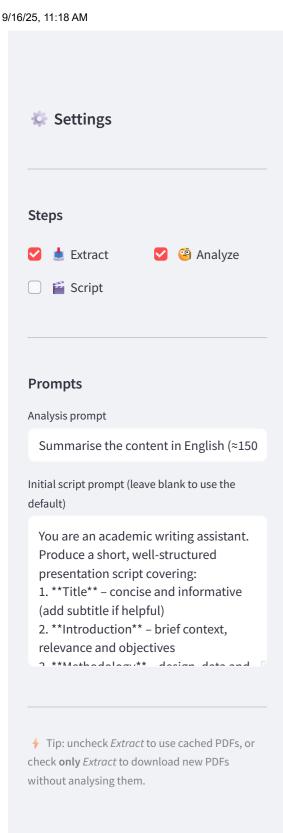
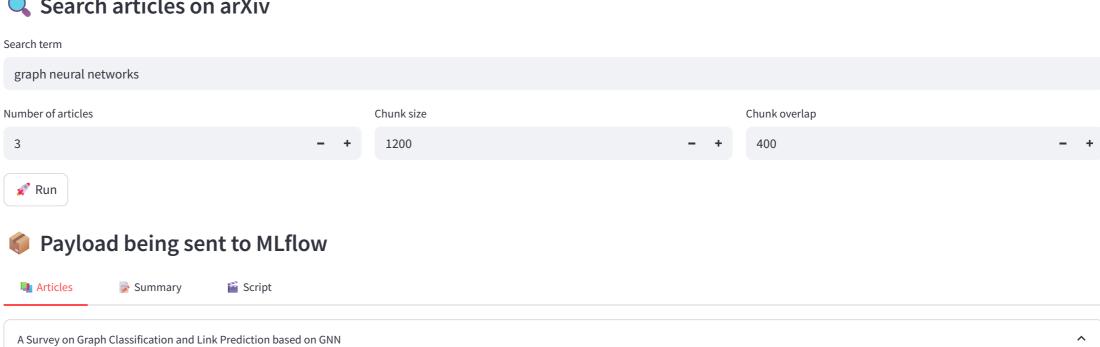
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## Graph Structure of Neural Networks

Graph Structure of Neural Networks Jiaxuan You 1 Jure Leskovec 1 Kaiming He 2 Saining Xie 2 Abstract Neural networks are often represented as graphs of connections between neurons. However, de- spite their wide use, there is currently little un- derstanding of the relationship between the graph structure of the neural network and its predictive performance. Here we systematically investigate how does the graph structure of neural networks affect their predictive performance. To this end, we develop a novel graphbased representation of neural networks called relational graph, where layers of neural network computation correspond to rounds of message exchange along the graph structure. Using this representation we show that: (1) a sweet spot of relational graphs leads to neural networks ...

## Sampling and Recovery of Graph Signals based on Graph Neural Networks

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