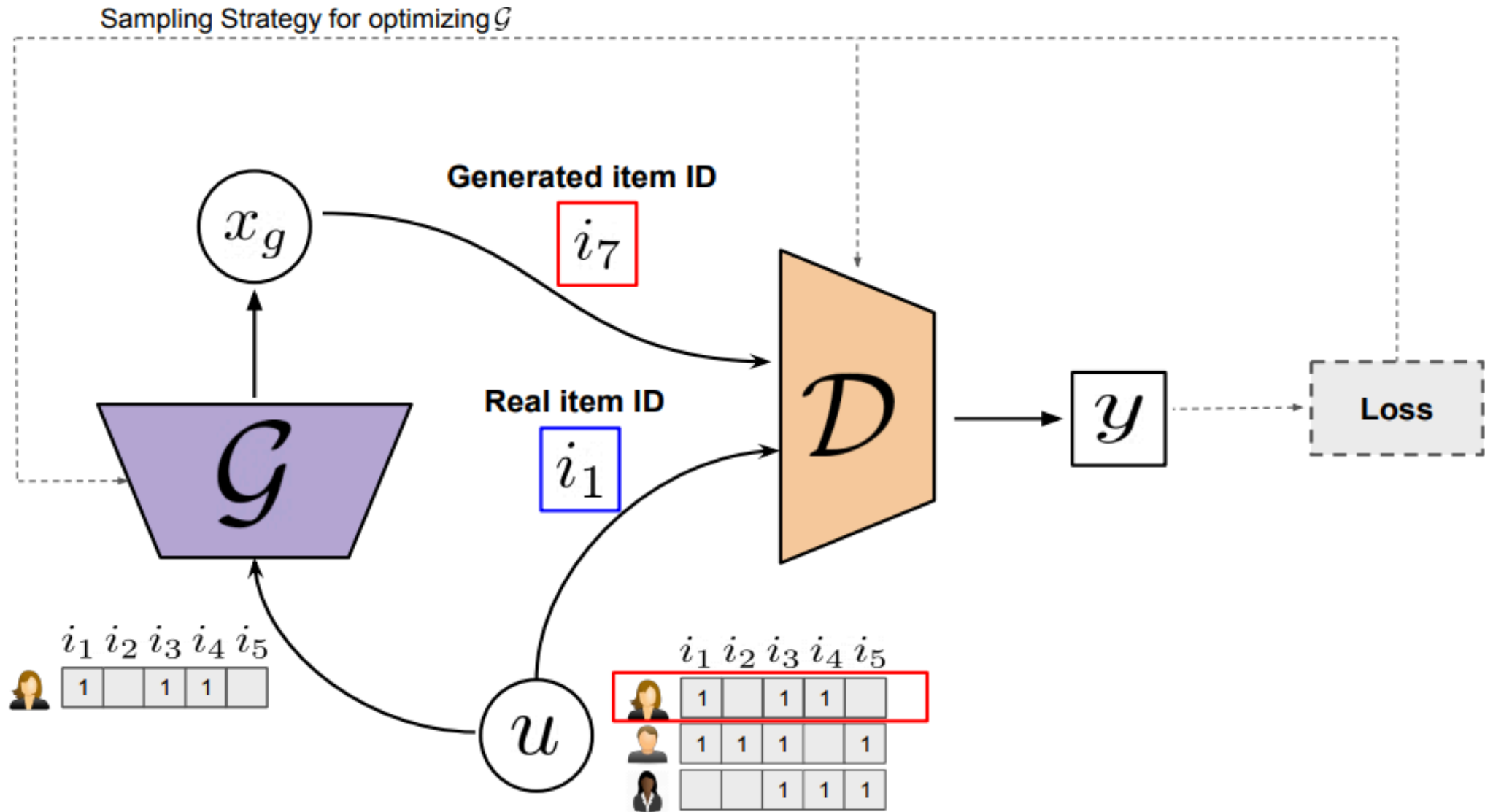# Adversarial Recommender Systems

• Project description:

Generative methods excel at exploring problem spaces as they provide us with a manner to sample as much data as we want, given some condition or prior. On the other hand they can lack selectiveness which results in inconclusive recommendations. We aim at **finding adversarial methods** that balance out the problem of **exploration vs. exploitation** by employing different discriminative strategies.

Deldjoo, Yashar, Tommaso Di Noia, and Felice Antonio Merra. "Adversarial Machine Learning in Recommender Systems: State of the art and Challenges." arXiv preprint arXiv:2005.10322 (2020)

Key challenges

- Constructing efficient and complex loader systems for historical data (what is actually relevant for a user/item when it comes to input data).
- Building a generative model that given the above identified data will be able to correctly sample a product recommendation for that specific user/item.
- Building a discriminative model that can correctly identify if the proposed sample is something that a user would actually like or not.
- Building training objectives that can guarantee that neither the generative model or the discriminative model will be biased towards a small subset of samples.
- Building evaluation measures and schemes that can guarantee us that the above developed training objectives are performing well in a recommendation setting