CUAI GNN 스터디

2022.03.22

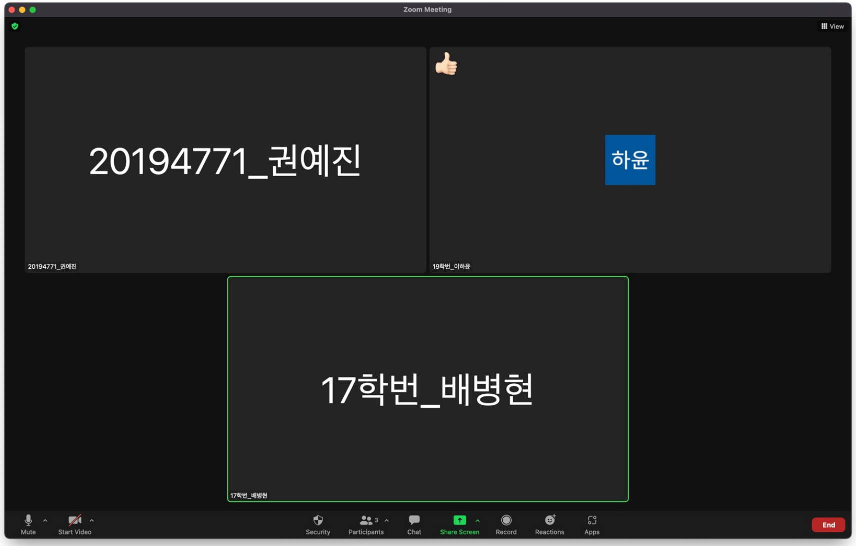
발표자 : 이하윤

목차

1. 스터디 소개 및 만남 인증
2. Node Embedding 소개

스터디원 소개 및 만남 인증

첫번째 미팅: 22.03.10 ZOOM



스터디원 1 : 권예진

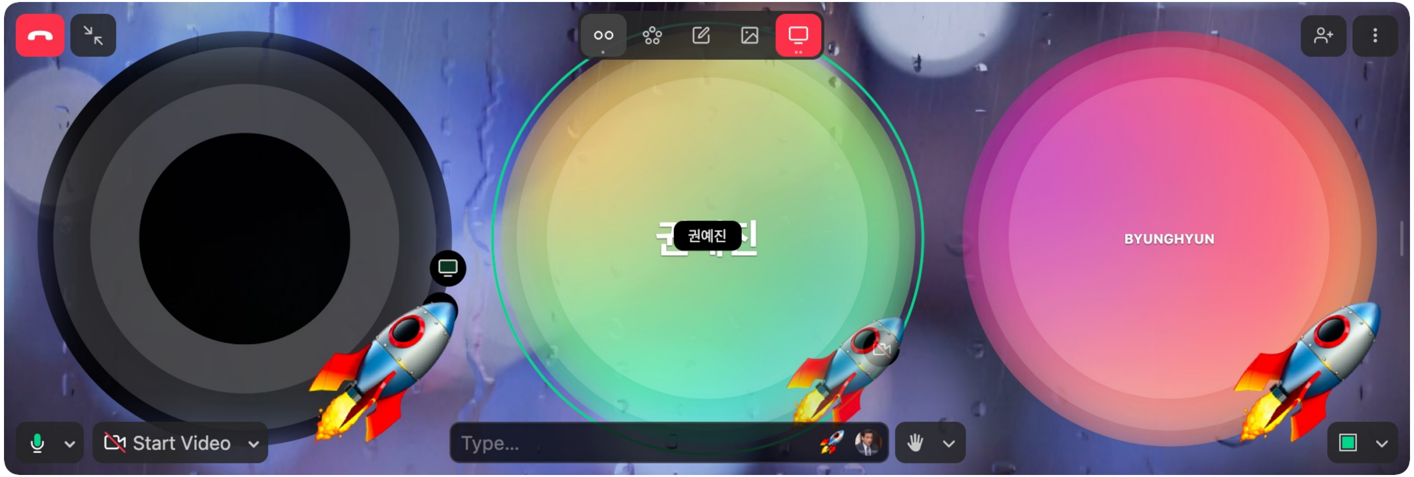
스터디원 2 : 이하윤

스터디원 3 : 배병현

- 스터디 규칙 및 진도 정하기

스터디원 소개 및 만남 인증

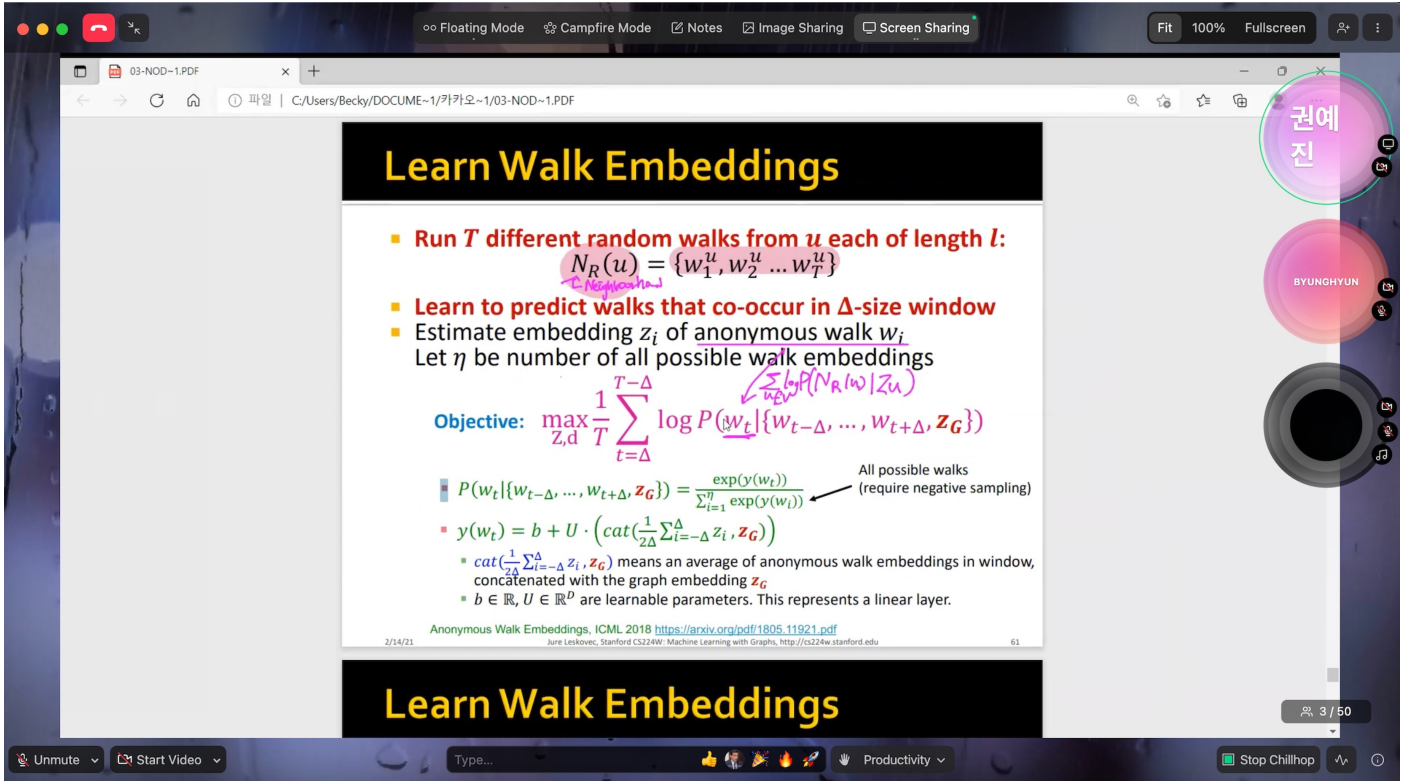
