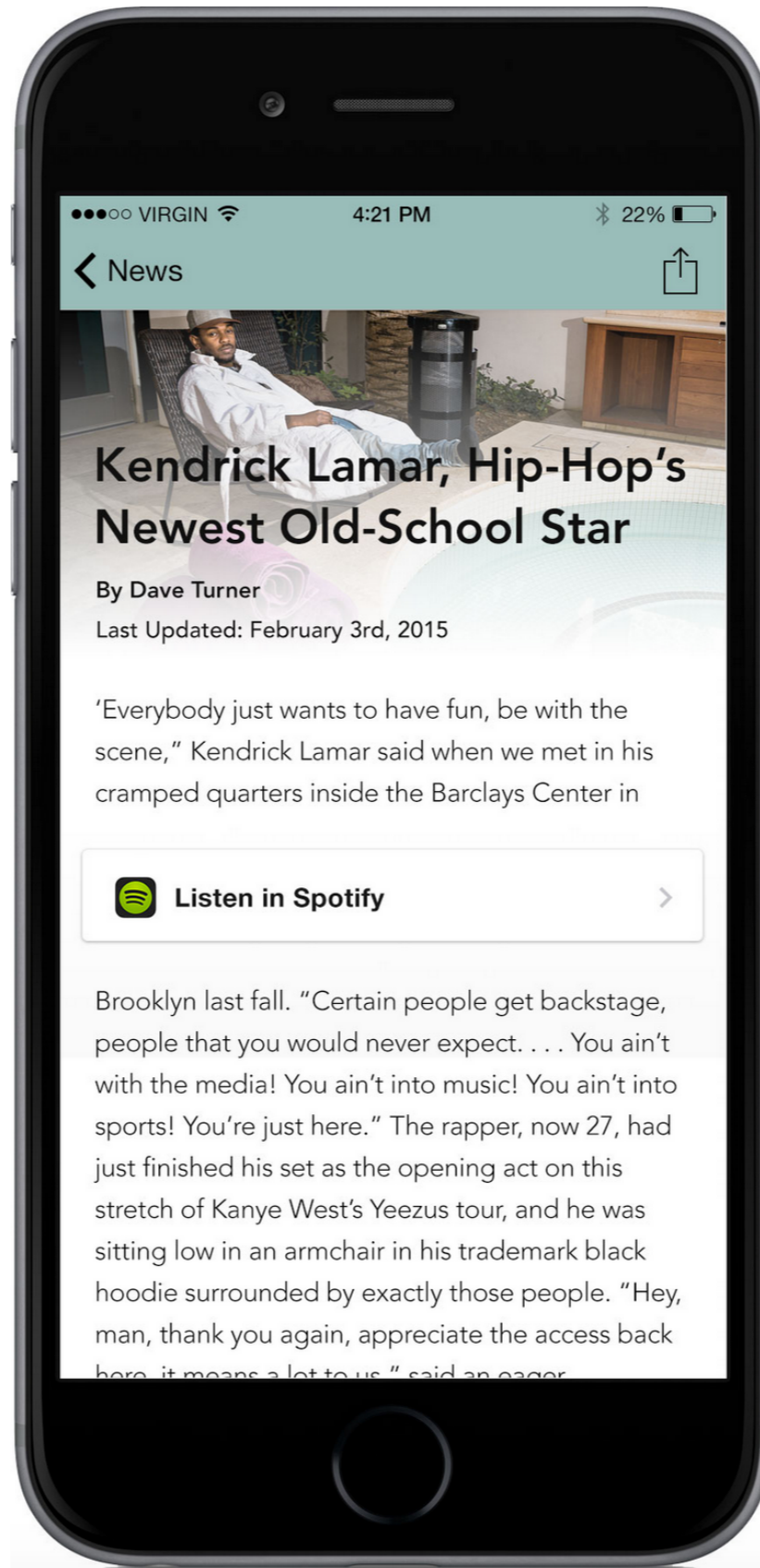


Extracting **keywords** from text

