RecSys' 24 Challenge Workshop
Sponsor Edition

The 18th ACM Recommender Systems Conference

Bari, Italy from Oct. 14–18, 2024.

Before we begin…

JP|Politikens Hus

Ekstra Bladet

RecSys

recsys.acm.org/recsys24

recsys.eb.dk & ebnerd-codabench

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JP/Politikens Hus A/S

Kasper Lindskow
JP/Politikens Hus A/S

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IIM Visakhapatnam

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University of Bari Aldo Moro

Anshuk Uppal
DTU

Jes Frellsen
DTU

Michael Riis Andersen
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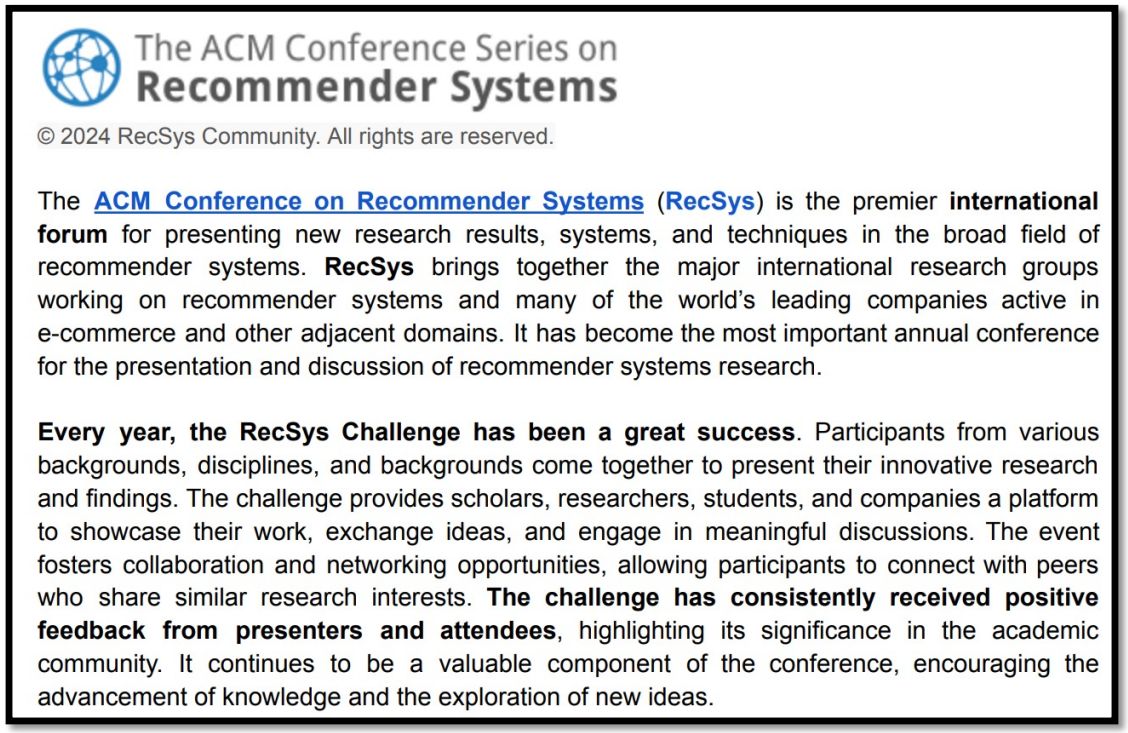
Claudio Pomo
Politecnico di Bari

OpenAI. (2024). Image created by ChatGPT. Retrieved from OpenAI platform.

Call for Sponsorship RecSys Challenge 2025



The ACM Conference Series on
Recommender Systems

The **ACM Conference on Recommender Systems** (**RecSys**) is the premier **international forum** for presenting new research results, systems, and techniques in the broad field of recommender systems. **RecSys** brings together the major international research groups working on recommender systems and many of the world's leading companies active in e-commerce and other adjacent domains. It has become the most important annual conference for the presentation and discussion of recommender systems research.

Every year, the RecSys Challenge has been a great success. Participants from various backgrounds, disciplines, and backgrounds come together to present their innovative research and findings. The challenge provides scholars, researchers, students, and companies a platform to showcase their work, exchange ideas, and engage in meaningful discussions. The event fosters collaboration and networking opportunities, allowing participants to connect with peers who share similar research interests. **The challenge has consistently received positive feedback from presenters and attendees**, highlighting its significance in the academic community. It continues to be a valuable component of the conference, encouraging the advancement of knowledge and the exploration of new ideas.

Deadline: August 31st, 2024

https://www.recsyschallenge.com/2024/assets/CfS_2025.pdf

Agenda

- About Ekstra Bladet & JP/Politiken
  - Motivation for RecSys' 24 Challenge
  - Recommender Systems at Ekstra Bladet
  - Editorial Values and Alignment
- About RecSys' 24 Challenge
  - News Recommendation
  - EB-NeRD
  - Competition
- Open Q&A

Our motivation for the RecSys 24 Challenge

WAN/IFRA Study Tour, May 25th 2024

Kasper Lindskow

Head of Research and Innovation
JP/Politikens Hus - Ekstra Bladet

PM of platform Intelligence in News
Copenhagen Business School – Management, Society and Communication