두번째 미팅: 22.03.17 Around



1. Introduction; Machine Learning for Graphs
2. Traditional Methods for ML on Graphs
3. Node Embeddings

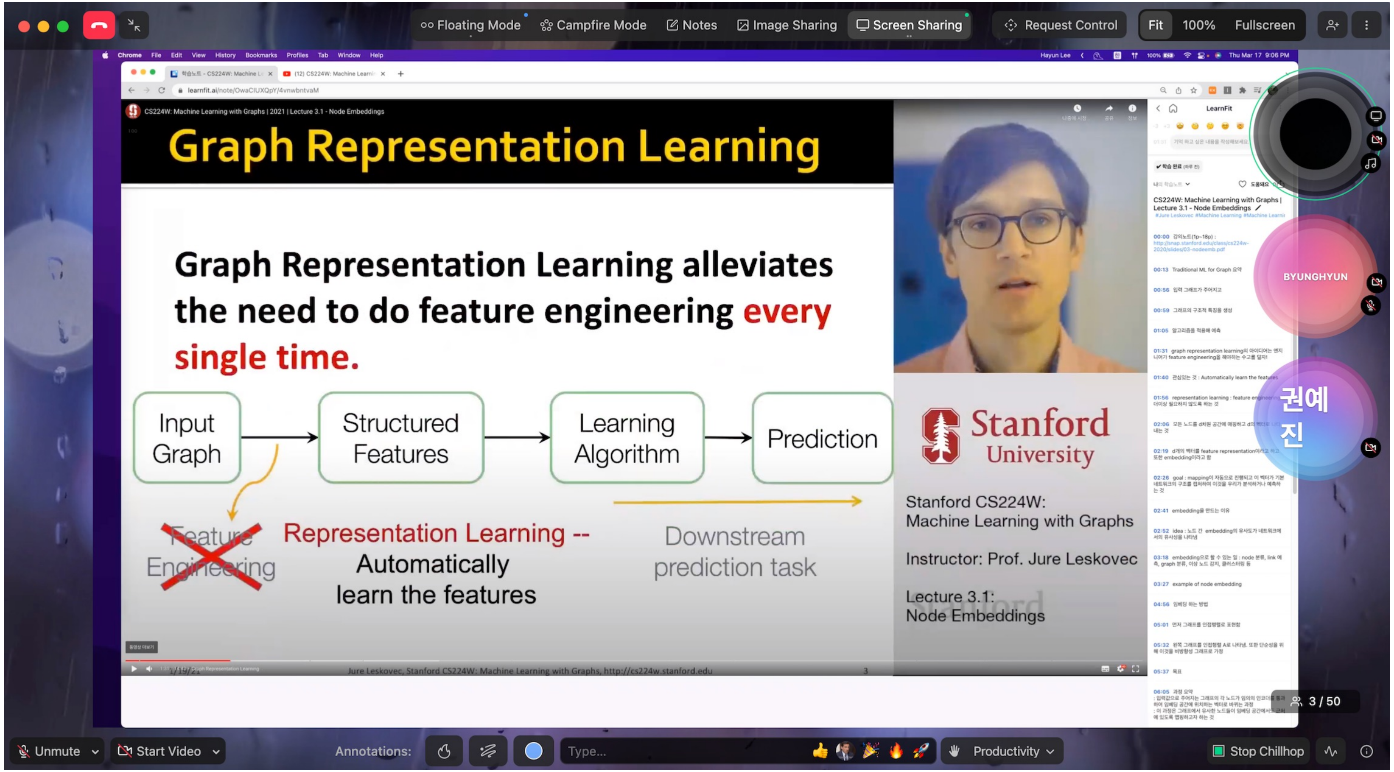
스터디원 소개 및 만남 인증

두번째 미팅: 22.03.17 Around



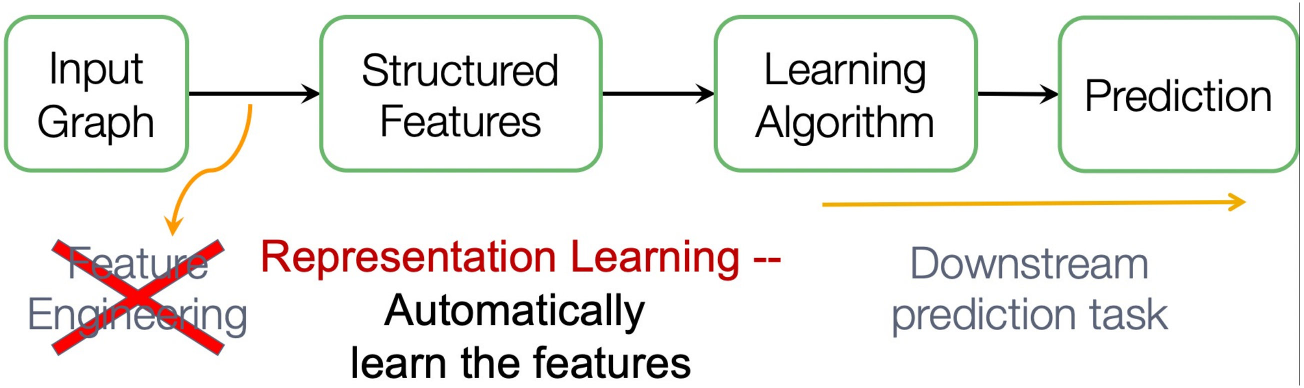
스터디원 소개 및 만남 인증

두번째 미팅: 22.03.17 Around



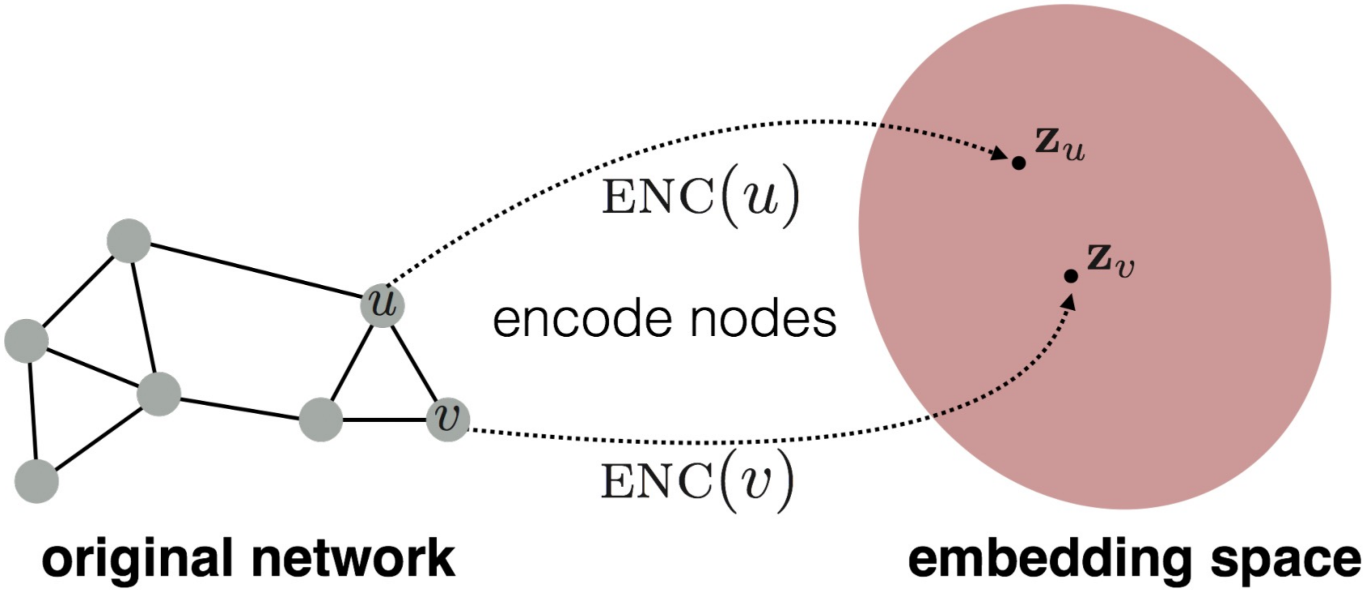
