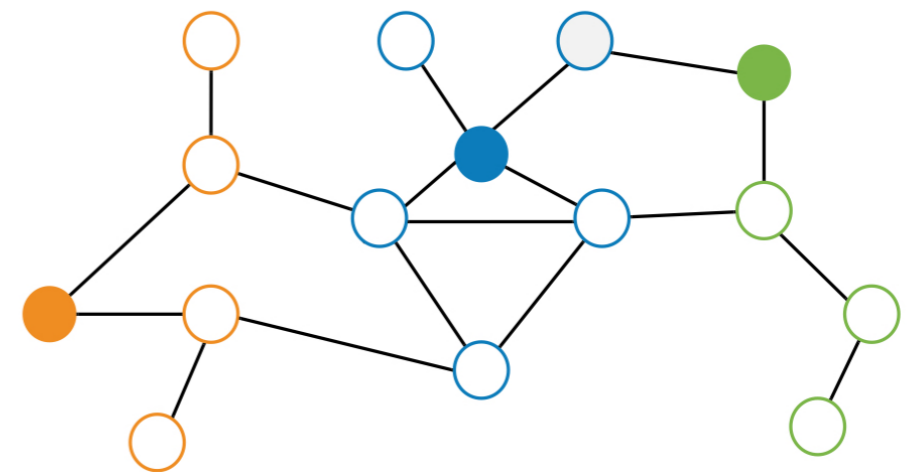


Shoestring: Graph-Based Semi-Supervised Classification with Severely Limited Labeled Data

