

svensk skrueløser

- (1933) hammer som man banker

svensk stanglim

- søm der erstatter en skrue hvor skrue burde bruges

svensk traktor

- bil af mærket Volvo

tale flydende svensk

- (2000) kaste op pga. fuldskab

svensker¹

(subst.)

(1999) meget fuld person □ se d

brugte det svenske
• lave noget på øje
Svensk Congo
1. (1998) Sjælland
2. (1999) Bornholm
svenske gardiner
(1873) vinduesgitter i
spitalsafdeling
ensk lin

Bags, Graphs, and Dissimilarity-based Classification

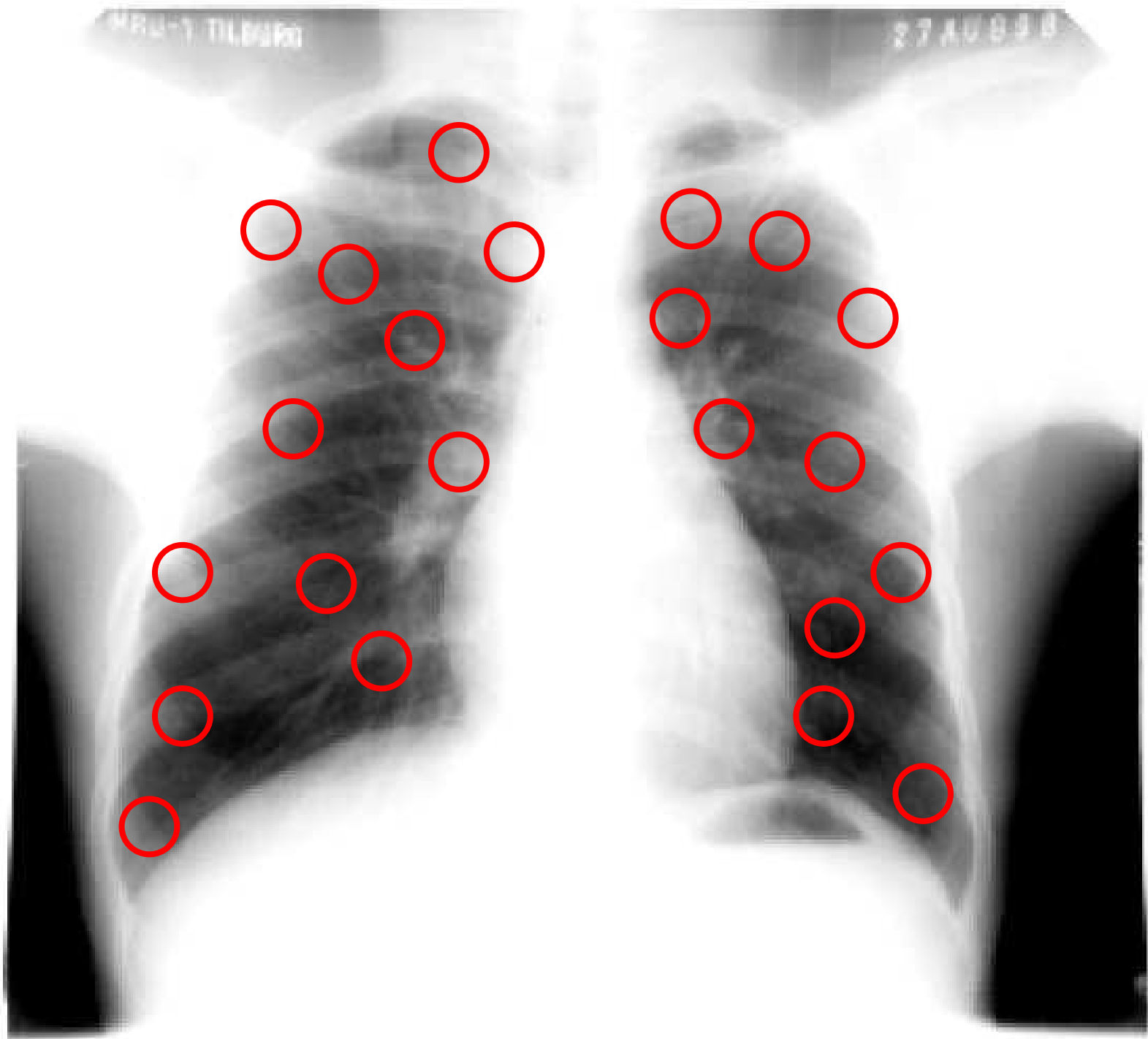
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- Veronika Cheplygina
- David Tax

- Lauge Sørensen



Multiple Instance Learning

- Multiset classification, bag of words, &c.

