The Telegraph

Understanding Recommender Systems

Hervé Schnegg

Keith Richards
Drugs are bland these days
I'll never get a knighthood (unlike Mick)
I haven't had a drink for two months
Eddie Jones
I was assaulted on the train by fans
The Daily Telegraph
Markle urges women to feel empowered
Remainers try to stop Brexit with 'proxy war'
Boris allies say Irish issue is being exploited as Major raises prospect of new referendum
High street brands close to collapse
Iran angers Israel with Syria missile base
Mosley faces police investigatio
Puzzles 18
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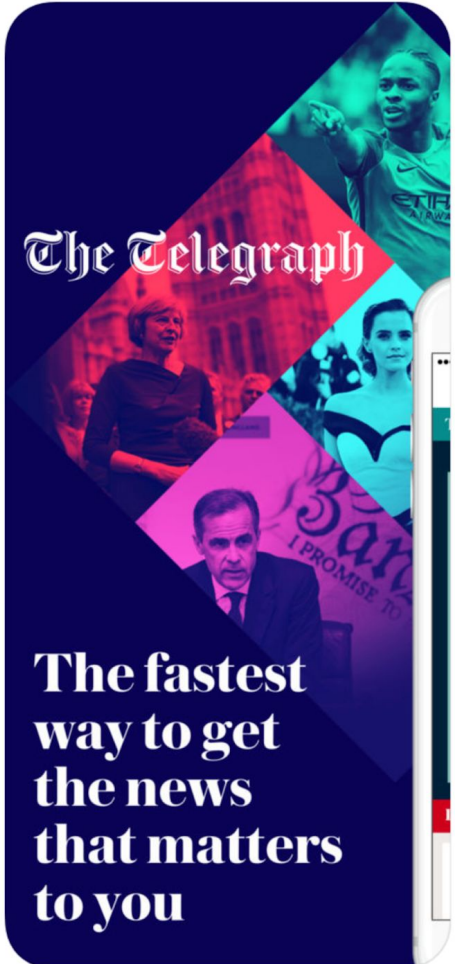
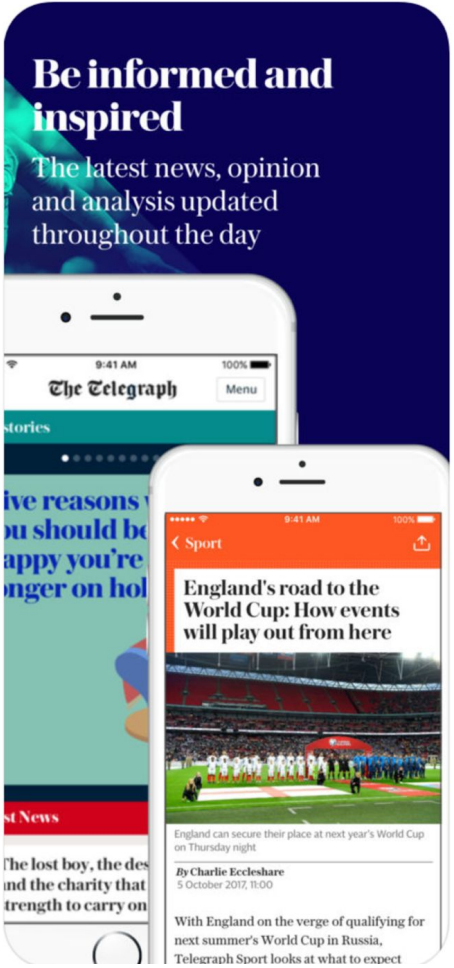