Wanyu Lin, Zhaolin Gao, Baochun Li
University of Toronto

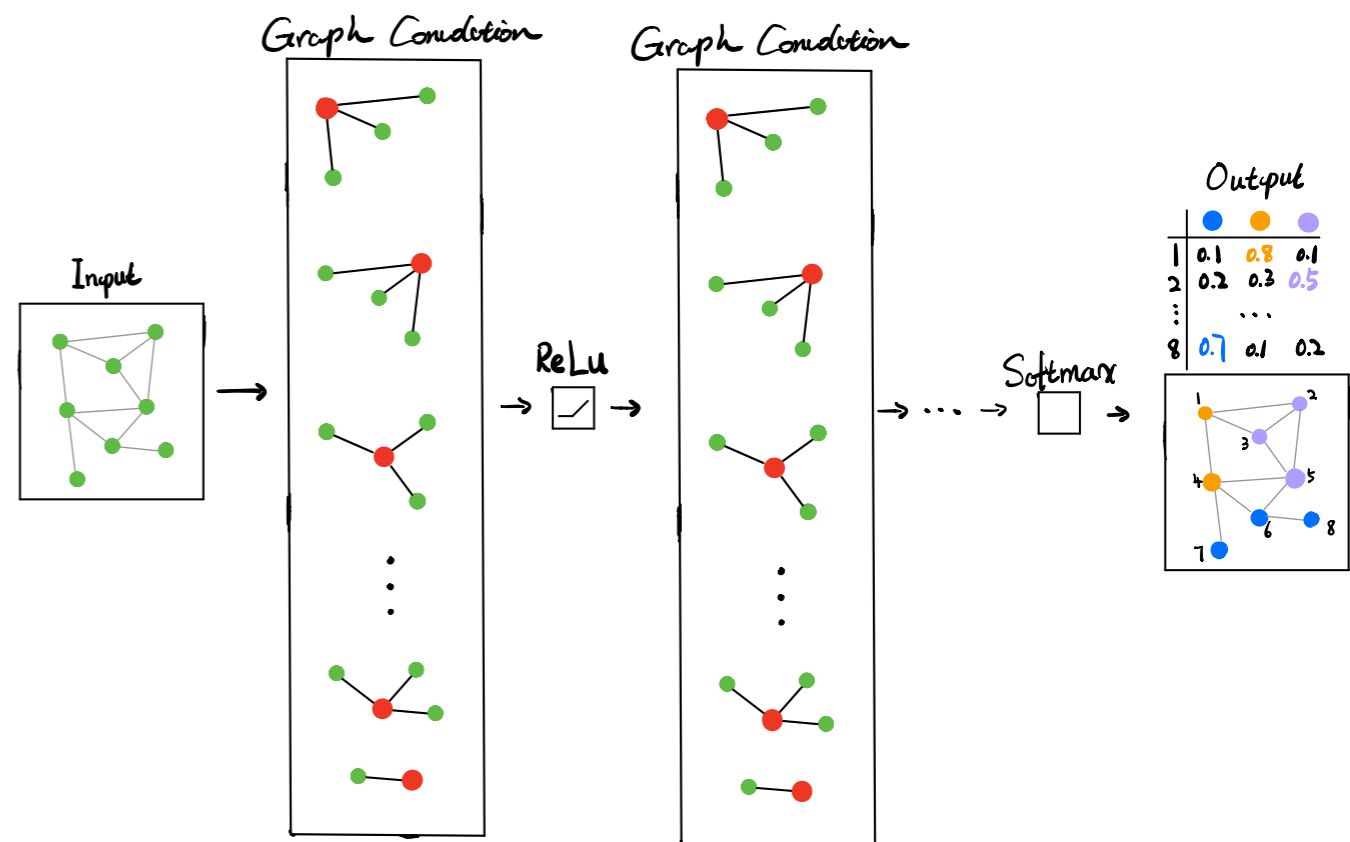


Graph-Based Semi-Supervised Classification

Such as graph convolutional network (GCN), label propagation, etc.

