Intelligent document information extraction based on convolutional neural network (CNN), natural language processing (NLP) and graph neural network (GNN)

Business documents are used every day by all kinds and sizes of companies and administrations, even if most of these entities have several information systems where the documents are digitilized in different formats (json, xml, database tables, ...), there still an important number of business documents that require manual processing which costs a lot and is very time consuming. Extracting key-value information from business documents is a challenging problem due to the variety of document types and templates, in this work we deal with the problem as a graph node classification problem using a multi ”graph transformer” layers, we propose a graph construction method that focus on the most relevant neighbours of every node while reducing the size of the graph and we use a document transformer embedding combined with some spacial and textual feature to give a better representation to each node.