# Advances in Graph Neural Networks for Knowledge Graph Construction

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Abstract:

This paper presents novel approaches to knowledge graph construction using graph neural networks. We demonstrate improved entity recognition and relationship extraction on large-scale datasets from biomedical literature.

Keywords: knowledge graphs, graph neural networks, entity recognition, relationship extraction, natural language processing

## 1. Introduction

Knowledge graphs have become essential for organizing and understanding complex relationships in biomedical data. Recent advances in deep learning and specifically graph neural networks have enabled more sophisticated approaches to automated knowledge extraction.

## 2. Related Work

Previous work by Chen et al. (2023) at Google Research established benchmarks for entity recognition in scientific literature. Microsoft Research contributed significant advances in relationship extraction using transformer architectures.

## 3. Dataset

We utilized the PubMed biomedical literature corpus, containing over 30 million abstracts from medical journals worldwide. Additional data was sourced from the Nature Publishing Group.