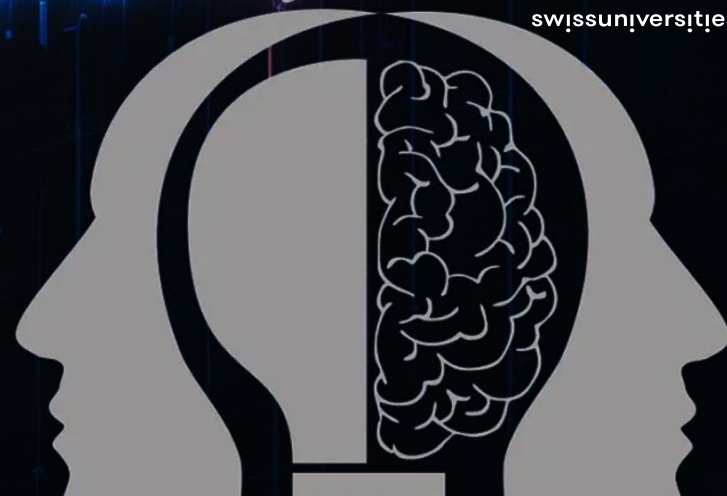


Jean-Paul Calbimonte
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Recommandation personnalisée pour les médias : de la polarisation à l'ouverture

swissuniversities



HES-SO AI Days

Lausanne 06.02.2024

SRG SSR



INITIATIVE
FOR
MEDIA
INNOVATION

> Do you want to see a movie?

- Streaming media platforms



- Public Streaming media

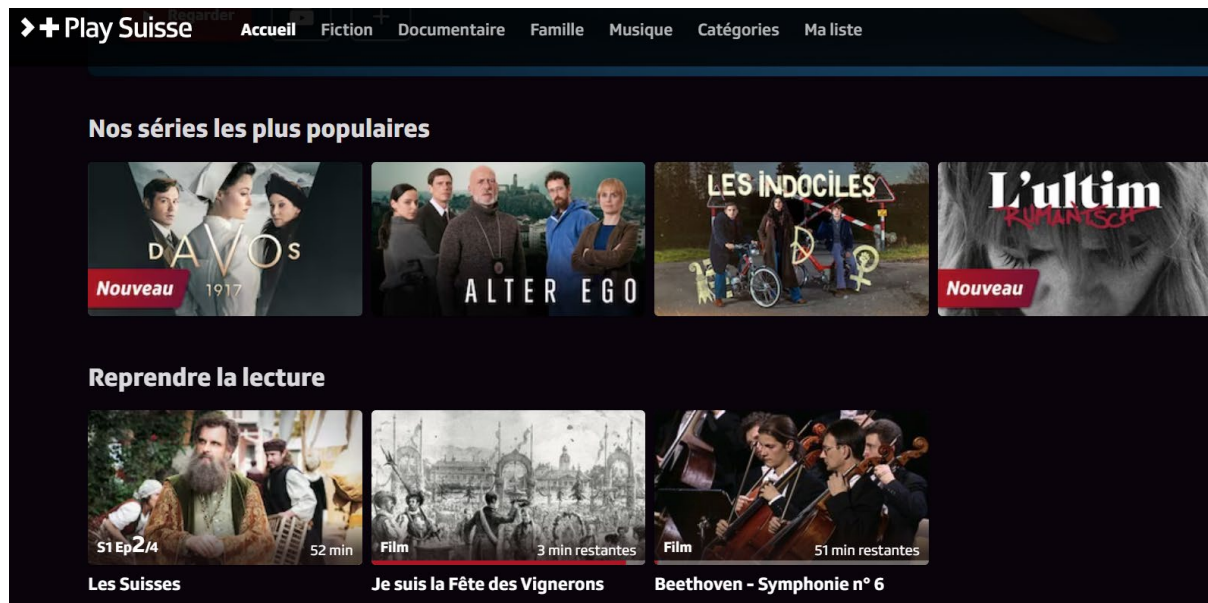


> Also in Switzerland: PlaySuisse



- Launched in 2020
- +3K media productions
- Series, films, documentaries
- SSR productions, co-productions
- Other Swiss content
- Festivals
- Distribution

> PlaySuisse specificities







- Promote Swiss media content
- Multicultural
- Multilingual: de-it-fr-rm
- Personal data privacy protection

- Offer personalized content recommendations?

