



FLORIDA ATLANTIC UNIVERSITY

DATA SCIENCE, ANALYTICS, AND ARTIFICIAL INTELLIGENCE CONFERENCE

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BREAKOUT SESSION PRESENTATION DESCRIPTION

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Artificial Intelligence for information extraction from scientific publications

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Information overload is a challenging problem, in particular in the biomedical sciences. The deluge of new scientific publications makes it impossible for any human to keep up with the latest results. While search engines like Google Scholar and PubMed provide users with a list of publications related to their search query, it is still up to the user to go through the search results one-by-one to assess the relevance of each publication for their purposes.

Here we develop a system that combines an array of artificial intelligence methods to extract a hierarchical overview of the contents of a large number of scientific publications in the biomedical sciences in response to a user query. The system uses natural language processing, deep learning, and ontology processing to create a knowledge graph that disambiguates and normalizes the information content of the publications. The system allows the user to explore the search results from a high-level topic map to a synopsis of scientific findings in the form of semantic triples (e.g. gene A exhibits increased expression in disease B). The system is designed to help researchers quickly find the “nuggets” of information in the large pile of available knowledge. We also discuss the use of the system for accelerating knowledge discovery and facilitating interdisciplinary science.

Keywords: Deep Learning, Artificial Intelligence, Natural Language Processing, Knowledge Graph, Information extraction, Knowledge Engineering