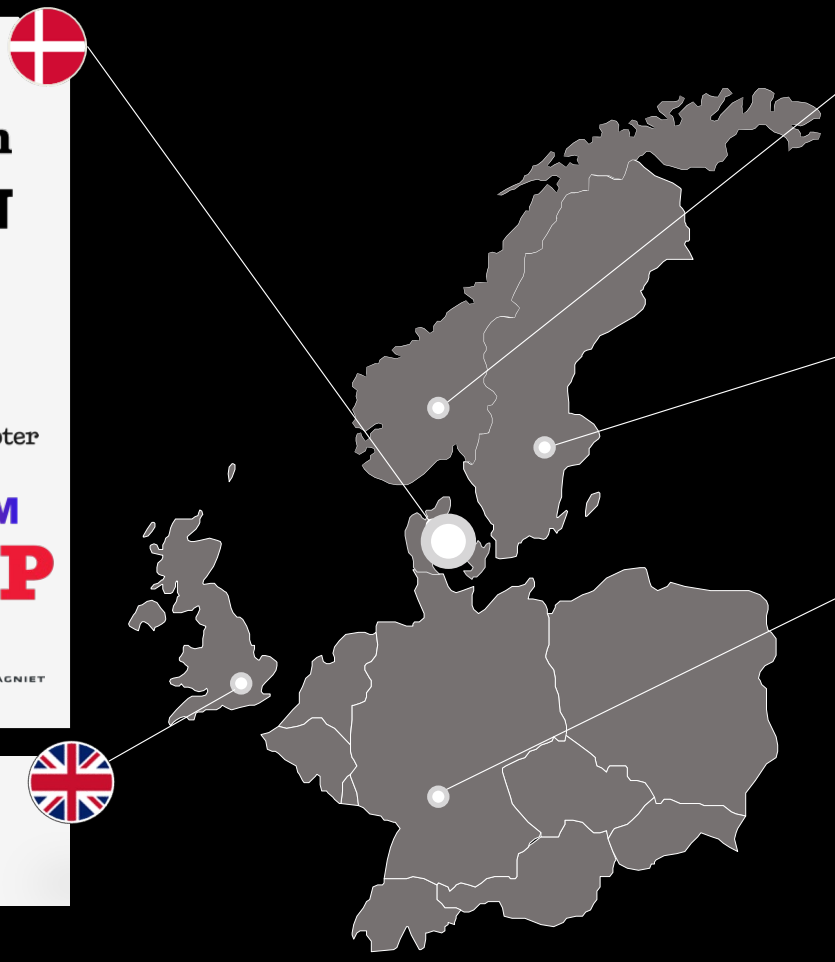
Agenda

1. Who are we?
2. Recommender systems at Ekstra Bladet / JP/Politikens Hus
3. Editorial values and alignment

1.

Who are we?

JP/Politikens Hus



DENMARK

Ekstra Bladet
Jyllands-Posten
POLITIKEN
Jyllands-Postens Lokalaviser
Børneavisen
Monitormedier
MarketWire
WATCHMEDIER
MEDICINSK TIDSSKRIFT
BØRSEN.
FINANS
Chapter
INFOMEDIA
LASSO
FORUM
NORTH AUDIO PUBLISHING
POLITIKENS FORLAG
ARNOLDBUSCK.DK
MERE MELLEM LINJERNE
saxo
LÆS LYT LEV
boldtak
dao
BLADKOMPAGNIET

UNITED KINGDOM

dezeen

NORWAY

INFOMEDIA
FINANSWATCH
MEDWATCH
EJENDOMSWATCH
HANDELSWATCH
KAGGE FORLAG
ADVOKATWATCH
ENERGIWATCH

SWEDEN

BOKFÖRLAGET POLARIS
ROOS & TEGNÉR
INFOMEDIA

GERMANY

FINANZBUSINESS
Herbert Frommes
VERSICHERUNGSMONITOR

INTERNATIONAL

MEDWATCH
ENERGIWATCH
SHIPPINGWATCH

Shared AI unit (2024->)

- We develop and operate AI products across JPPOL's media to enable local value creation
- We focus on editorial applications and the news experience.
- We have a clear focus on value-creating applications that in some areas are supported by applied research.
- We act as knowledge center and organizer of internal and external events (e.g. the Nordic AI in Media Summit)

JP|PolitikensHus

- The AI unit is currently 15 people working only with product development in AI
- In collaboration with local products teams / AI hubs that are being established
- In collaboration with university partners from the PIN-project and beyond

The AI unit's Vision

We must drive a paradigm shift in the way news is produced and consumed by enabling our brands to effectively and responsibly utilize AI in the editorial workflow and in the news experience in ways that advance the individual brand's editorial mission and strategy.

Our primary product areas

1. Generative AI

Editorial tools that assist with routine tasks and support richer news coverage in text, image, and sound.

Primary product: **MAGNA**

2. Metadata

Rich metadata about our news content in text, image, and sound, enabling the activation of content in new ways and gaining deep insight into how it is consumed.

Primary product: Name **t.b.d.**

3. Recommender systems

Personalization of the news experience for the individual in text, image, and sound, which can be editorially controlled based on insights into the personalized news streams.

Primary product: **Newspick**

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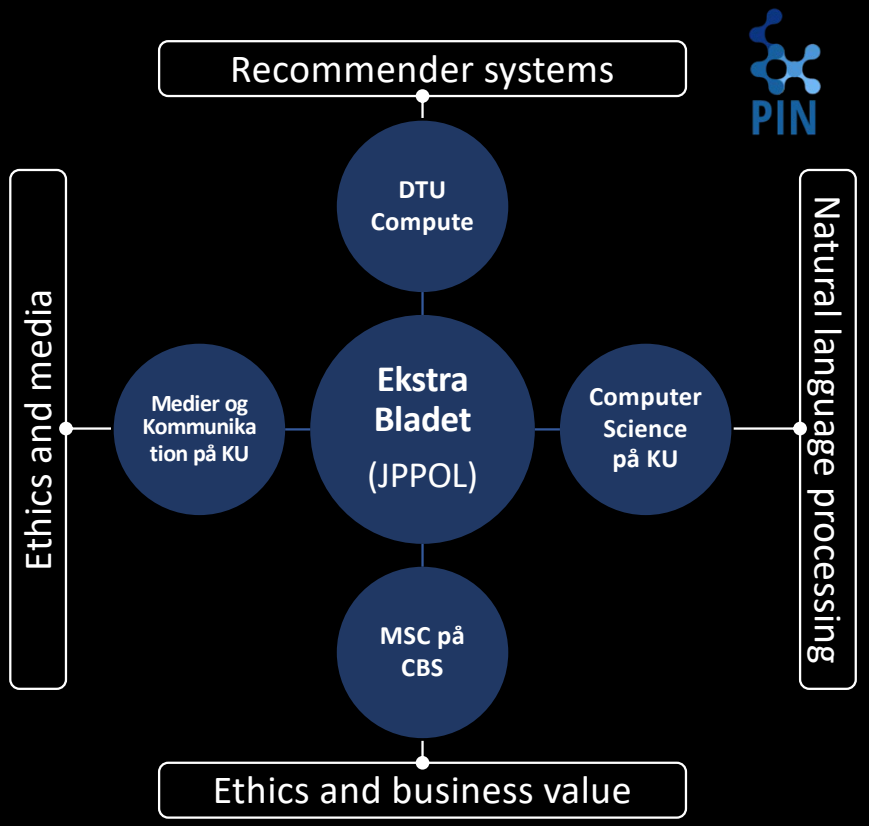
2.