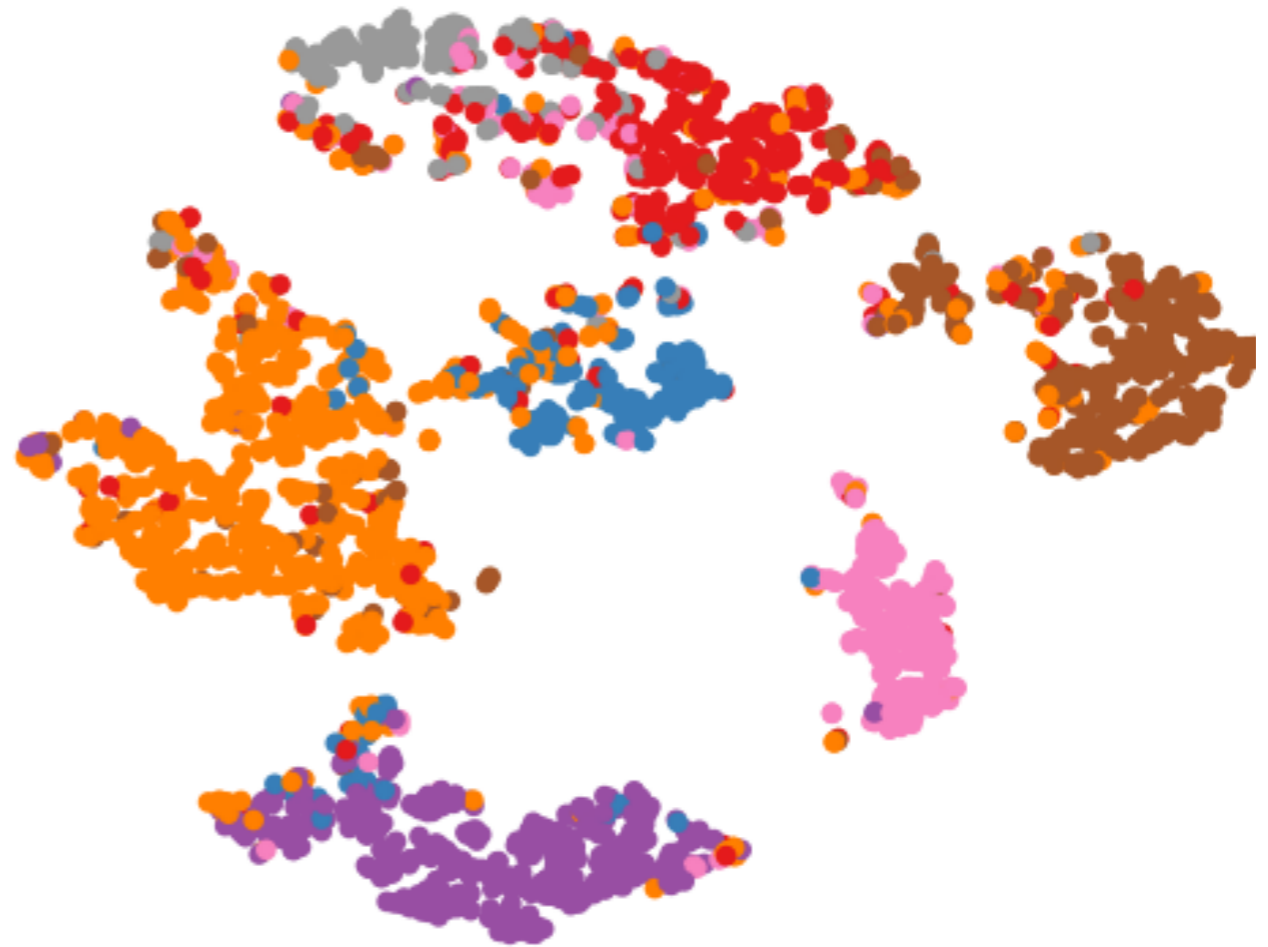
Document classification

Few-shot image classification



Classification results using GCN, with 20 label per class

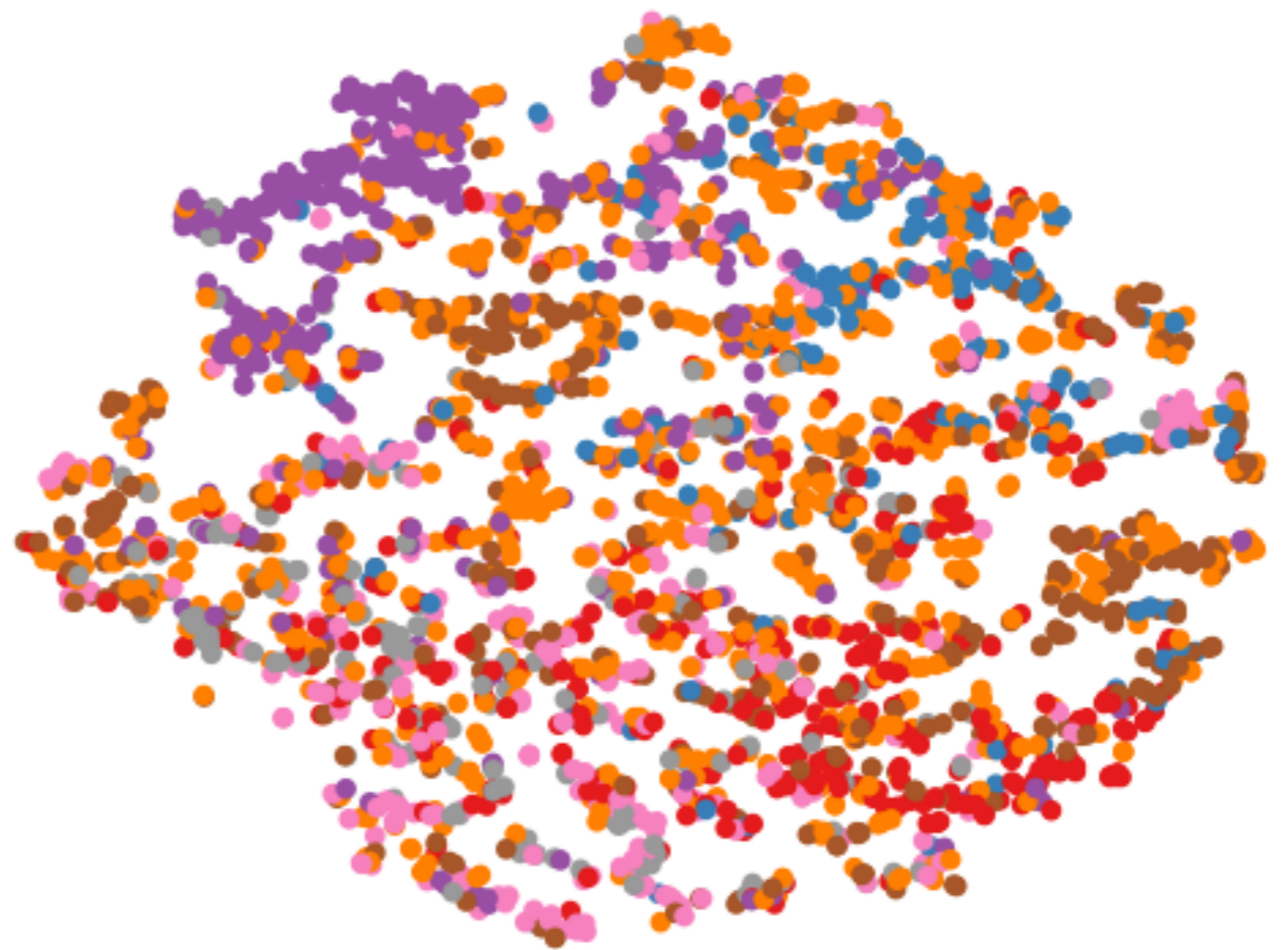
Cora features visualization

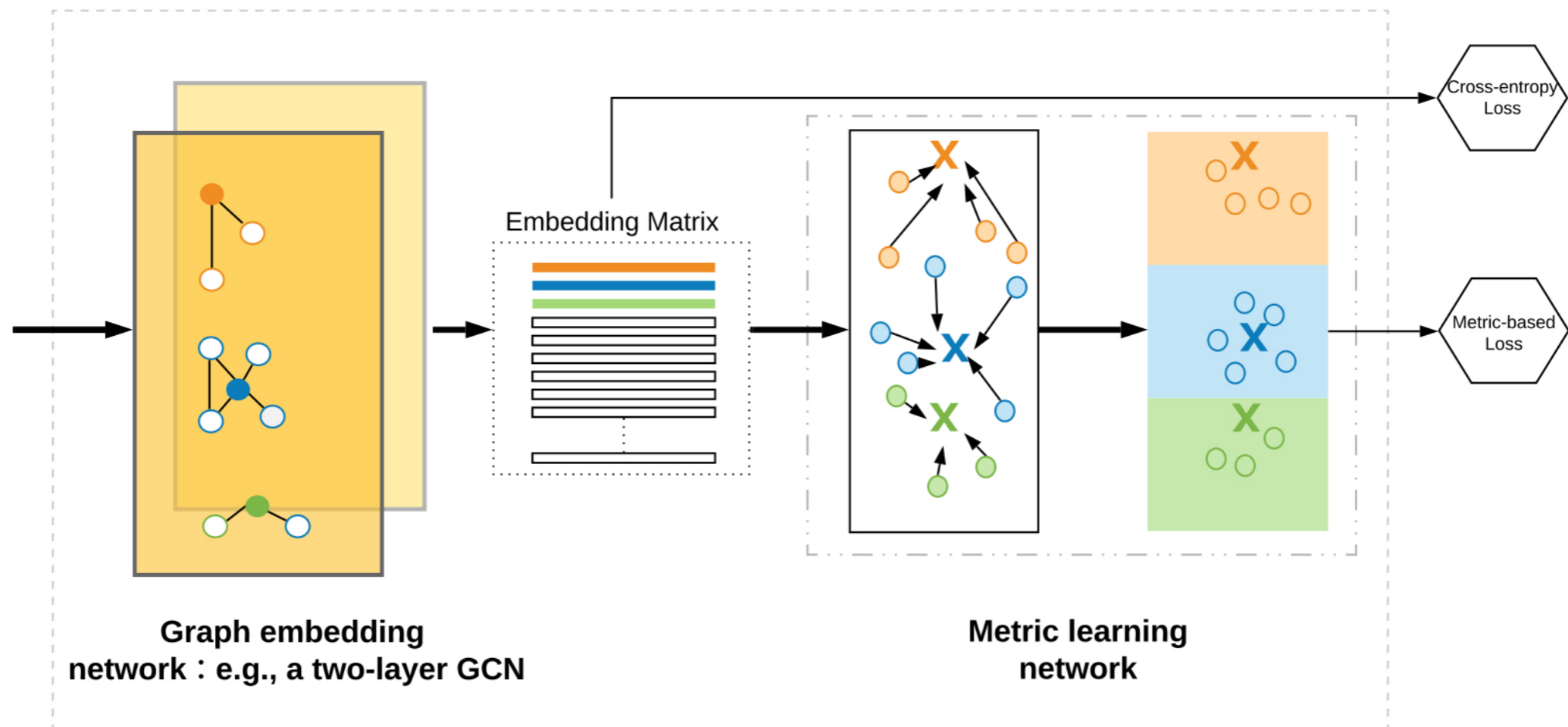


What about 1 labeled
sample per class?

