

Feb 24

$$2m = \sum_{u \in V} n_u$$

$$n_u = \# \text{neighbors of } u = |\{w \mid (u, w) \in E\}|$$

(degree)

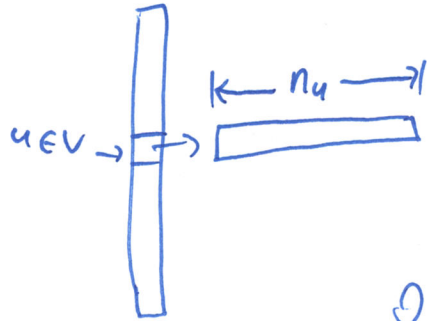
Adj. list

$$\# \text{ pointers} = |V| = n$$

$$\text{Sum of lists} = \sum_{u \in V} n_u = 2m$$

$$\text{Overall space} = n + 2m = O(n + m)$$

\downarrow \downarrow
 $O(n)$ $O(n^2)$



$$O \leq m \leq \binom{n}{2}$$

\downarrow
 $\frac{n \cdot (n-1)}{2}$
 $\leq O(n^2)$