> PlaySuisse specificities

Offer **personalized** content recommendation without necessarily trapping users into **bubbles**?

- Discover **new** content 
- Linguistic diversity 
- Regional diversity 
- Privacy protection 

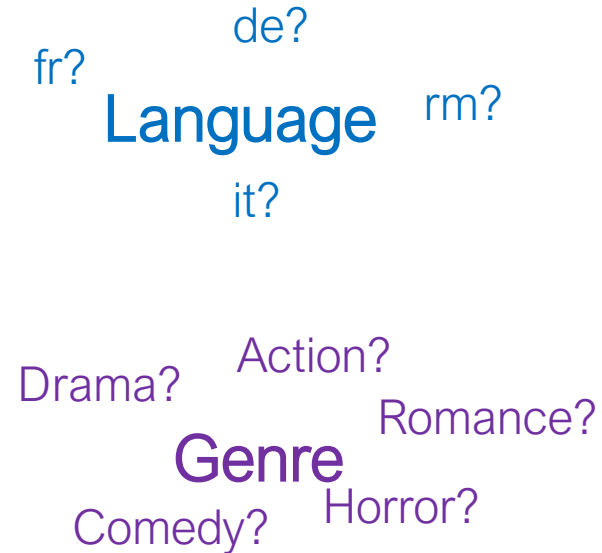
> Personalized Recommendation: From Polarization to Discovery

- Funded by the Initiative for Media Innovation
- Project partnership



> Improving PlaySuisse recommendations

- Serendipity
- Diversity



> PlaySuisse: Data available

Acquired during the platform's first year (2021).



Asset dataset

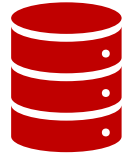
- 1855 assets & 182 features
- Assets: films/documentaries/series
- Name and type
- Categories & subcategories
- Language (audio + subtitles)
- Release date, duration

Interactions dataset

- 3.6 million rows
- interactions user \leftrightarrow asset
- time intervals a user watched an asset
- % content watched

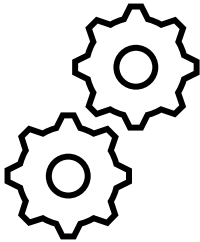
> PlaySuisse: User Data

SSR Privacy Protection policy:

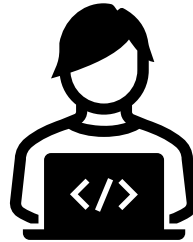


- User pseudo-anonymized ID
- No names
- No age
- No sex/gender
- No preferences
- No language (preferred/spoken)