Recommender systems at Ekstra Bladet / JP/Politikens Hus

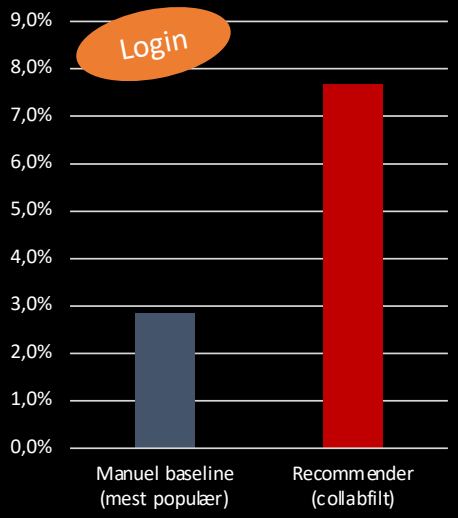
Goals for AI at Ekstra Bladet (2020)

- A more relevant, engaging and information news experience (”wider, deeper, and richer”)
- AI systems that are aligned with the values of news publishers and independent of the tech giants
- Contribute to a healthy norm setting for AI in media



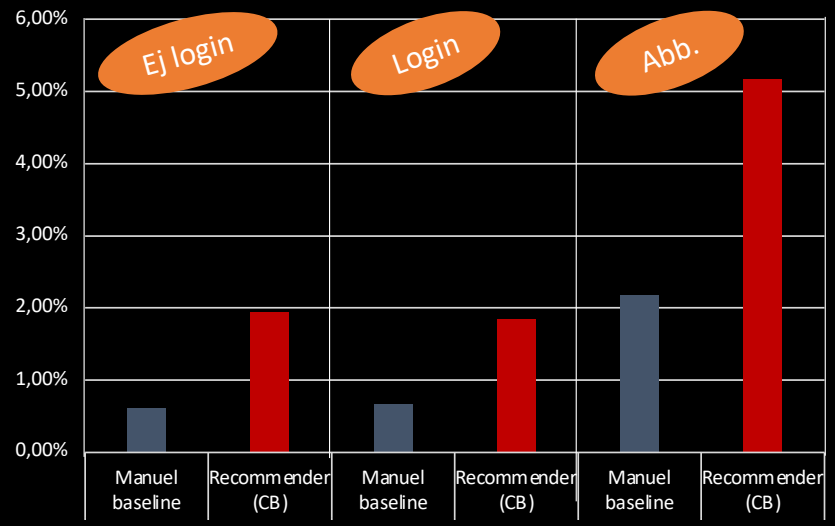
Online A/B tests

Free news (CTR)



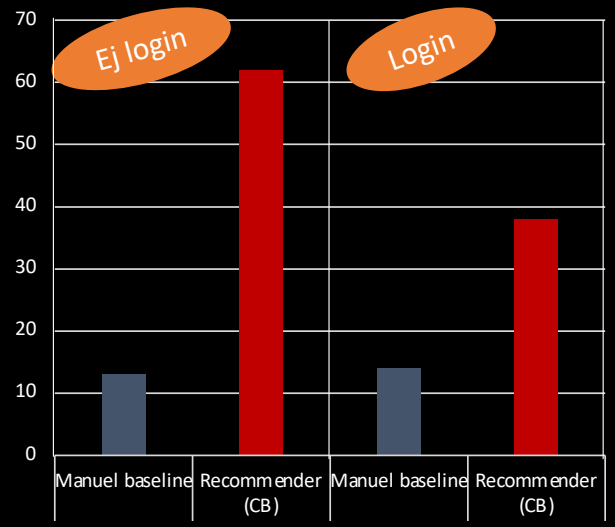
Faktor 2,7 bedre med AI
(A/B test)

Paid content (CTR)



Faktor 2,4-3,1 bedre med AI
(A/B test)

Paid content (sales)



Faktor 2,7-4,8 bedre med AI
(A/B test)

Implementation on ekstrabladet.dk

- The common news flow is supplemented with recommenders at all horizontal placements.
- Creates a broader news flow because the recommenders supplement with relevant content for the individual.
- The systems have increased free traffic (+110%), use of paid content (+38%), and sales of subs (+35%) at the horizontal placements.

Different recommender systems suggest personalized articles to various reader segments on the front page of ekstrabladet.dk.

We are happy – but we know we can do better

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Best AUC per Team | Academic Teams

Rank	Team	AUC	MRR	NDCG@5	NDCG@10
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7	doubleq	**0.8201**	**0.6178**	**0.6870**	**0.7076**

3.

Editorial values and alignment

Why do we have all those beyond accuracy metrics in Codabench? e.g:

An overview of key insights for Top@5 rankings.