~~$$C : f \mapsto \ell, f \in \mathbb{R}^d$$~~

$$C : \{f_1 \dots f_n\} \mapsto \ell$$

MIL, How to

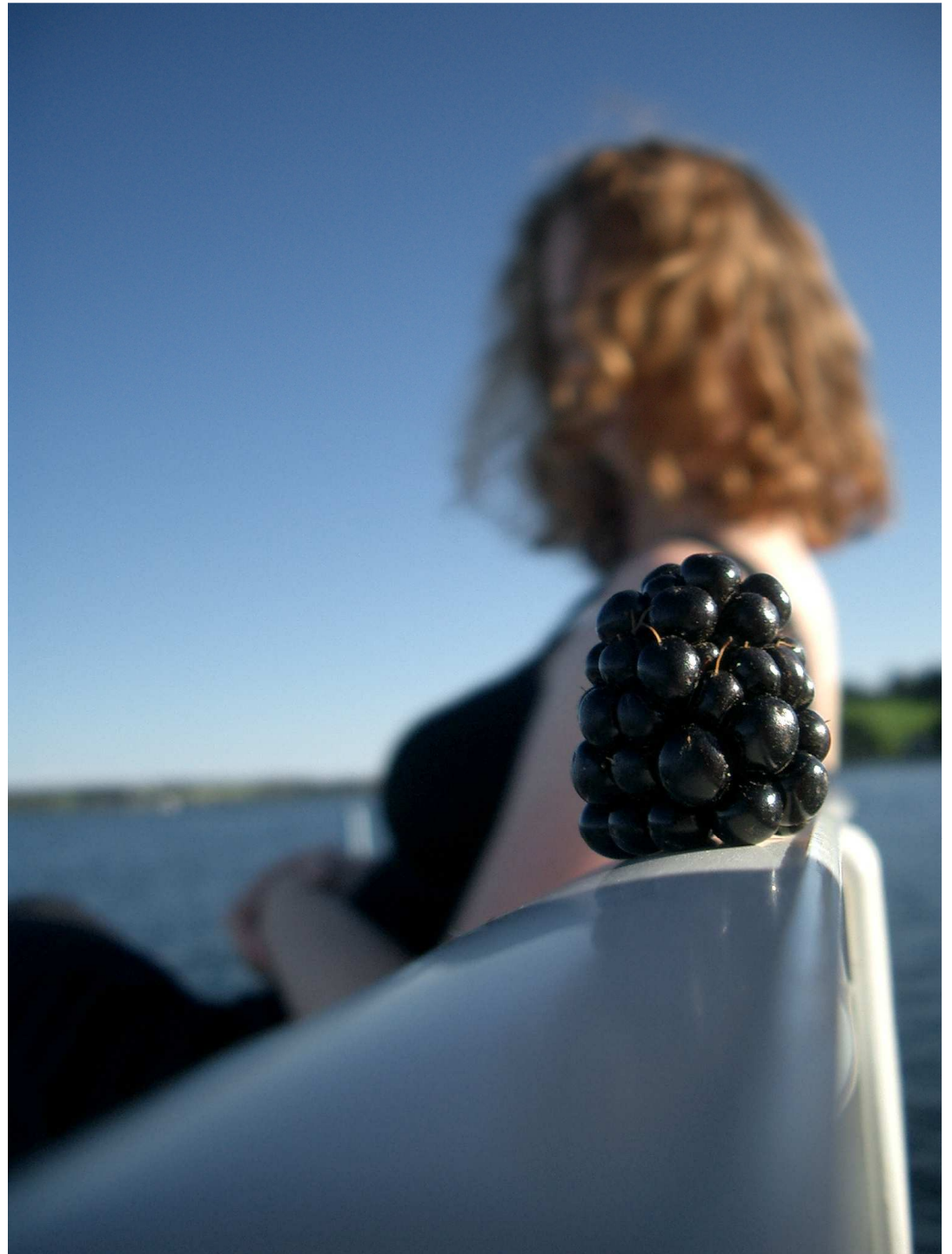
- Extend standard classifiers
 - E.g. combining classifiers / fusion
- Completely new approaches
 - Sells better...
- Dissimilarity-based classification