The Telegraph
The fastest way to get the news that matters to you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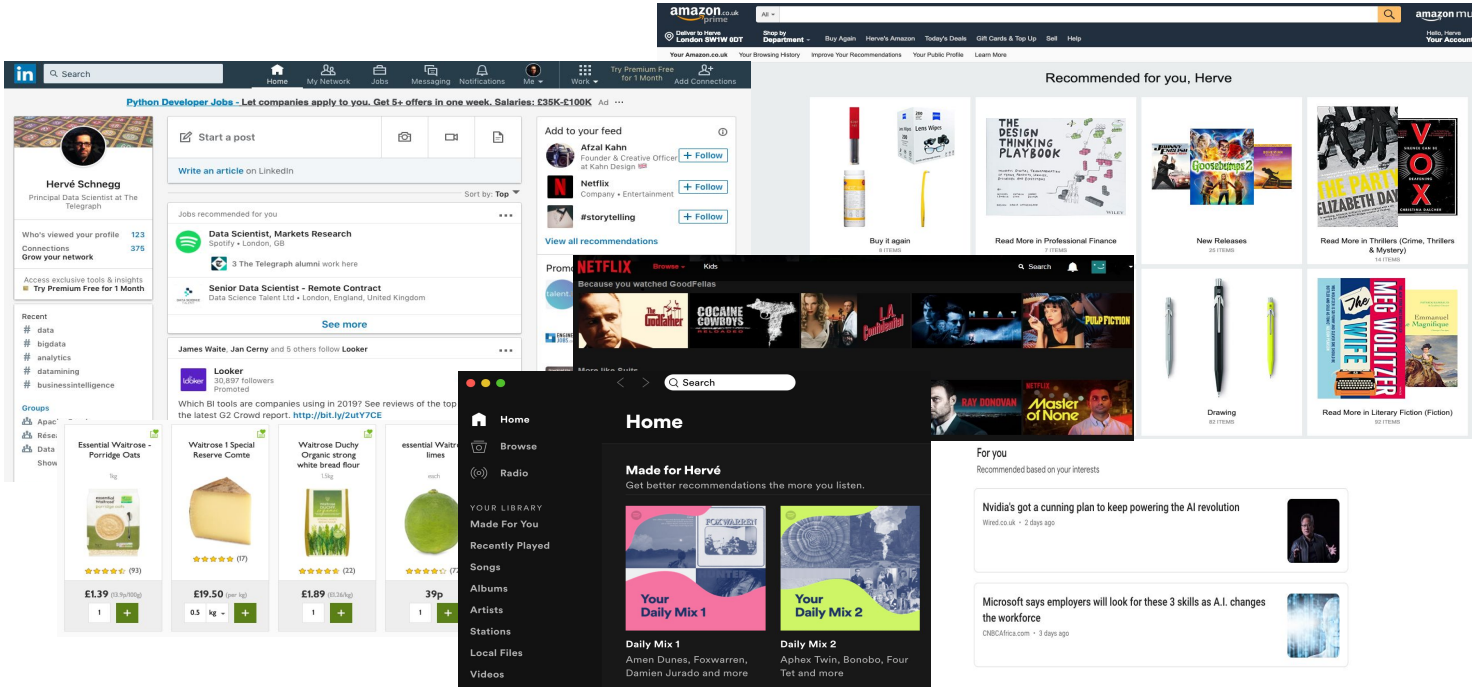
The latest news, opinion and analysis updated throughout the day
The Telegraph
Menu
Sport
England's road to the World Cup: How events will play out from here
England can secure their place at next year's World Cup on Thursday night
By Charlie Eccleshare
5 October 2017, 11:00
With England on the verge of qualifying for next summer's World Cup in Russia, Telegraph Sport looks at what to expect

Recommender Systems Are Everywhere



The Telegraph

Why Do We Need Them?

The Telegraph

75%

35%

“Already, 35 percent of what consumers purchase on Amazon and 75 percent of what they watch on Netflix come from product recommendations based on such algorithms.”

Source: How retailers can keep up with consumers, McKinsey & Company, 2013

Are There Any Risks?

The Telegraph

"An **echo chamber** is a metaphorical description of a situation in which beliefs are amplified or reinforced by communication and repetition inside a closed system. By visiting an echo chamber, people are able to seek out information which reinforces their existing views."

Source: Echo chamber (media), Wikipedia

"A **filter bubble** is a state of intellectual isolation that can result from personalized searches when a website algorithm selectively guesses what information a user would like to see based on information about the user, such as location, past click-behavior and search history."

Source: Filter bubble, Wikipedia

Approaches To Content Recommendation

The Telegraph

Collaborative filtering
"People like you…"

User	Story 1	Story 2	Story 3	Story 4
1	x	x		x
2	x	x		
3	x	x	x	
4		x	x	x

amazon

Customers who viewed this item also viewed

Content based
"Related content…"

The New York Times

Cannes, Where Weinstein Reigned, Reckons With #MeToo Fallout

"I'm super-enthusiastic, because the other way of looking at things is that everything remains to be done," Ms. Husson said. "A golden era could now begin. We must seize the moment."

Matthew Anderson contributed reporting.