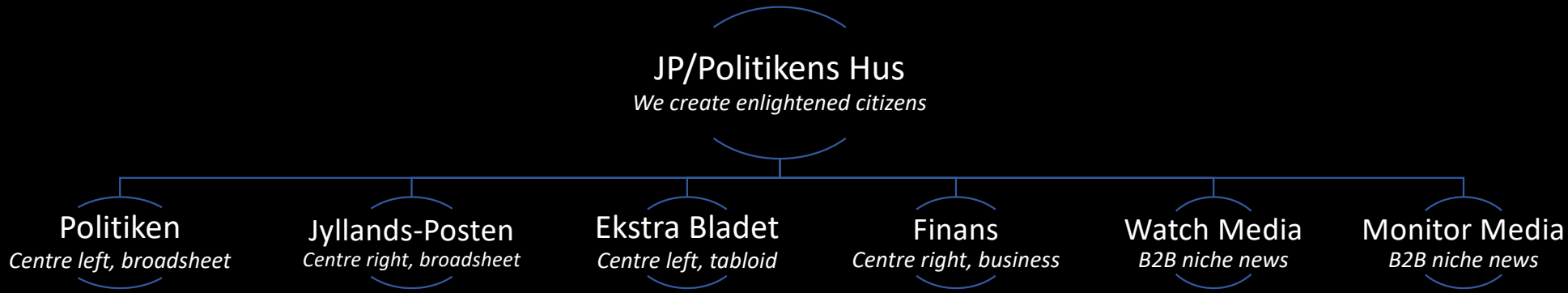
Overview:

	INTRALIST_DIVERSITY	NOVELTY	SERENDIPITY	COVERAGE_FRACTION
YOUR_MODEL	0.7178 Â± 0.0841	9.0915 Â± 0.9842	0.7747 Â± 0.0416	0.308
TOP-INVIEW-ARTICLES	0.7905 Â± 0.0	4.6258 Â± 0.0	0.7861 Â± 0.0262	0.02
POPULAR	0.8402 Â± 0.0	3.0699 Â± 0.0	0.7915 Â± 0.0263	0.02
RANDOM	0.7548 Â± 0.0902	8.3617 Â± 1.8496	0.8068 Â± 0.0337	1.0

Overview: distribution_sentiment:

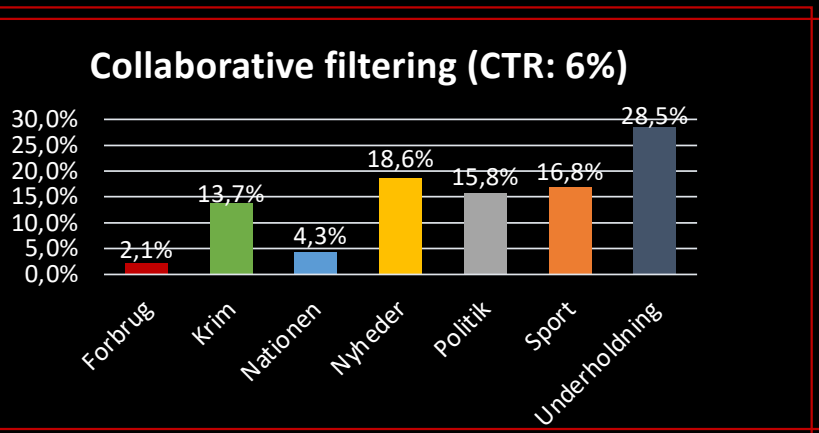
	NEGATIVE	NEUTRAL	POSITIVE
YOUR_MODEL	0.4841	0.3988	0.1170
TOP-INVIEW-ARTICLES	0.4000	0.0000	0.6000
POPULAR	0.2000	0.4000	0.4000
RANDOM	0.3962	0.2917	0.3121

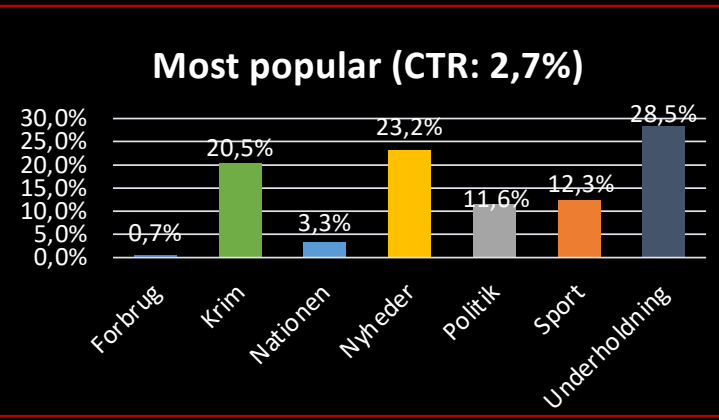
The missions of our news brands



- We need to make sure our recommenders are effective
- We need to make sure our recommenders are aligned with the invidual news brands

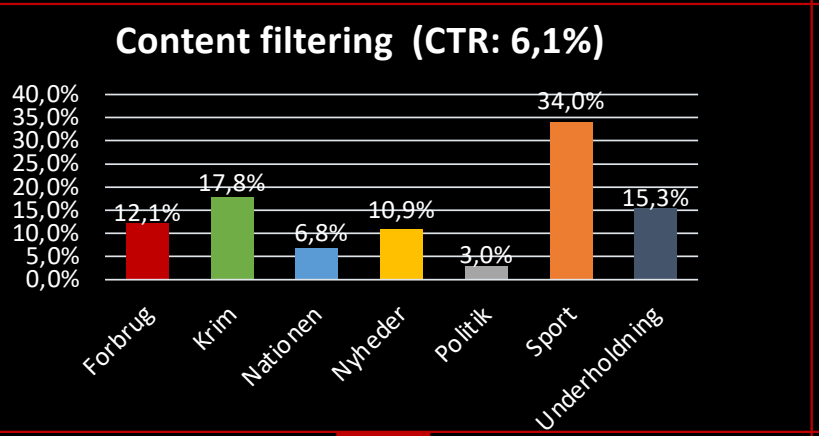
Recommender system effects on the news flow (I)