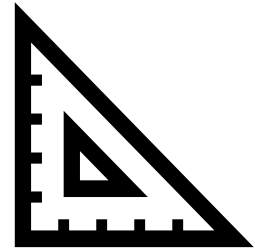
> Improving PlaySuisse recommendations



Feature Engineering



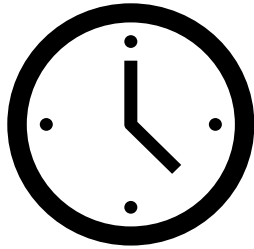
Recommendation
Algos



Metrics

> Feature Engineering

New features



Time of the week



Time of the day



Audio Description

> Feature Engineering

Native language



Audio



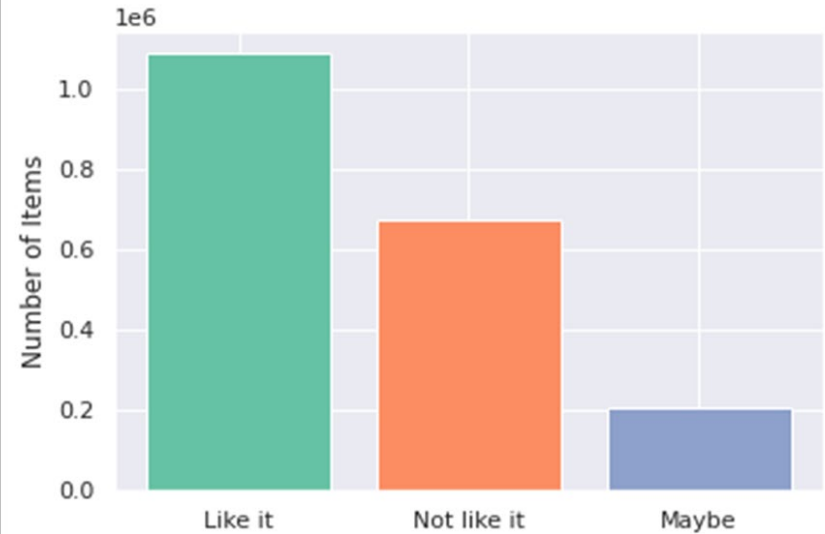
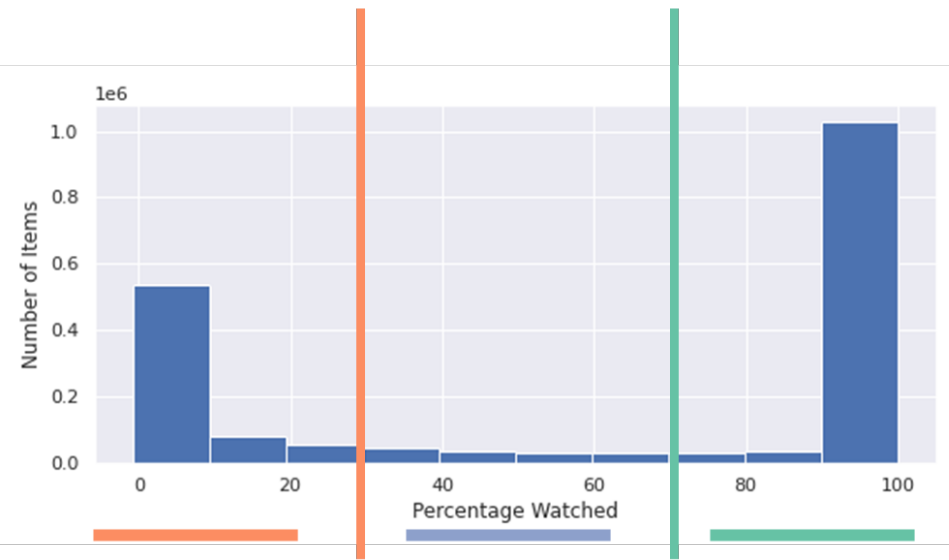
Subtitles



