasets and privacy issues have been taken care through their unsupervised approach. | Daniele Riboni etal, 2016 | https://dl.acm.org/citation.cfm?doid=2971648.2971691 | | Riboni, Daniele, et al. "Unsupervised recognition of interleaved activities of daily living through ontological and probabilistic reasoning." *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing*. ACM, 2016. | |  | |
| Semantic Reasoning for Context-Aware Internet of Things Applications | This research paper describes the best practices for providing  semantic data and reasoning actionable knowledge with well known  Semantic Web technologies and methods on context aware  IoT environment. Through numerous experiments they concluded that distributed reasoning with Entity Notation(EN)  is the most efficient solution | Altti Ilari Maarala, 2016 | | <https://dl.acm.org/citation.cfm?id=2971691> | | Riboni, Daniele, et al. "Unsupervised recognition of interleaved activities of daily living through ontological and probabilistic reasoning."Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing. ACM, 2016. | |  | |
| Enhancing ontological reasoning with uncertainty handling for activity recognition | **OT-DS** algorithm integrates OWL ontological reasoning mechanism with Dempster–Shafer theory of evidence to provide support for handling uncertainty in activity recognition  It also makes use of hidden markov model for dealing with uncertainity | Mohd Halim Mohd Noor, 2016 | | <https://reader.elsevier.com/reader/sd/pii/S0950705116303604?token=D6987DEC6BD83C6D35F5B998255F282ACC2A7FA8B4D3E1AEDB76DBB2E82E9A4A0B9E299DAF2FDB3E62D27722169F7D40> | | Noor, Mohd Halim Mohd, et al. "Enhancing ontological reasoning with uncertainty handling for activity recognition."Knowledge-Based Systems 114 (2016): 47-60. | |  | |
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**Medical**

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| A fuzzy-ontology-oriented case-based reasoning framework for semantic diabetes diagnosis | **KI-CBR** builds a case-base fuzzy ontology compatible with the most famous CBR framework, i.e. JCOLIBRI, and uses a standard medical terminology subset for diabetes diagnosis from SCT, which is the most complete medical ontology. It also proposes a fuzzy-semantic similarity algorithm for case retrieval. | Shaker El-Sappagha, 2015 | <https://www.sciencedirect.com/science/article/pii/S0933365715000925> | El-Sappagh, Shaker, Mohammed Elmogy, and A. M. Riad. "A fuzzy-ontology-oriented case-based reasoning framework for semantic diabetes diagnosis."Artificial intelligence in medicine 65.3 (2015): 179-208. | |  | |
| Biobank Semantic Information Management With The Health Intelligence Platform | **HIP** aims to build a bio bank management system by building tools using a novel semantic convergence model supporting semantic queries based on an integrated semantic information base. The HIP Core is used already and is used to identify patients for clinical trials based on information from clinical records and documents. | Christian Seebode etal, 2016 | http://www.diagnosticpathology.eu/ojs-2.4.5/index.php/dpath/article/view/146 | Seebode, Christian, et al. "Biobank Semantic Information Management With The Health Intelligence Platform." *Diagnostic Pathology* 1.8 (2016). |  | |
| Extending Biology Models with Deep NLP over Scientific Articles | **R3** is a system developed for deeper language understanding and model management for the biomedical domain. It can read the biomedical text, extract knowledge, localize extracted knowledge within the model, and determine which extracted data support the model and which extend the model. It makes use of OWL domain models specified in Biological Pathway Exchange (BioPAX) (Demir et al. 2010). It also makes use of rule based semantic parser SPARSER for parsing the data. | David McDonald, 2016 | https://www.aaai.org/ocs/index.php/WS/AAAIW16/paper/view/12615/12418 | McDonald, David, et al. "Extending biology models with deep NLP over scientific articles." Workshops at the Thirtieth AAAI Conference on Artificial Intelligence. 2016.  Demir, E.; Cary, M. P.; Paley, S.; Fukuda, K.; Lemer, C.; Vastrik,I.; Wu, G.; D’Eustachio, P.; Schaefer, C.; Luciano, J.; et al. 2010.The biopax community standard for pathway data sharing.Naturebiotechnology28(9):935–942. |  | |
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**Business**

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| Customer Perception Analysis Using Deep Learning and NLP | This research developed a tool using unsuperwised learning for feature extraction from unstructured data scraped from wikipedia, tweets etc, and ontology formation. It then uses rnn model for understanding and deriving reasoning from the data.  THE research paper aims to learn not only the sentiment analysis, but the reasin of why the product is good or bad based on semantic analysis. | Sridhar ramaswamy, 2018 | https://www.sciencedirect.com/science/article/pii/S1877050918319999 | Ramaswamy, Sridhar, and Natalie DeClerck. "Customer Perception Analysis Using Deep Learning and NLP."Procedia Computer Science 140 (2018): 170-178 |  |
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**Question/Answering**

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| Question Answering as Global Reasoning over Semantic Abstractions | **SEMANTICILP** uses various off the shelf pre-trained models to answer non-trivial questions. Given the input instance i.e. question, answer options, supporting paragraphs etc, it extracts semantic graphs from it. Then it generates an Integer Linear Programming(ILP) and solve it using open source SCIP engine (Achterberg 2009), returning the active answer option from the optimal solution found. | Daniel Khashabi, 2018 | https://www.aaai.org/ocs/index.php/AAAI/AAAI18/paper/view/17406/15895 | Silva, Vivian S., Siegfried Handschuh, and André Freitas. "Recognizing and justifying text entailment through distributional navigation on definition graphs." *Thirty-Second AAAI Conference on Artificial Intelligence*. 2018. |  |
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**SEMANTIC REASONING IN Computer Vision**

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| Iterative Visual Reasoning Beyond Convolutions | This research proposes a novel framework for iterative visual reasoning. Beyond convolutions, it uses a graph to encode spatial and semantic relationships between regions and classes and passes message on the graph. Their detailed analysis shows that reasoning their framework is resilient to missing regions caused by current region proposal approaches. | Xinlei Chen, 2018 | http://openaccess.thecvf.com/content\_cvpr\_2018/papers/Chen\_Iterative\_Visual\_Reasoning\_CVPR\_2018\_paper.pdf | Chen, Xinlei, et al. "Iterative visual reasoning beyond convolutions." *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*. 2018. |
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