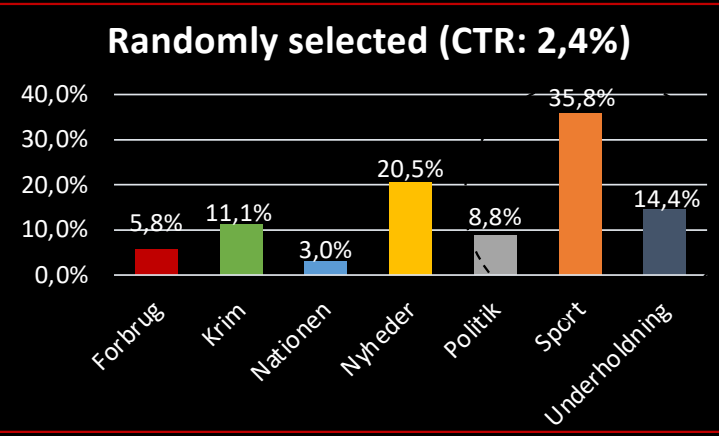




Popularity bias

Same effect on news flow!





lowserendipity

Same effect on news flow!

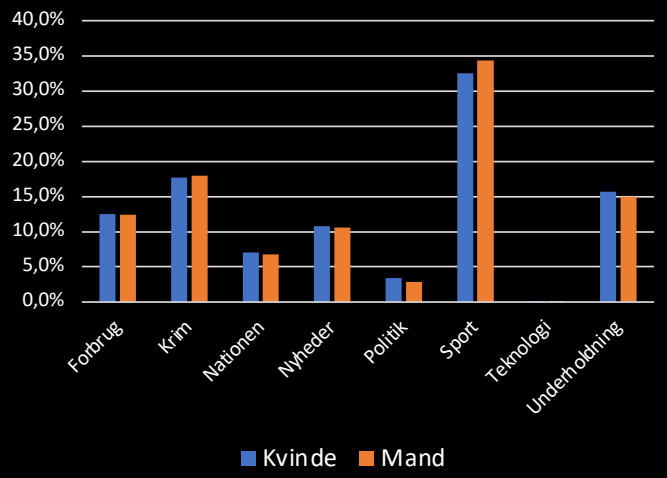
Different effect on news flow!

Recommender system effects on the news flow (II)