Dissimilarity Approach

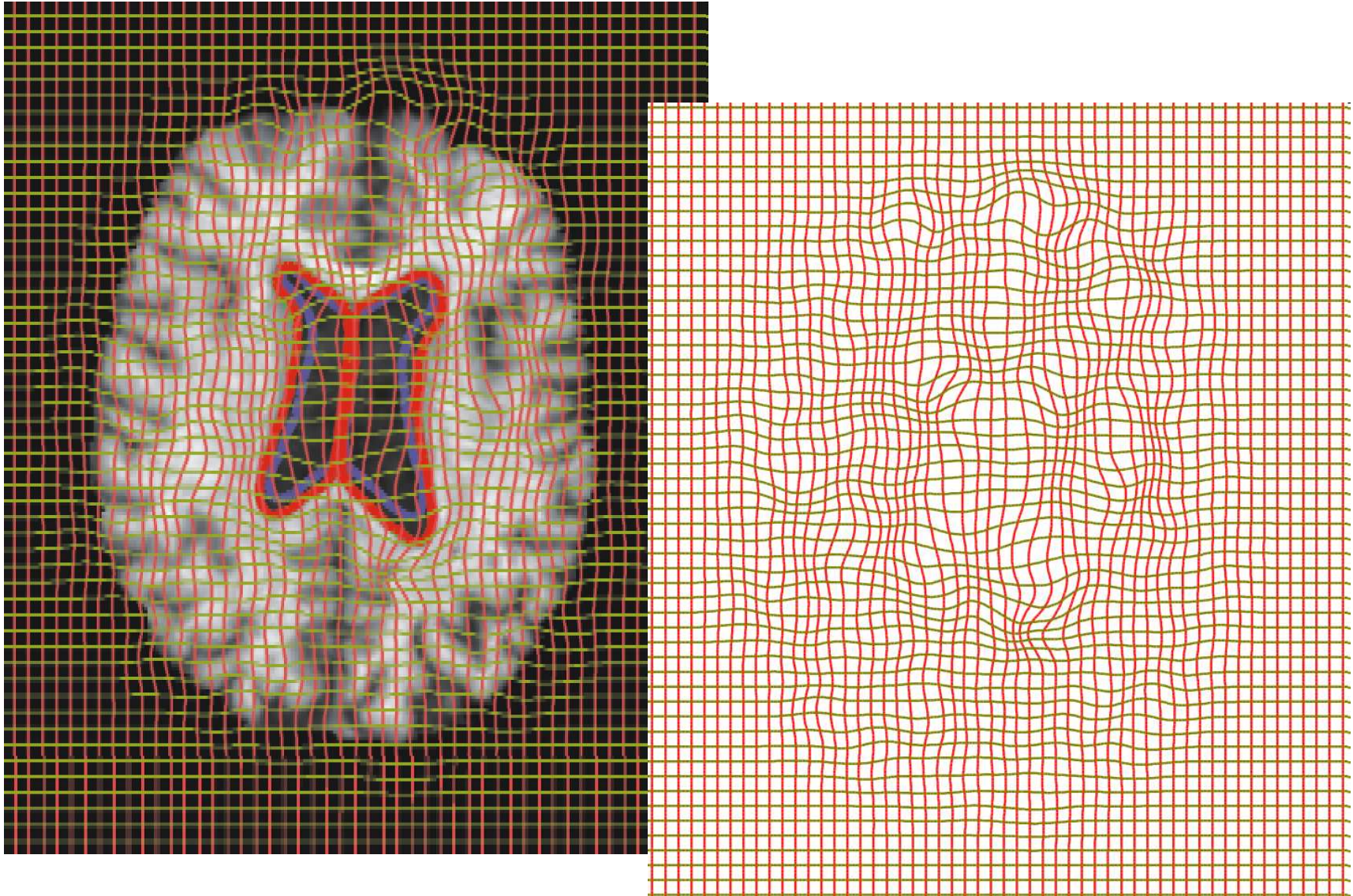
- Objects not described by feature vectors but by dissimilarities to other objects

$$\begin{pmatrix} d_{1,1} & \dots & d_{1,N} \\ \vdots & \ddots & \vdots \\ d_{N,1} & \dots & d_{N,N} \end{pmatrix} \begin{pmatrix} \ell_1 \\ \vdots \\ \ell_N \end{pmatrix}$$

