

ANNOUNCEMENT

Bachelor Thesis

KEYWORDS

- Machine learning
- Recommendation systems
- Digital Marketing
- Music Industry

TOPIC: THE USE OF RECOMMENDATION SYSTEMS IN DIGITAL MARKETING.

In recent years, massive datasets have accumulated in numerous digital marketing contexts. In many cases, the observations are unlabeled, i.e., there is no clear dependent variable to train models on the data. One such case are recommendation systems. Marketing managers usually only observe which products have been bought by a certain consumer in the past but do not know about future purchase intentions. Specifically, it is unknown to the manager whether a product not yet purchased is a good fit for (i.e., should be recommended to) a given customer.

The aim of recommendation is to find patterns in consumption data that can be exploited to make predictions on which product would likely be interesting to a customer given their consumption history. Typical tasks of recommendation systems include dimensionality reduction, visualization or clustering. These type of methods can be used to infer how well a product is suited for a (group of) customer(s) based on similar consumers or products similar to those consumed in the past.

Recommendation systems have become especially important in the context of access based business models such as music streaming. Consumers have access to millions of songs at a fixed monthly price. The vast number of songs make it difficult for consumers to discover new products they enjoy. Therefore, playlists have emerged as an important tool for music discovery and major labels as well as providers (e.g. Spotify) curate thousands of them.

The aim of this thesis is twofold. First, the student will assess which recommendation system methodologies are commonly used in a digital marketing context via a comprehensive literature review. Second, the student will use selected techniques to produce recommendations for songs to be added to playlists on Spotify. The goal of the second part is to benchmark different methodologies in this context and provide guidance for marketing managers in media industries. It should become clear which methodologies are most suited and how managers can support their findings using visualizations.

Solid statistics and data analysis skills are required to write this thesis.

LITERATURE:

- **Portugal, I., Alencar, P., & Cowan, D. (2018).** The use of machine learning algorithms in recommender systems: A systematic review. *Expert Systems with Applications*, 97, 205-227.
- **Hahsler, M. (2015).** *recommenderlab: A framework for developing and testing recommendation algorithms*.
- **Hastie, T., Tibshirani, R., & Friedman, J. (2009).** *The elements of statistical learning: data mining, inference, and prediction [Chapter 14]*. Springer Science & Business Media.
- **Joven, J. (2018).** Spotify: The Rise of the Contextual Playlist.
<https://blog.chartmetric.io/spotify-the-rise-of-the-contextual-playlist-c6f2c26900f4>

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APPLICATION

Applications with CV and transcript of records should be sent to Daniel Winkler (dwinkler@wu.ac.at).