Ekstra Bladet

Hybrid recommender

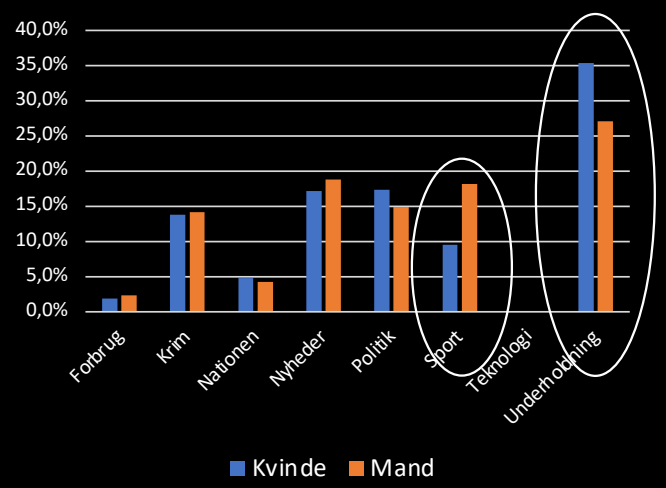
Fordeling af anbefalede artikler



Ingen kønsforskelle

Collaborative recommender

Fordeling af anbefalede artikler

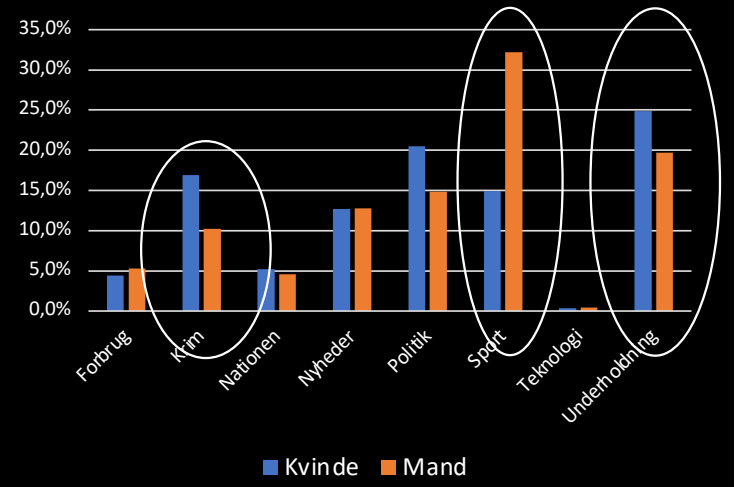


Små kønsforskelle

Mere sport til mænd, mere underholdning til kvinder

Content based recommender

Fordeling af anbefalede artikler

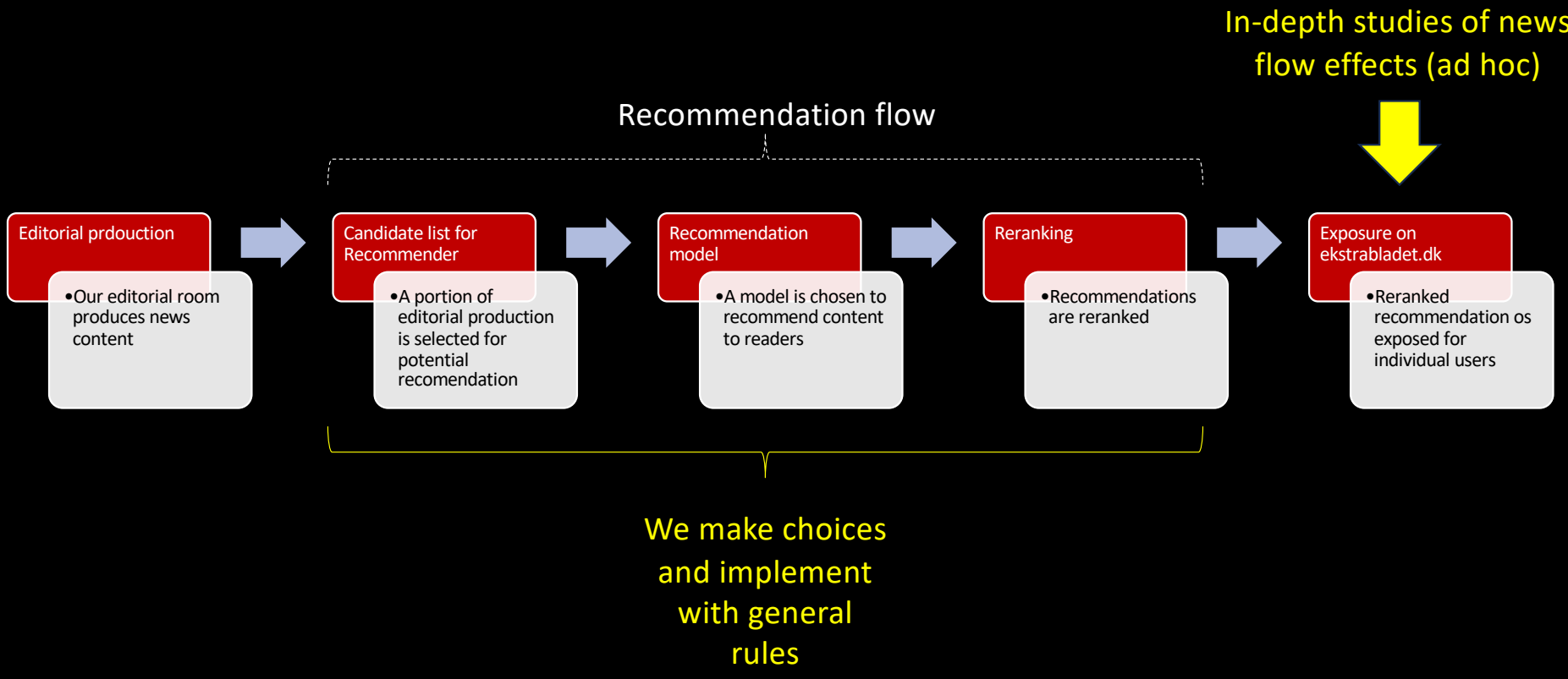


Store kønsforskelle

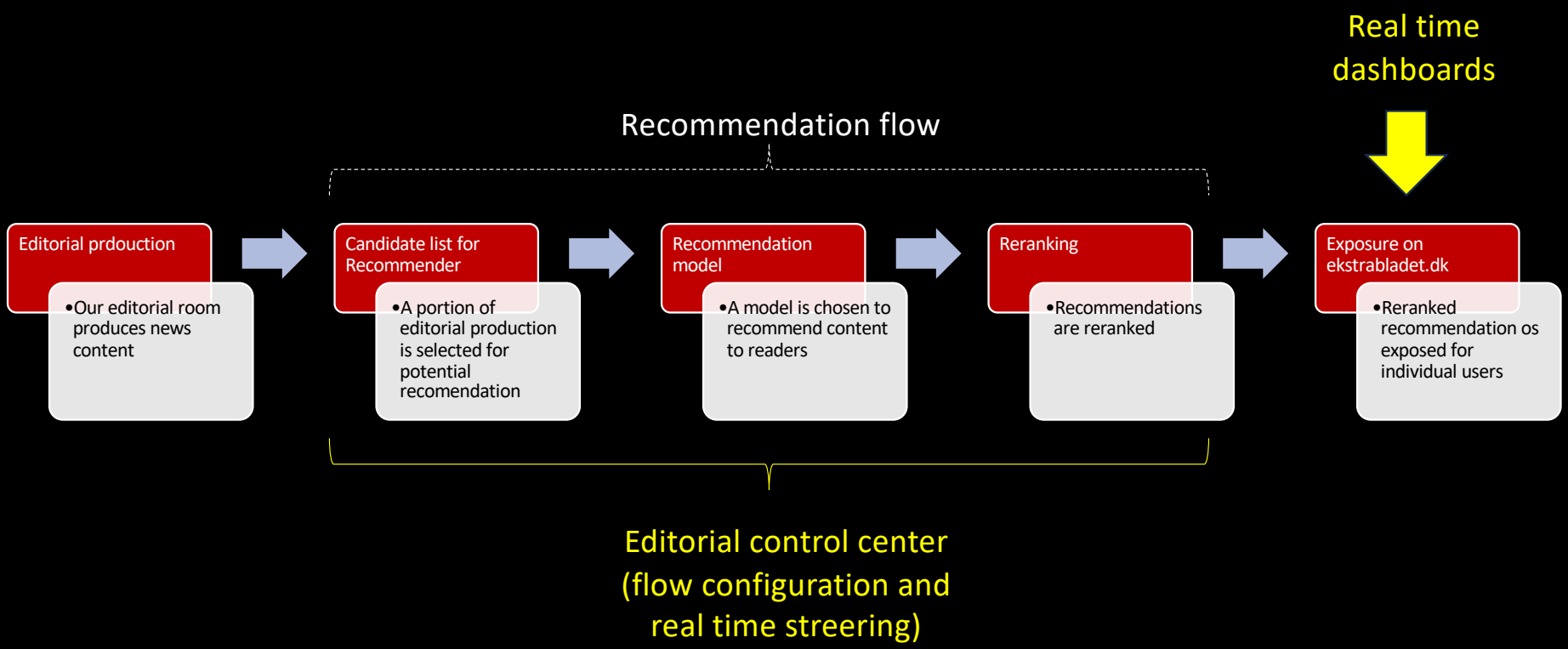
Langt mere sport til mænd, mere underholdning og kriminalitet til kvinder

Kilde: Online tests i Kruse et al (forthcoming)

Editorial alignment of recommender systems (today)



Editorial alignment of recommender systems (to be)



We invite you to reflect on beyond accuracy effects of your recommendation methods

An overview of key insights for Top@5 rankings.