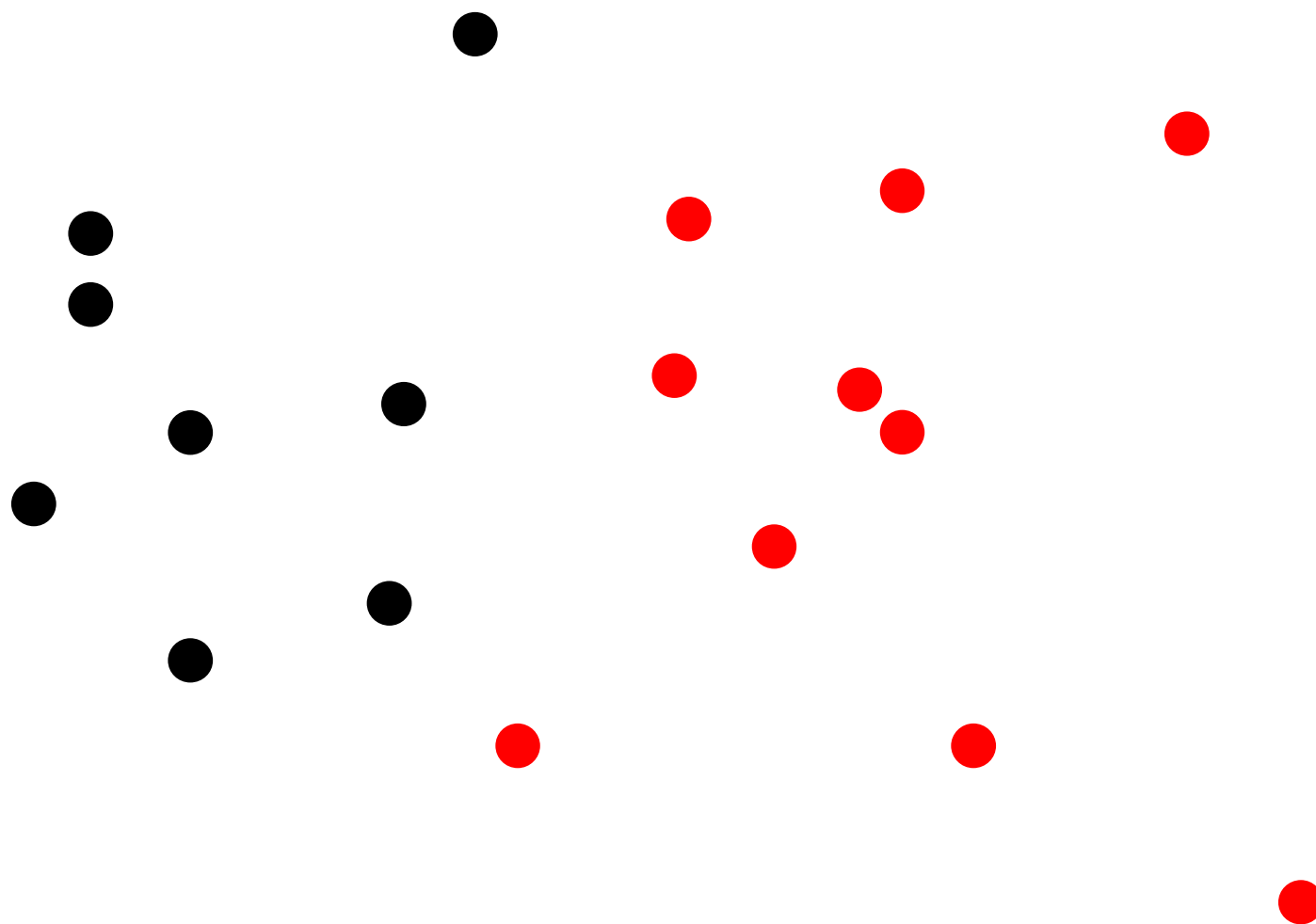
Note

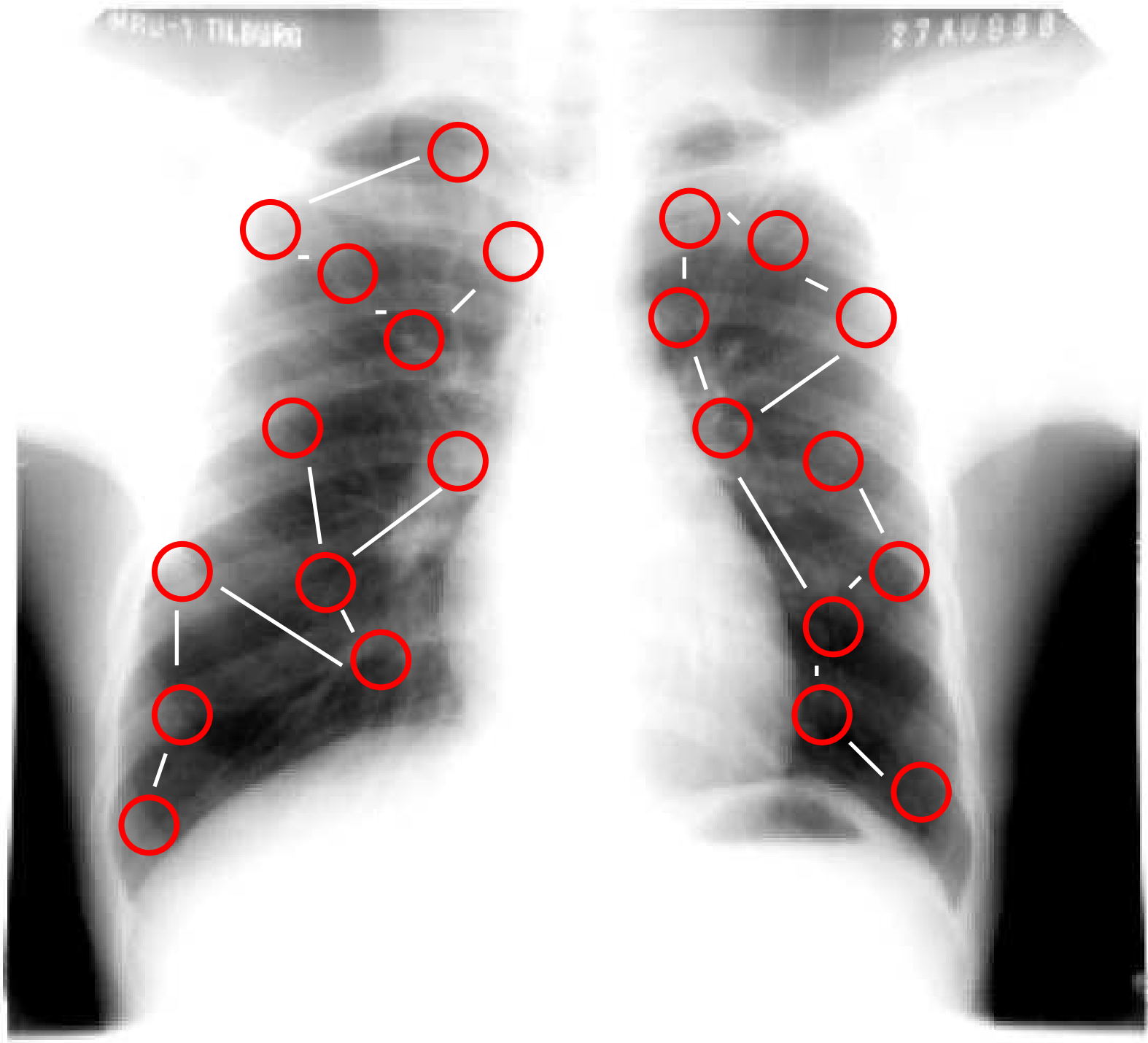


E.g.

