Active GNN

Reading list

- [Transfer Active Learning For Graph Neural Networks](#)
- [S2: An Efficient Graph Based Active Learning Algorithm with Application to Nonparametric Classification](#)
- [GRAPH-BASED ACTIVE LEARNING: A NEW LOOK AT EXPECTED ERROR MINIMIZATION](#)
- [Active Learning for Networked Data](#)
- [Towards Active Learning on Graphs: An Error Bound Minimization Approach](#)
- [Active Learning on Graphs via Spanning Trees](#)
- [Bayesian Semi-supervised Learning with Graph Gaussian Processes](#)
- [Batch Mode Active Learning for Networked Data](#)
- [FEW-SHOT LEARNING ON GRAPHS VIA SUPER-CLASSES BASED ON GRAPH SPECTRAL MEASURES](#)
- [Active Learning with Partial Feedback](#)
- [Active Learning for Graph Neural Networks via Node Feature Propagation](#)
- [Active Discriminative Network Representation Learning](#)

Reading notes

- [Transfer Active Learning For Graph Neural Networks](#)

  - Problem setup
    - Learn a policy that can sequentially select nodes to query the label
    - Transfer the policy to unseen graphs

  - Datasets
    - Cora, Citeseer, Pubmed
      - 1 citation network.
      - Active learning on single graphs.

    - Coauthor-CS, Cora-full
      - 1 co-author network, 1 citation network.
      - Transfer active learning on heterogeneous graphs.

    - PPI
      - 20 protein-protein interaction networks.

- - Transfer active learning on homologous graphs.

- Method
  - Use reinforcement learning to learn the policy
    - State: graph, node features, and predictions of the GNN
    - Action: next node to query
    - Reward: performance gain on validation set

  - Policy network: $\pi(a = v|s) = \frac{1}{Z}\exp(w^T z_v^s)$
  - Transfer to unseen graphs
    - Train a universal policy by joint training on multiple graphs
    - Then train a graph-specific policy using distillation

- Baselines
  - Random, Entropy, Centrality
  - AGE: Active learning for graph embedding

- Open reviews
  - Missing baseline: Active Discriminative Network Representation Learning