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Thank you!

Kasper Lindskow

Head of AI

JP/Politikens Media Group

Reach out at kasper.lindskow@jppol.dk or on LinkedIn (Kasper Lindskow)

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RecSys' 24 Challenge

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Ekstra Bladet

Agenda

- News Recommendation
- EB-NeRD: *Ekstra Bladet's News Recommendation Dataset*
- Competition
- Q&A

News Recommendation

Predict which articles a user clicked on from a list of articles using the user's click history, session details, and personal metadata.

TECNICAL DIFFICULTIES PLEASE STAND BY

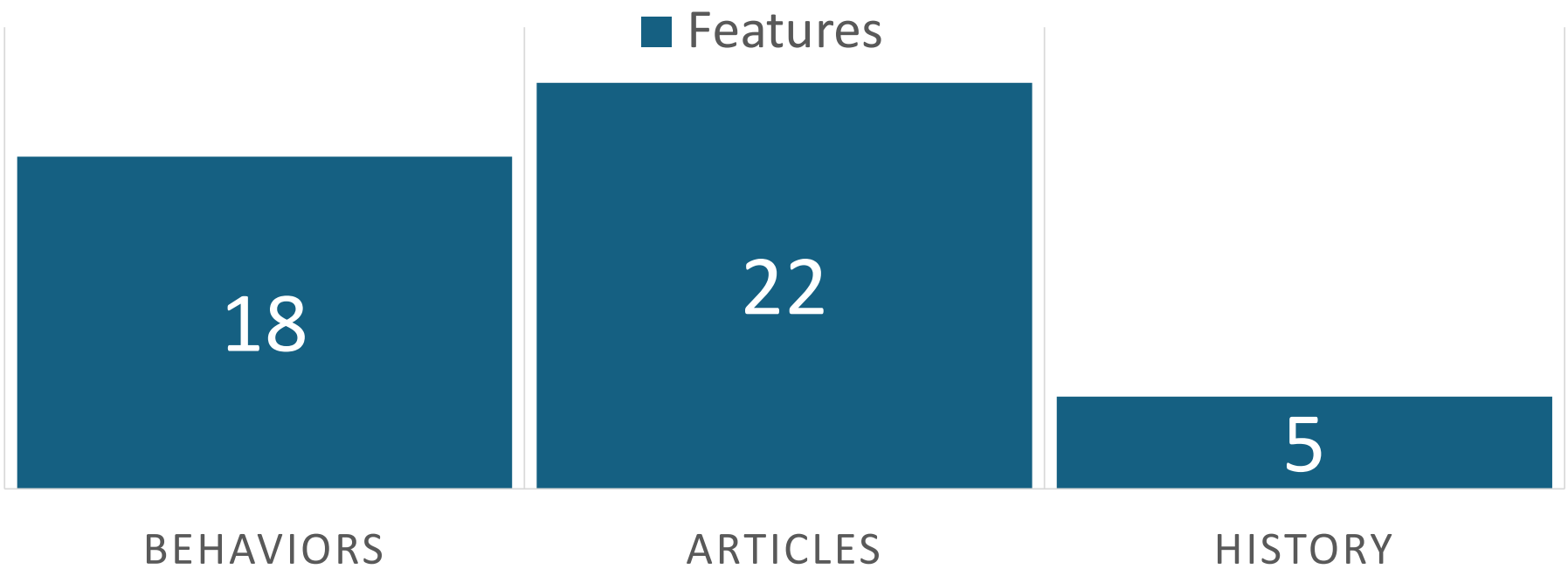
1) The **fast pace** of news and **rapid decay** of article relevance
2) The **shifts in readers interests** with the news agenda
3) The need to model interests based on **implicit feedback**
4) Lack of support for **low-resource languages**
5) The need to **align AI systems with editorial values (normative thinking)**, incl. avoidance of bias and filter bubbles

About

The **E**kstra **B**ladet **Ne**ws **R**ecommendation **D**ataset (EB-NeRD) was created to support advancements in news recommendation research. It was collected from user behavior logs at Ekstra Bladet. We collected behavior logs from active users during the 6 weeks from April 27 to June 8, 2023. This timeframe was selected to avoid major events, e.g., holidays or elections, that could trigger atypical behavior at Ekstra Bladet. The active users were defined as users who had at least 5 and at most 1,000 news click records in a three-week period from May 18 to June 8, 2023. To protect user privacy, every user was delinked from the production system when securely hashed into an anonymized ID using one-time salt mapping. Alongside, we provide Danish news articles published by Ekstra Bladet. Each article is enriched with textual context features such as title, abstract, body, categories, among others. Furthermore, we provide features that have been generated by proprietary models, including topics, named entity recognition (NER), and article embeddings