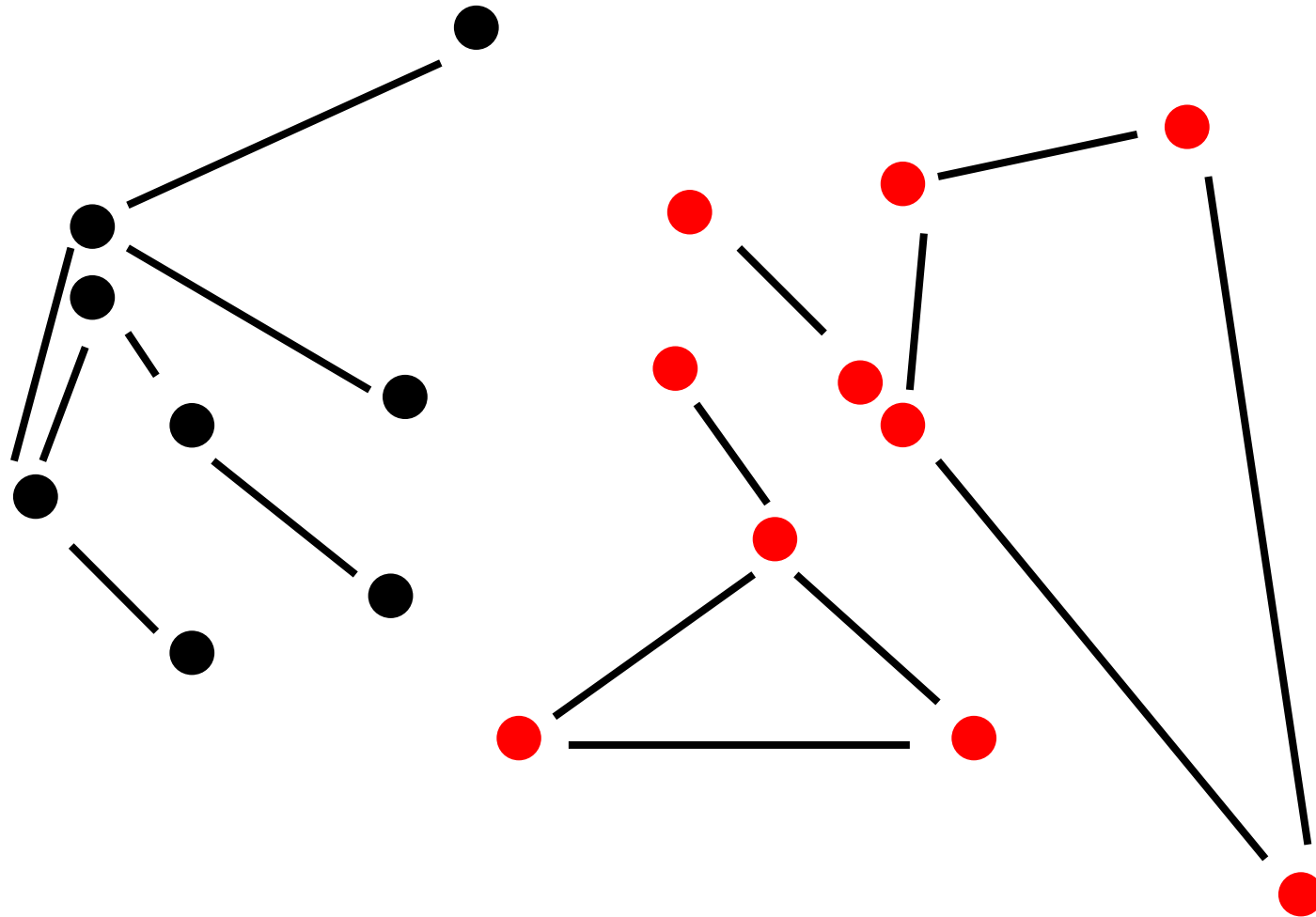


Dissimilarities & MIL





Dissimilarities & MIL



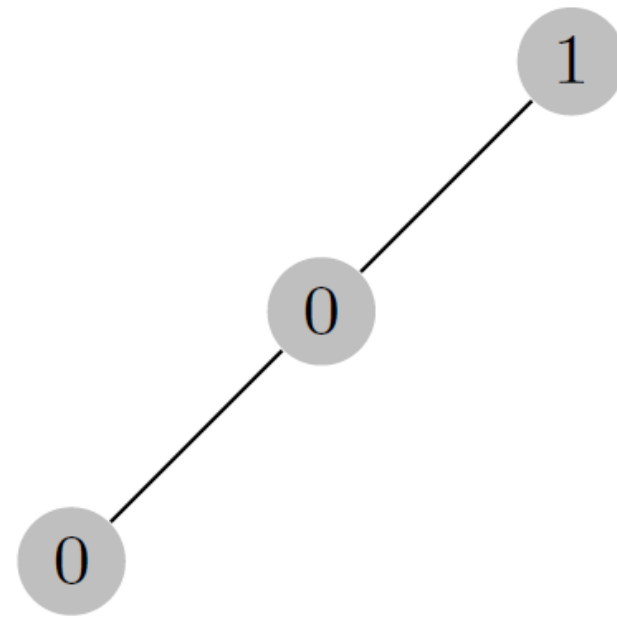
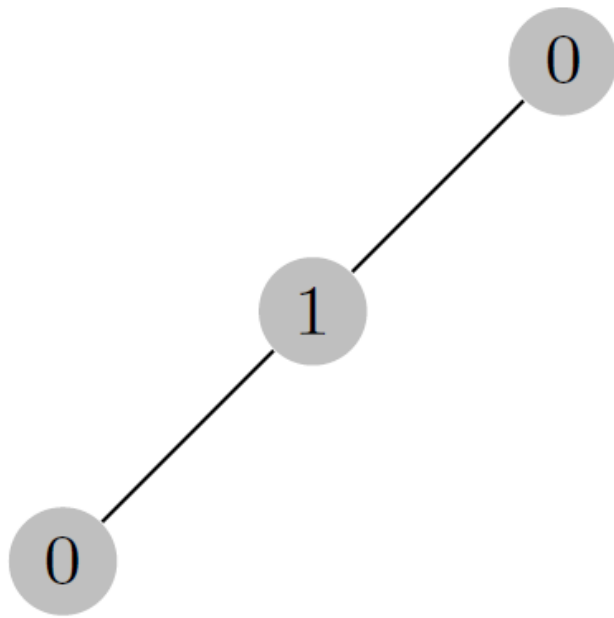
How to Combine?