Native Language Estimation

> Feature Engineering

From watching time to rating

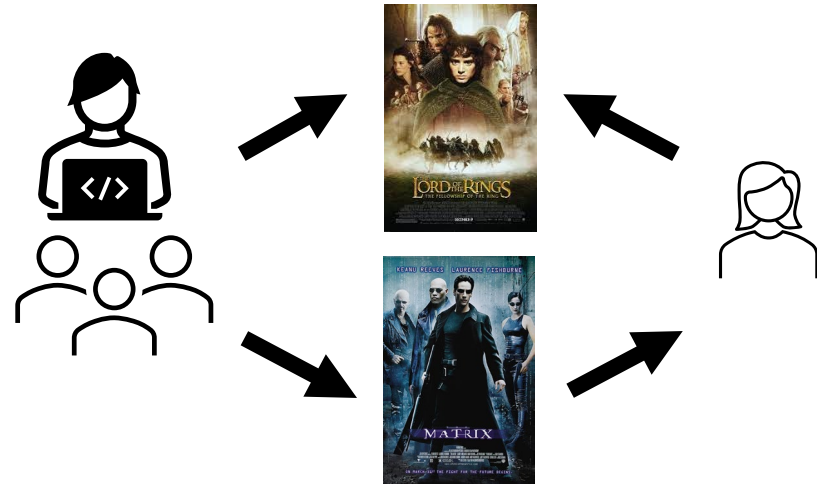


> Algorithms

Content-based recommendation



Collaborative filtering



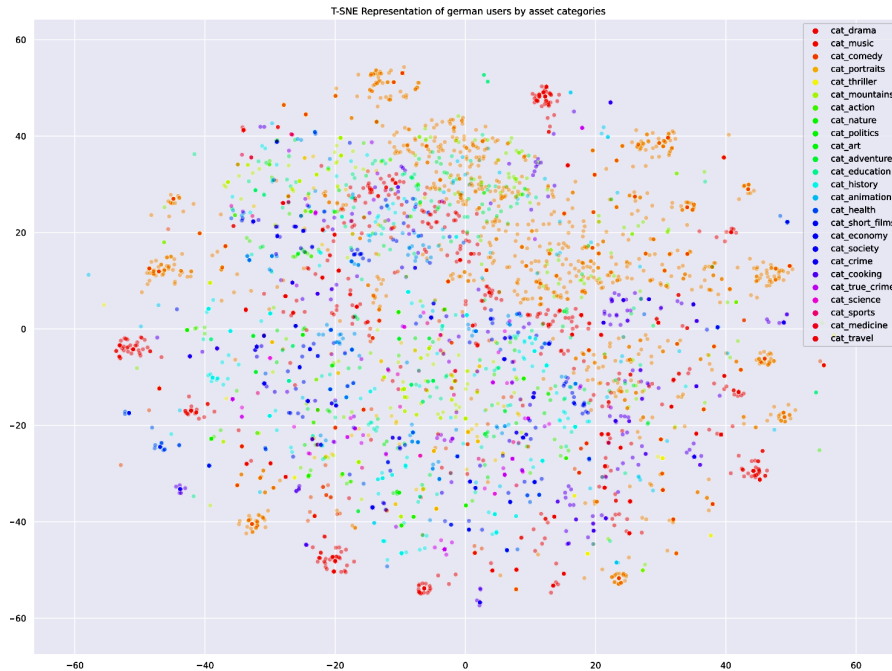
> Cluster based recommendations

Let's group users together



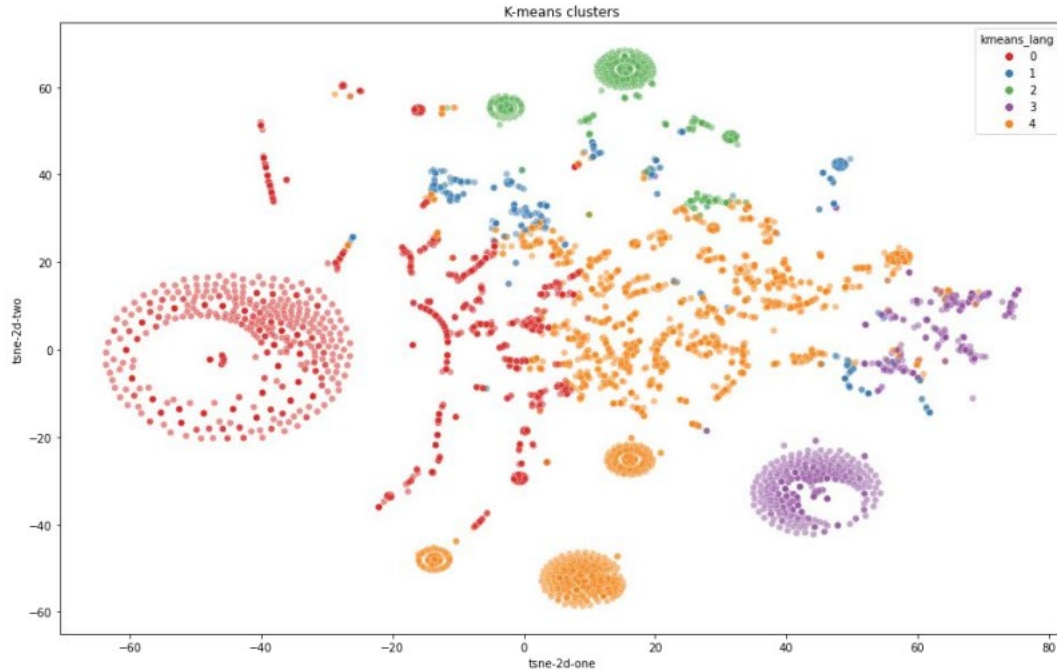
> Cluster based recommendations

Let's group users together

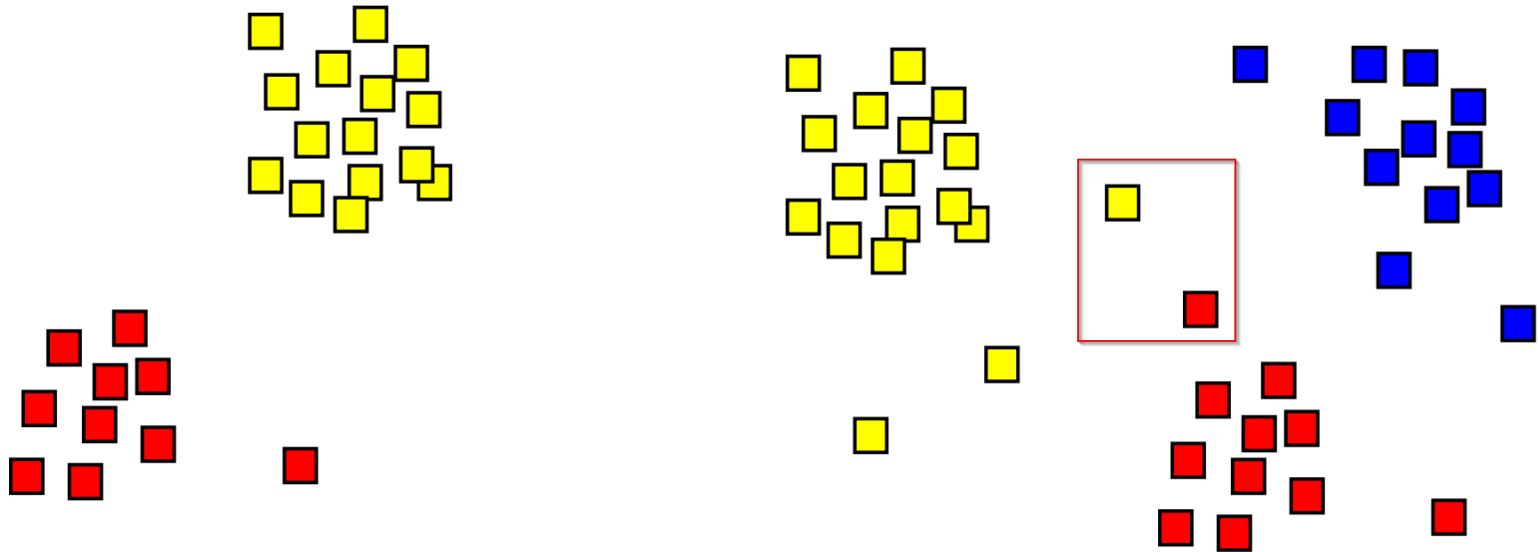


➤ Cluster based recommendations

Let's group users together

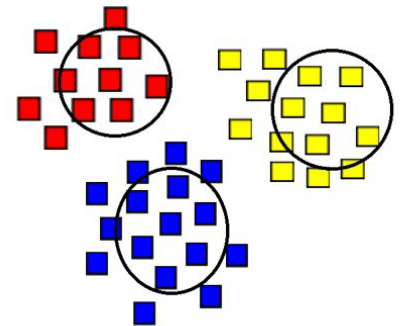


> Cluster based recommendations



> Giving importance to openness

- Attempt to **open** user to new assets
- Attempt to **reduce cultural** differences between users
- Take the **risk of dislike** if a user strongly belongs to a cluster
- Still need to be **improved**



> Metrics

Serendipity can be measured in different ways:

- Measure showing the user will **like** the recommendations
 - MSE
 - RMSE
- Measure showing **openness** in the recommendations
 - Novelty
 - Diversity

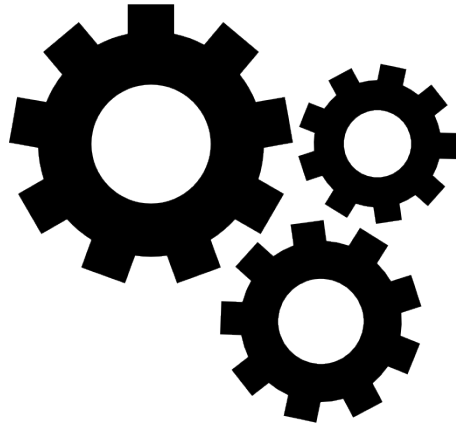
> Metrics

- Measure showing the user will **like** the recommendations
- Measure showing **openness** in the recommendation

