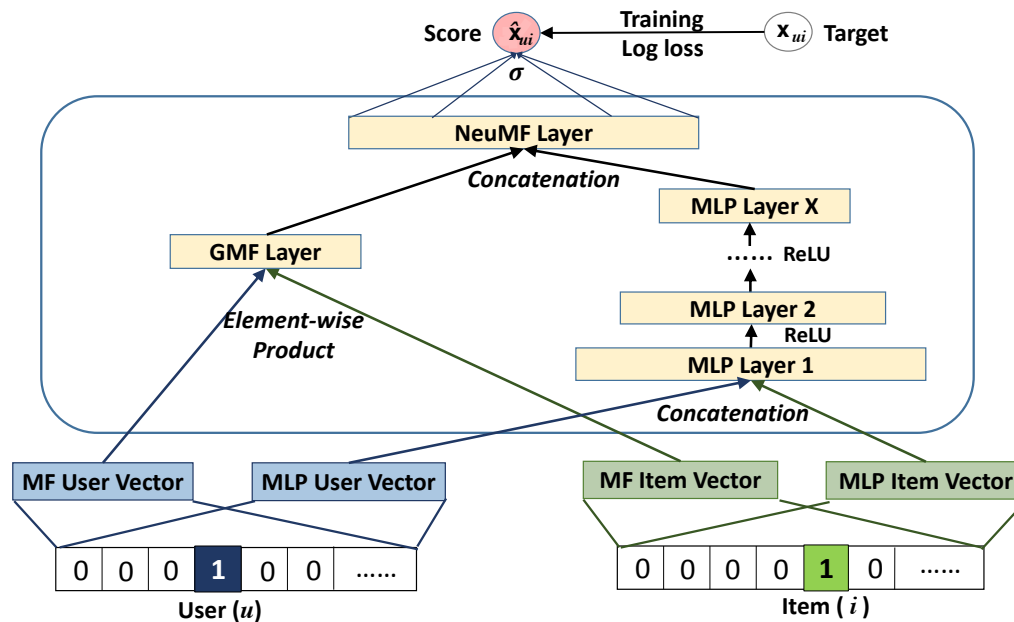


Neural Collaborative Filtering (NCF)³

Prediction



Pros & Cons

- + Non-linear prediction
- + Robust joint-model of simple GMF and MLP
- Lacks interpretability
- Expensive prediction
- Cannot be used with LSH or MIPS

Training Objective

Binary Cross-Entropy with neg. sampling

$$\mathcal{L}(\theta) = - \sum_{(u,i) \in \mathcal{D}} [x_{ui} \log(\hat{x}_{ui}) + (1 - x_{ui}) \log(1 - \hat{x}_{ui})]$$

³ "Neural collaborative filtering", X He, L Liao, H Zhang, L Nie, X Hu, T S Chua,