- Weighted dissimilarities

$$\alpha D_G + (1 - \alpha) D_B$$

- Attributed graph matching
 - Graph edit distance
 - Limits : Pure MIL and pure structural recognition

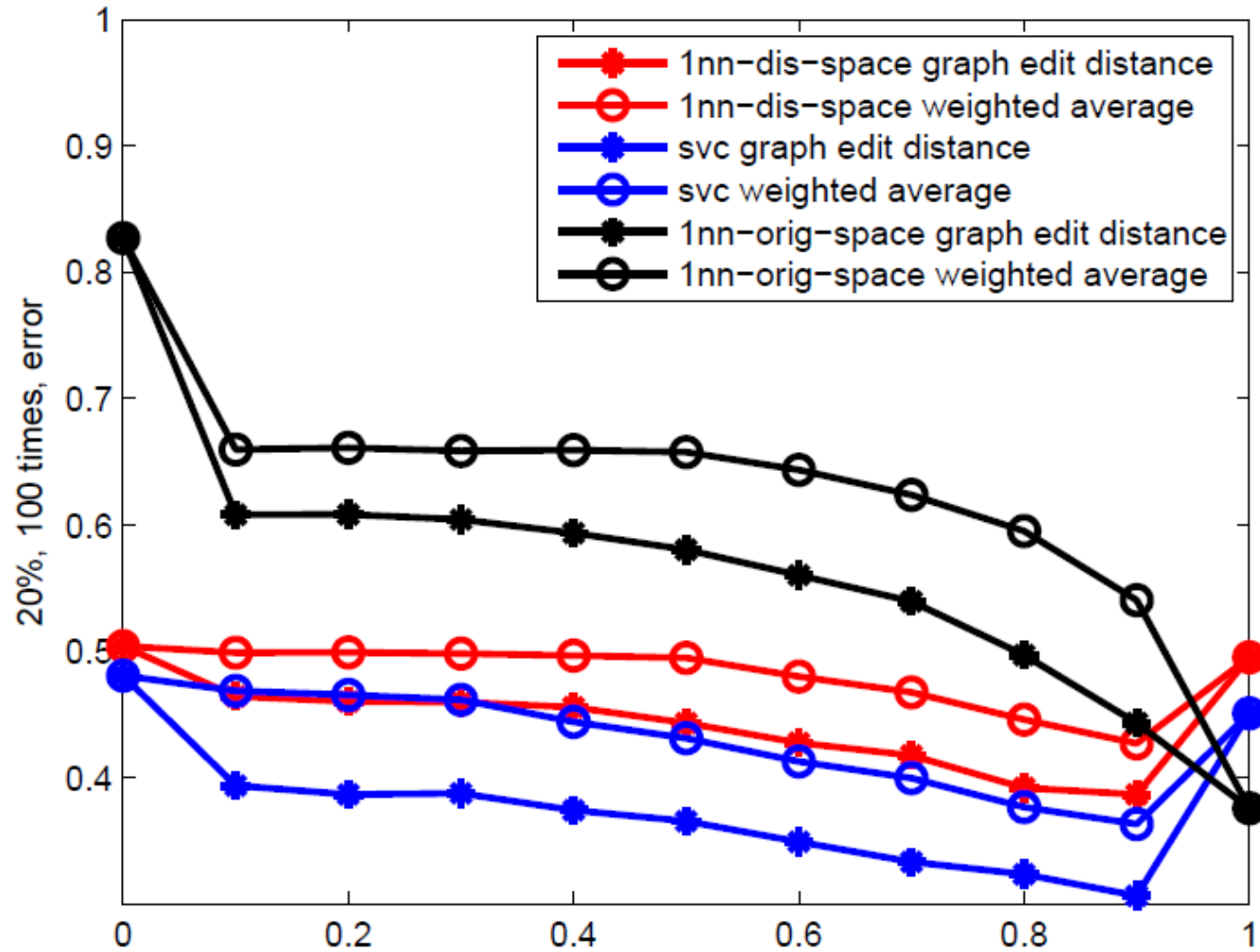
Obviously...



