**[Confidence-based Graph Convolutional Networks for Semi-Supervised Learning](https://openreview.net/forum?id=HklUN3RcFX)**

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* **Abstract:** Predicting properties of nodes in a graph is an important problem with applications in a variety of domains. Graph-based Semi Supervised Learning (SSL) methods aim to address this problem by labeling a small subset of the nodes as seeds, and then utilizing the graph structure to predict label scores for the rest of the nodes in the graph. Recently, Graph Convolutional Networks (GCNs) have achieved impressive performance on the graph-based SSL task. In addition to label scores, it is also desirable to have a confidence score associated with them. Unfortunately, confidence estimation in the context of GCN has not been previously explored. We fill this important gap in this paper and propose ConfGCN, which estimates labels scores along with their confidences jointly in GCN-based setting. ConfGCN uses these estimated confidences to determine the influence of one node on another during neighborhood aggregation, thereby acquiring anisotropic capabilities. Through extensive analysis and experiments on standard benchmarks, we find that ConfGCN is able to significantly outperform state-of-the-art baselines. We have made ConfGCN’s source code available to encourage reproducible research.
* **Keywords:** Graph Convolutional Networks, GCN, Confidence, Semi-Supervised Learning, Deep Learning, Neural Networks
* **TL;DR:** We propose a confidence based Graph Convolutional Network for Semi-Supervised Learning.

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