Node Embedding

Machine learning in graph



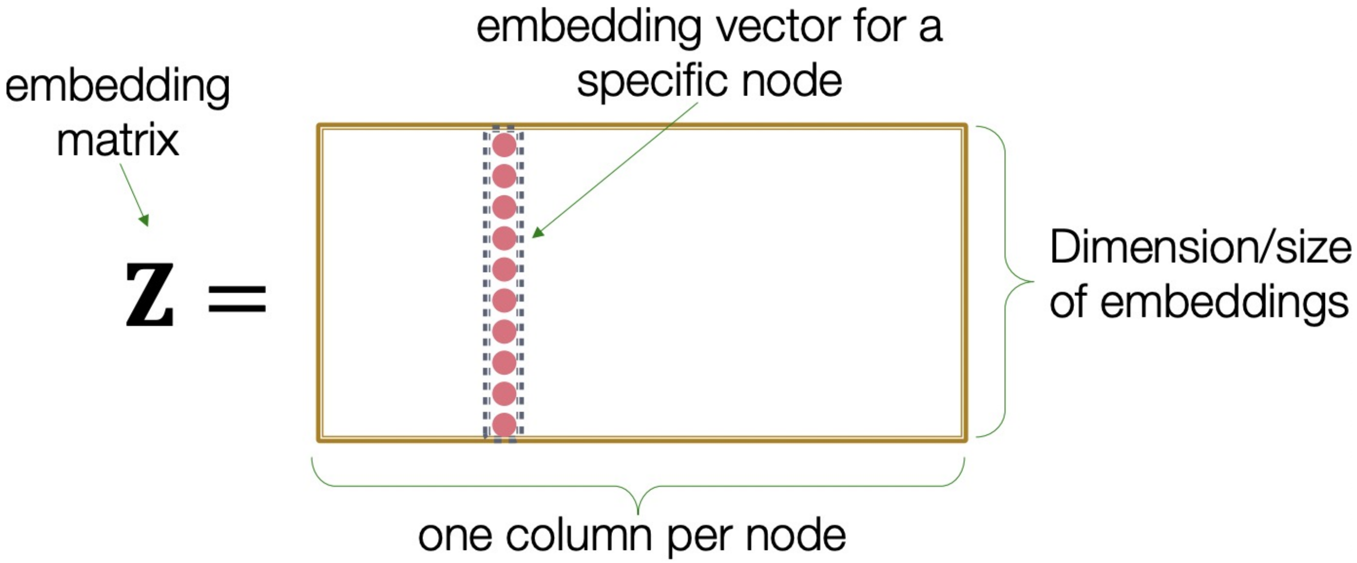
Node Embedding

Goal



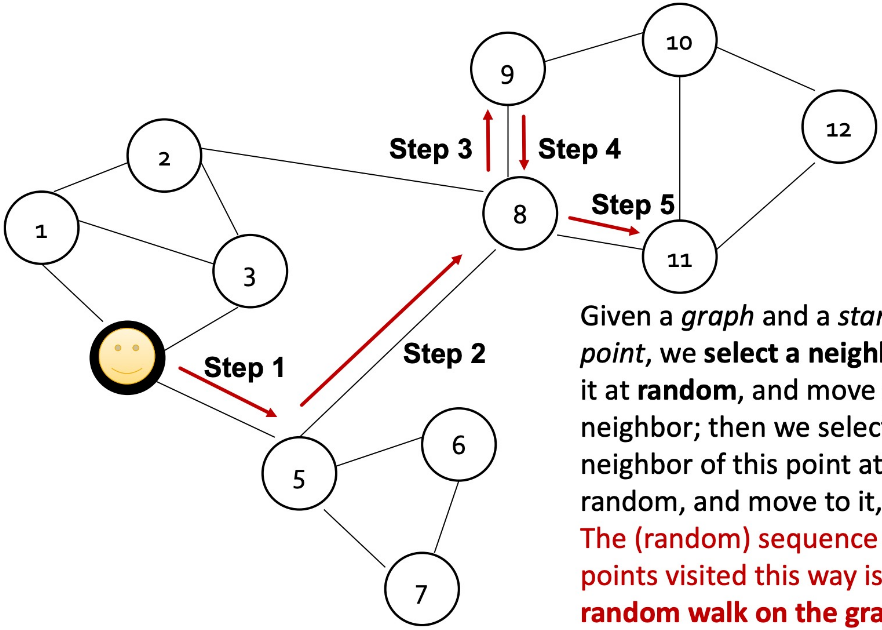
Node Embedding

Encoder : Just an embedding-lookup



Node Embedding

Node/vector 간의 similarity를 어떻게 정의하는가; Random Walk



Given a *graph* and a *starting point*, we **select a neighbor** of it at **random**, and move to this neighbor; then we select a neighbor of this point at random, and move to it, etc. The (random) sequence of points visited this way is a **random walk on the graph**.

Why Random Walk?
- Expressivity
- Efficiency

Node Embedding

Negative Sampling : K개를 샘플링하는 것으로 모든 노드 V를 대체

- Sample k negative nodes each with prob. proportional to its degree
- Two considerations for k (# negative samples):
  1. Higher k gives more robust estimates
  2. Higher k corresponds to higher bias on negative events

  In practice k =5-20

Node Embedding

Stochastic Gradient Descent

Node2Vec

Virtual Node Embedding

Anonymous Walk Embedding