recsys.eb.dk/dataset/

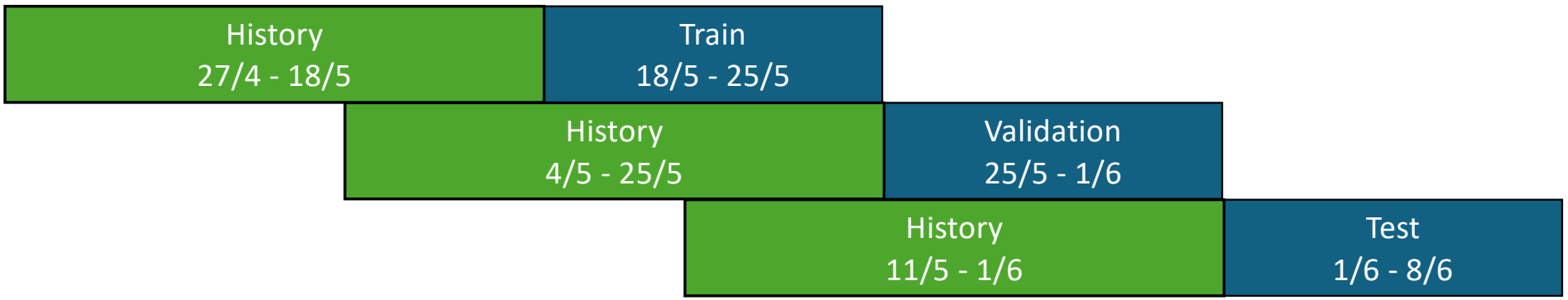
Dataset with Extensive Features



***Artifacts: document-embeddings and image-embeddings**

EB-NeRD in short

- 👨🏼 +2.3 million users
- 👨🏼‍💻 +380 million impression logs from Ekstra Bladet
- 🗞️ +125,000 news articles
- Collection period: 6 weeks from April 27 to June 8, 2023
- Datasets: train, validation, and test
  - Each split is **7 days of behavior logs** + **21 days of clicks history**



Competiton

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Ekstra Bladet

- Trainingset, Validationset, and Testset (removed labels, next-readtime, next-scroll percentage)
- Features / dataset utilization
  - **You are allowed to use ALL the open-source data**
  - *Total Inviews* & *Total Pageviews* (can be estimated even without us provided them)
  - Prohibiting features, preprocessing, etc. is extreme hard to enforce
  - Encourage you to share findings to everyone; intersting for participants, organizers, and future competitions
  - If you use these features or use the dataset in unortodox ways you have report the results with and without for your paper submission
- **The primary metric for the challenge is Area under the ROC curve (AUC)**

Evaluation

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Ekstra Bladet

- **Classification** (AUC), **Ranking** (Mean Reciprocal Rank, Normalized Discounted Cumulative Gain), and **Beyond Accuracy** (Diversity, Coverage, Serendipity, Novelty)
- Beyond-accuracy: 200.000 syntetic samples
  - All have the same article inviews, impression-ID, and timestamp
  - We created a candidate list – you can do this as well
  - Baselines: make_beyond_accuracy.ipynb
- **Don't shuffle the testset!**
  - Test-script splits evaluate classification/ranking and beyond-accuracy samples

Leaderboards

Date	AUC*	MRR*	NDCG5*	NDCG10*	Detailed Results
2024-04-10 09:11	**0.7251**	0.4928	0.5586	0.602	
2024-04-09 01:55	**0.7246**	0.4974	0.5613	0.6041	
2024-04-12 02:33	**0.7237**	0.4924	0.5574	0.601	
2024-04-09 07:38	**0.7077**	0.4755	0.5343	0.5802	
2024-04-08 11:28	**0.7064**	0.4722	0.5322	0.5783	
2024-04-07 07:23	**0.6977**	0.4591	0.5205	0.5679	

*: 50% of the testset

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Search by Team names

Best AUC per Team | Academic Teams

Rank	Team	AUC	MRR	NDCG@5	NDCG@10
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Academic leaderboard

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Ekstra Bladet

$3,500, $2,500, $1,500 + $2,500 (Best Academic Team)

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Rank	Team	AUC	MRR	NDCG@5	NDCG@10
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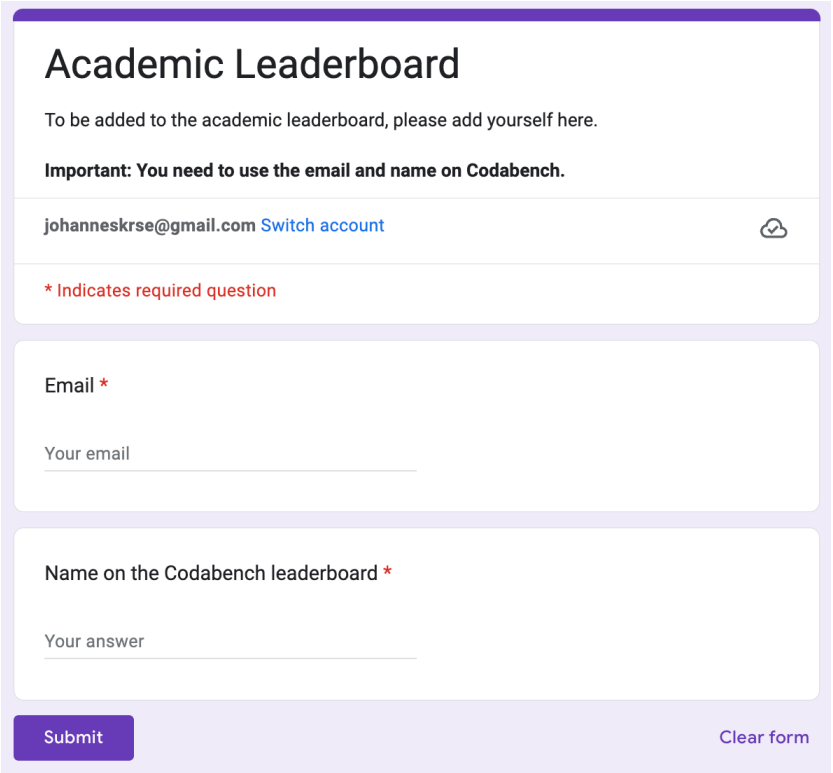
13	andrealari	**0.8153**	**0.6076**	**0.6779**	**0.6998**
235	testuser123	**0.5970**	**0.3774**	**0.4237**	**0.4965**
295	imane	**0.4998**	**0.3157**	**0.3490**	**0.4339**

Academic Leaderboard Form



Call for papers (TBA)

The topics of interest include, but are not limited to:

- Benchmarking and evaluation of recommender systems on EB-NeRD
- Novel model architectures for news recommendation
- Dataset analyses and preprocessing techniques
- Contributions focused on beyond accuracy, such as fairness, diversity, coverage, etc.
- Scalability and efficiency of recommendation algorithms
- Cross-domain and multi-modal recommendations

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Ekstra Bladet

Q&A