11. Table: Average test results on 30 randomly selected users

Test type	Cluster-based		User-based		User history
	True	False	True	False	
Cultural priority	True	False	True	False	N/A
Number of content	15.0	15.0	15.0	15.0	2.4
Mean Score	0.35	0.35	0.57	0.59	0.72
Diversity Score	686.57	652.13	498.8	442.71	0.7

> A recommendation to promote discovery

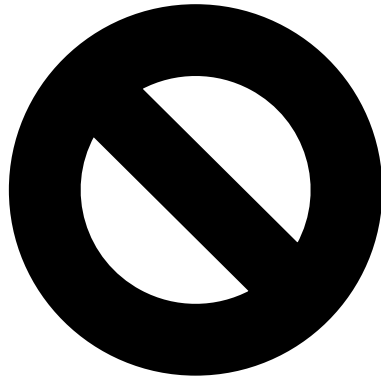


Is it technically feasible?



Isn't it a bit paternalistic?

> Did you say paternalistic?



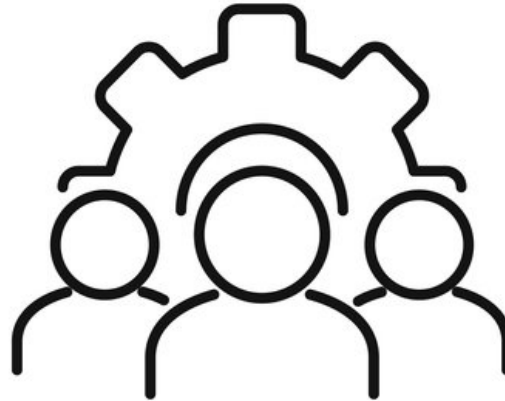
No coercion



A form of empowerment

> Actual Information

Is the true challenge for the user's autonomy



> Terms and conditions

«I have read and agree to the terms and conditions»: the biggest lie on the Internet.

Jonathan A. Obar
York University
Quello Center - Michigan State
University

Anne Oeldorf-Hirsch
University of Connecticut

> Nudging for privacy

From legal protection of platforms to real user information



> Conclusions & future work

- Clustering algorithms for diversity and serendipity
 - Improve clustering strategies
 - Improve threshold calculation
- Ethical implications of media recommendations
- Nudging for privacy

Serendipity and Diversity Boosting for Personalized Streaming Media Recommendation

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Abstract

Streaming media platforms constitute a significant source of information and entertainment for different population segments. Although major corporations have taken the lead in market share, public media companies have also started to produce and broadcast films, series, and documentaries centered on locally-created content. Moreover, beyond the purely commercial goals of major corporations, these public streaming platforms have the mission of expanding the cultural landscape of the viewers, for instance, through the exploration of content produced in other regions and other languages, especially in multicultural societies such as Switzerland. In such a context, this paper proposes a novel approach for personalized recommendations of streaming media content, focusing on serendipity and multicultural diversity, while minimizing the need for personal data sharing. The approach is based on the feature extraction from user media consumption and a combination of data-driven recommendation algorithms. The approach has been tested with real data from the public PlaySuisse streaming platform.

Keywords

Recommendation Systems, Serendipity, Multicultural Diversity, Feature extraction

- G. Manzo, Y. Pannatier, G. Autès, M. D. Lucia, J. Piguet & J. Calbimonte. Serendipity and Diversity Boosting for Personalized Streaming Media Recommendation. Proceedings of the 13th Italian Information Retrieval Workshop (IIR 2023), Pisa, Italy, June 8-9, 2023. 3448, 30-40. 2023.
- Jean-Gabriel Piguet, « *Nudges*, désinformation et autonomie citoyenne. Une critique de Sunstein », *Éthique publique*, vol. 24, n° 2 | 2023 DOI : <https://doi.org/10.4000/ethiquepublique.758>

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Lausanne 06.02.2024



Hes·so VALAIS WALLIS



Thank you for your attention.



hes·
so
you.

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