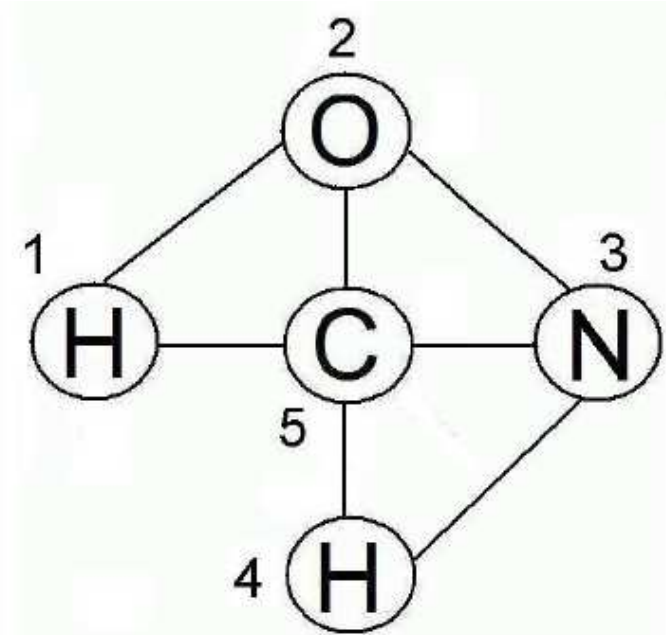
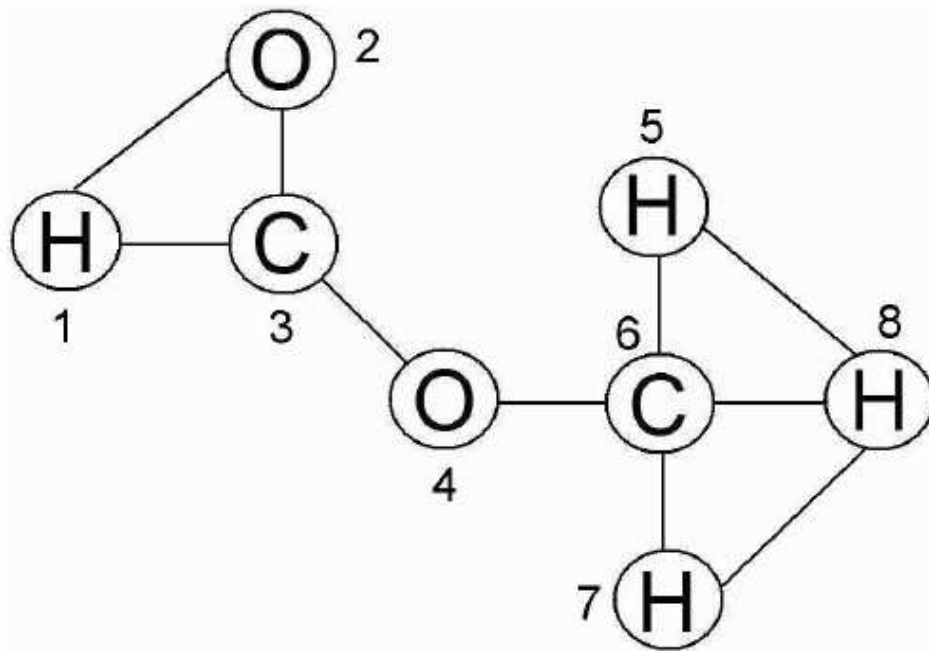
E.g. Coil



