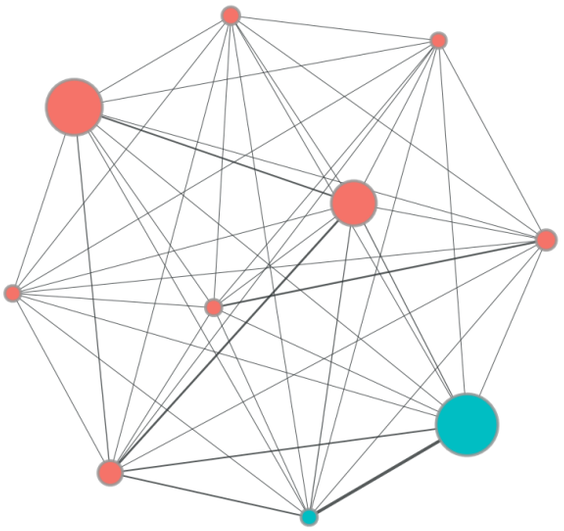
Non Euclidian



X(amt) y(is_fraud) Weigt matrix

$$\begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \\ X_5 \\ \vdots \\ X_n \end{bmatrix} \quad \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \\ \vdots \\ y_n \end{bmatrix} \quad \begin{bmatrix} \mathbf{W}_1 & 0 & 0 & \dots & 0 \\ 0 & \mathbf{W}_2 & 0 & \dots & 0 \\ 0 & 0 & \mathbf{W}_3 & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & 0 & \dots & \mathbf{W}_{|\mathcal{I}|} \end{bmatrix}$$

Convolution (16x8)

Dropout → **Relu**

Convolution (8x2)

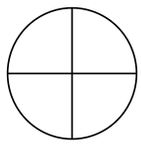
Relu

Linear

Sort

Euclidian

$$\begin{bmatrix} X_{11} & X_{12} & \cdots & X_{1p} & y_1 \\ X_{21} & X_{12} & \cdots & X_{2p} & y_2 \\ \vdots & & & & \vdots \\ X_{n1} & X_{n2} & \cdots & X_{np} & y_n \end{bmatrix}$$



Concat

$$\begin{bmatrix} X_{1(p+1)} & \cdots & X_{1(p+l)} \\ X_{2(p+1)} & & X_{2(p+l)} \\ \vdots & \ddots & \vdots \\ X_{n(p+1)} & \cdots & X_{n(p+l)} \end{bmatrix}$$

- **CatBoost**
- **XGBoost**
- **LightGBM**
- **NeuralNet**
- **ExtraTree**
- **RandomForest**
- **KNeighbors**
- **...**