Note Nov 8th & 10th

Network
- Distribution of edges / nodes degrees:
  - Anomaly detection
  - Ranking / Recommendation.
  - Describe flow through network.
- Centrality of node: Identify a node
  - Identify influencers.
  - Discover groups / clustering.
  - How does node affect connectivity

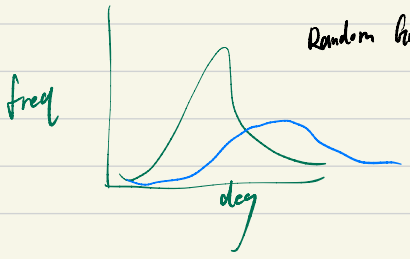
Network Analysis: Networks are generated by process or functions on its nodes / edges.

Random Graph Model: Prop: $P(G(N,p)) \mid E_G(N,p)| = m) = \frac{P(G(N,p). |E_G(N,p)| = m}{P(|E_G(N,p)| = m)}$

$= \binom{N}{2}^{-1}$

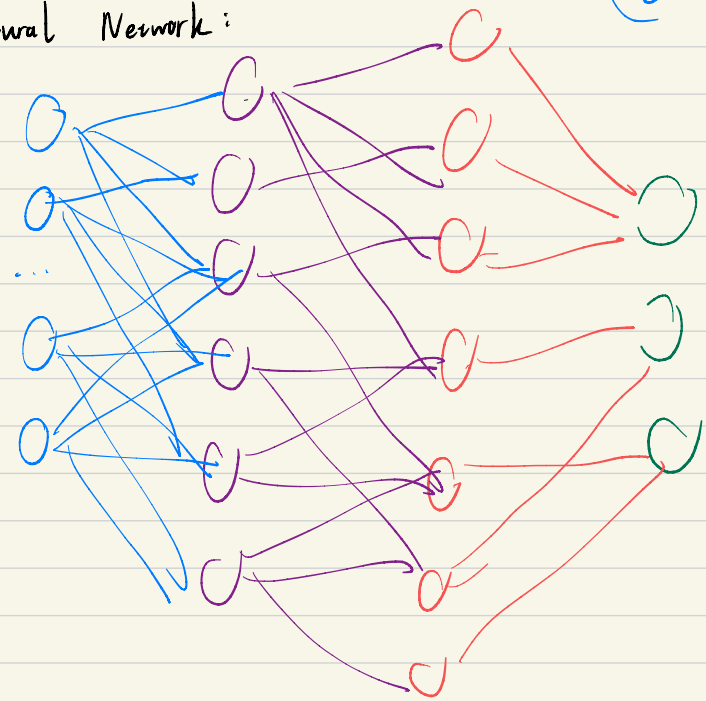
↳ Distribution of Node: $P(deg(v) = k) = \binom{N-1}{k} p^k (1-p)^{N-1-k}$

Power Law: $P(k) = Ck^{-\alpha}$.



(Convolutional Neural Network)

Neural Network:



Final classified class
(suppose we have 3)

Creating a filter allows us to
1. Reduce the number of weights.
2. Capture features all over the image.

The process of applying filter is called a convolution.