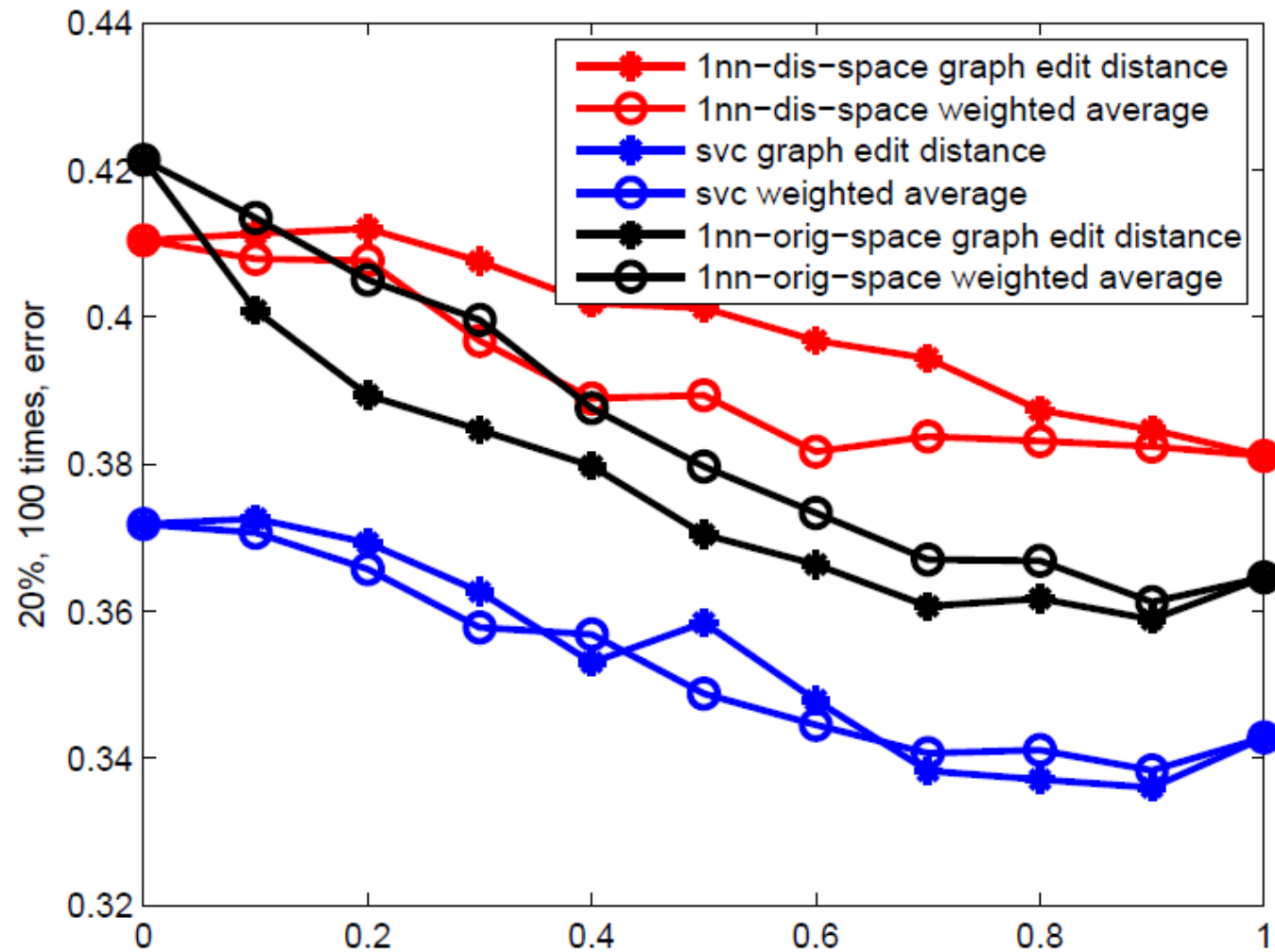
Edit Distance



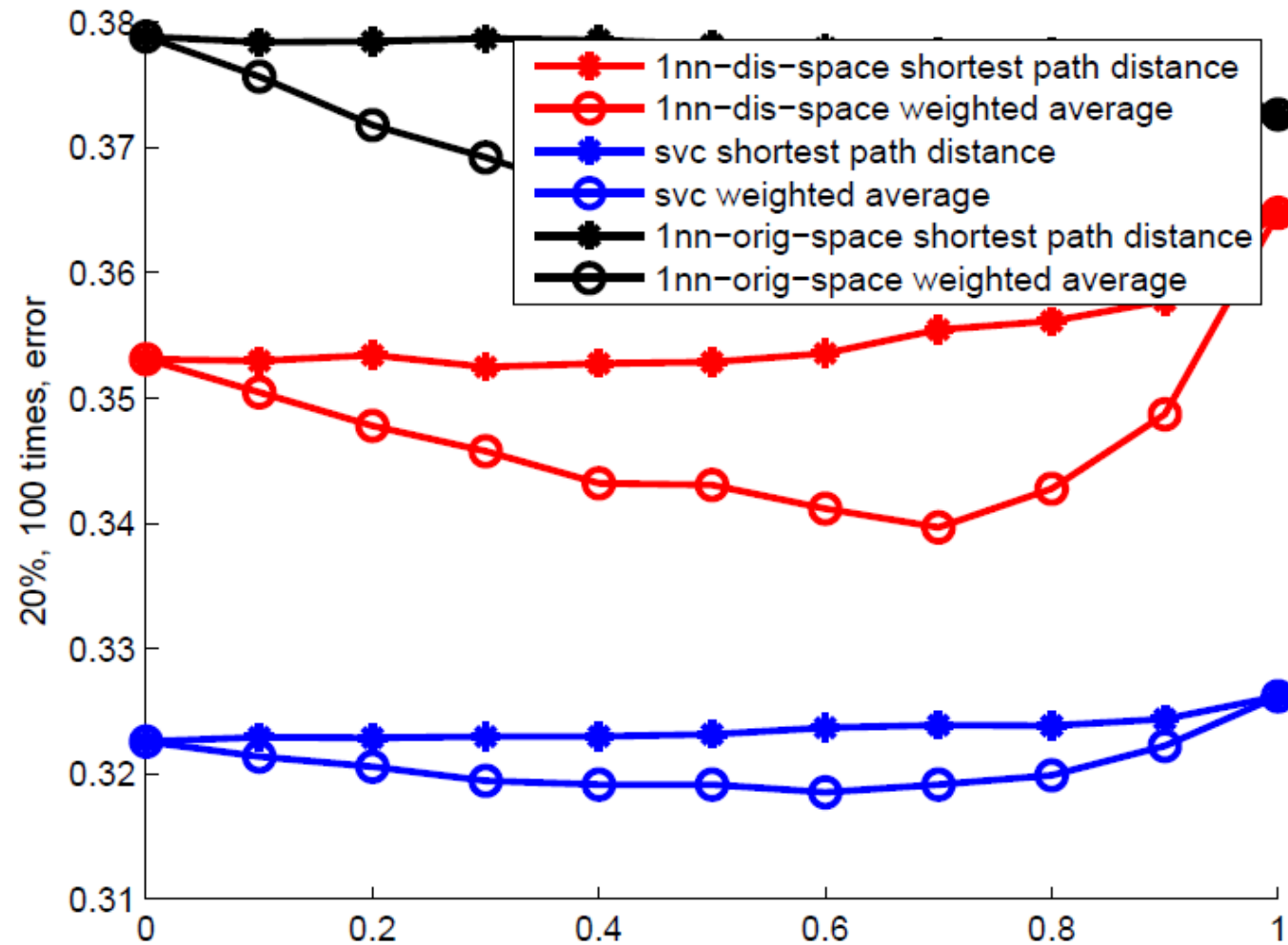
E.g. Molecules



Edit Distance



Shortest Path Kernel



Conclusion?

