**What’s the problem we’re solving,** (citation needed)

We’re trying to use graph learning model to generate graph that GNN can work on to do link prediction (given a new user, map him to existed movies with proper ratings ).

**Why using graph to represent data**?

There are natural graph structure “embedded” in the data used for recommendation. For example, User specific data (age, gender, ..) and film (director, keywords, ..) can interacted by the rating behavior performed by user. Thus, an bi-partite graph is naturally constructed.

**How does this benefit ML? Why using GNN?**

As we mentioned above, the dataset can naturally represent as an bipartite-

graph. Thus, it is natural to apply graph neural network on it too.

**why it is important**? (citation needed)

Since state-of-art are specialized and complicated, they may not have the flexibility to generalize well ( really??). Our graph representation is more simple and general.

By using a less-specialized and flexible graph representation approach, we argue that the system has the ability to generalize, trained in a shorter time, and gives a reasonable recommendation compared to the state-of-art DLRM.

**Other people’s approach, why they fall short?**

They do no fall short, they are much smarter than me ….

My current plan for this:

1. get a dataset. (user data + movie data and user rating for each movie)

2. Construct a bipartite graph ( We can do it manually, does graph learning model

necessary)

3. Put a GNN, GCNN on top (DLG library is helpful)

4. prediction