Classification results
using GCN, with 1
label per class

Cora features visualization

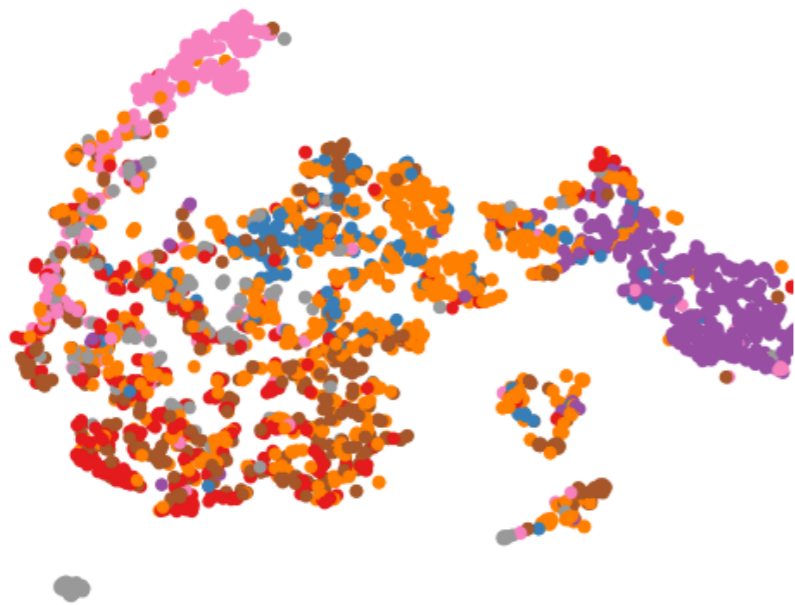




Our solution

Shoestring

What we get



Shoestring-cos with
1 label Per class



Shoestring-L2 with
1 label Per class

Furthermore...

We applied Shoestring to few-shot image classification on miniImageNet and tieredImageNet (5- way).

Model	miniImageNet		tieredImageNet	
	1-shot	5-shot	1-shot	5-shot
TPN	52.78	66.42	55.74	71.01
MetaOptNet-RR	53.23	69.51	54.63	72.11
MetaOptNet-SVM	52.87	68.76	54.71	71.79
<i>Shoestring</i> -TPN _(cos)	55.35	70.01	56.79	73.71



Wanyu Lin, Zhaolin Gao, Baochun Li
University of Toronto