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Related Coverage

May 10, 2018 The Cannes Film Festival Opens Amid Disruptions

May 15, 2018 Spike Lee Turns a Period Piece Into a Protest of the Trump Era

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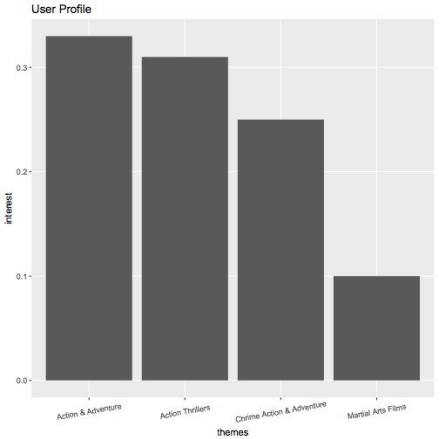
SHOW ALL

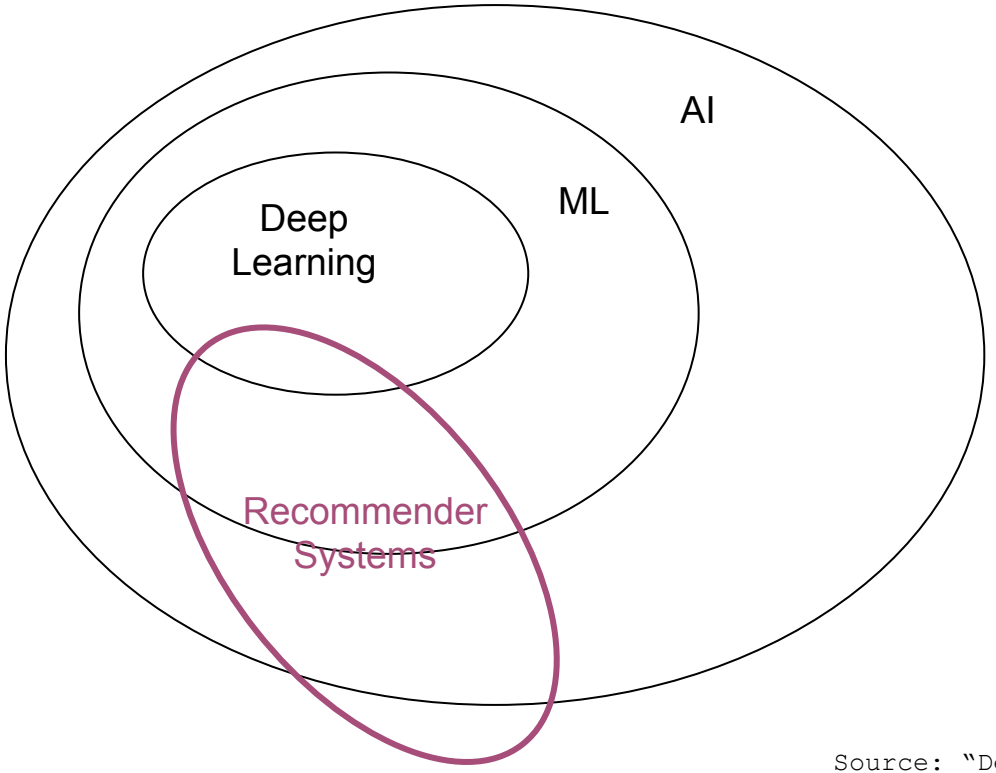
User profile
"Based on your preferences…"



NETFLIX

Jargon Buster

The Telegraph



Source: "Deep Learning",
Ian Goodfellow and Yoshua Bengio and Aaron Courville,
MIT Press, 2016

Why Not A Single Recommender?

The Telegraph

They all work differently

They are promoting different behaviours

They should be selected based on the **type of content**, the **user journey** and **our objectives**

So, What Do We Need?

The Telegraph

Engage our readers

Help them find relevant content

Offer them a personalised experience

Guide them to content with a higher commercial value

How to Evaluate Recommenders

The Telegraph

Accuracy	Are users visiting the recommended pages
Diversity	Intra - how different are the N recommended articles, Temporal - do I see different recommendations when I come back
Novelty	Had the user seen the recommended pages before
Coverage	Percentage of article ever recommended Percentage of users for which a recommendation can be made
Serendipity	Recommendations are unexpected and useful

Source: "Predicting Online Performance of News Recommender Systems Through Richer Evaluation Metrics", A Maksai, F Garcin, B Faltings, Proceedings of the 9th ACM Conference on Recommender Systems, 2015

Where Are We Going?
The Internet of Me?

The Telegraph

"If we have 4.5 million customers, we shouldn't have one store. We should have 4.5 million stores"

Bezos

vs.

"A squirrel dying in your front yard may be more relevant to your interests right now than people dying in Africa"

Zuckerberg

Convenience of commerce sites knowing my habits

vs.

Role of the media

Risk of the filter bubbles

The Telegraph

Thank you!

@herveschnegg