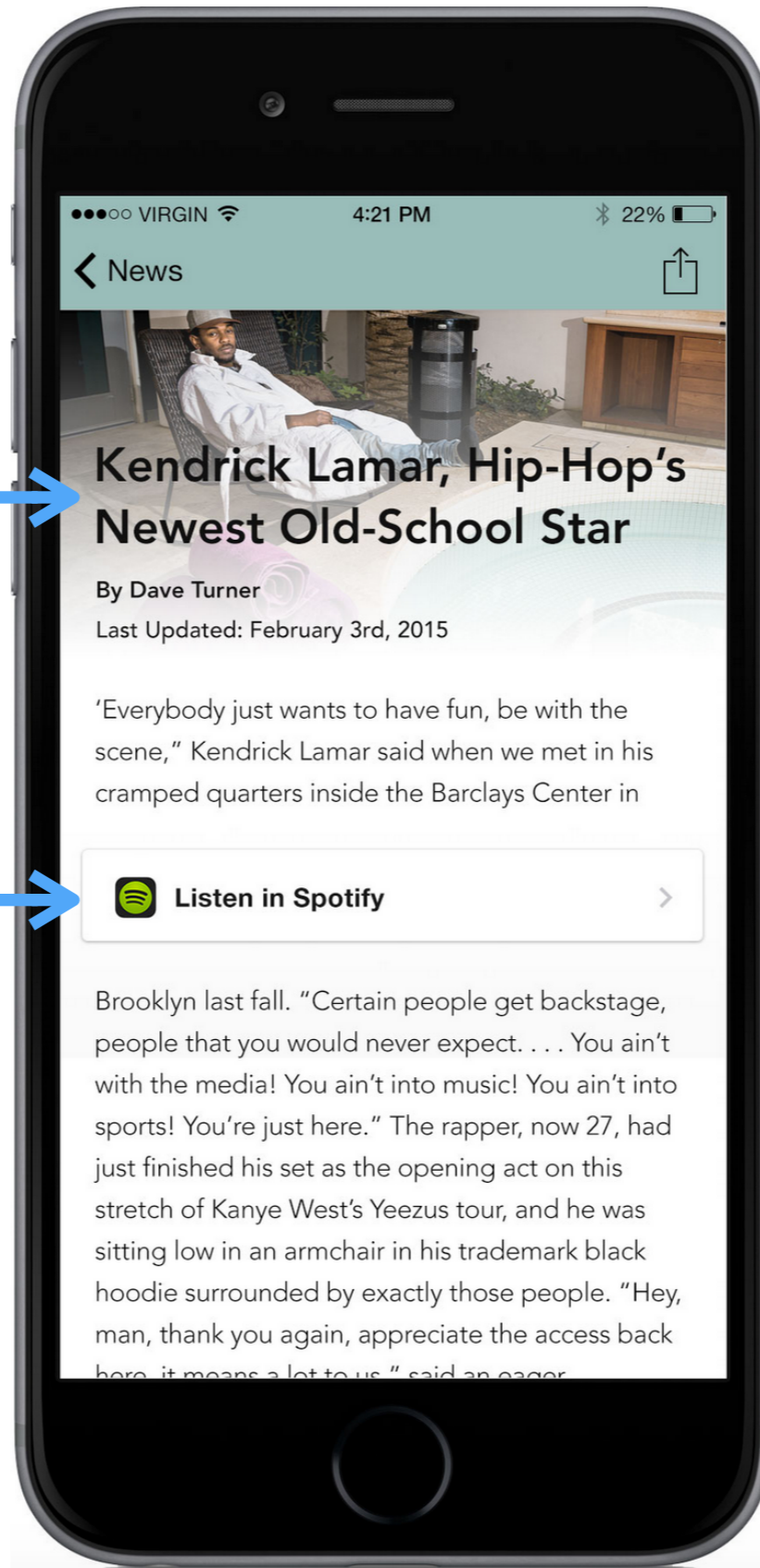
Lavanya Sharan
Insight Data Science Fellow

with **URX**

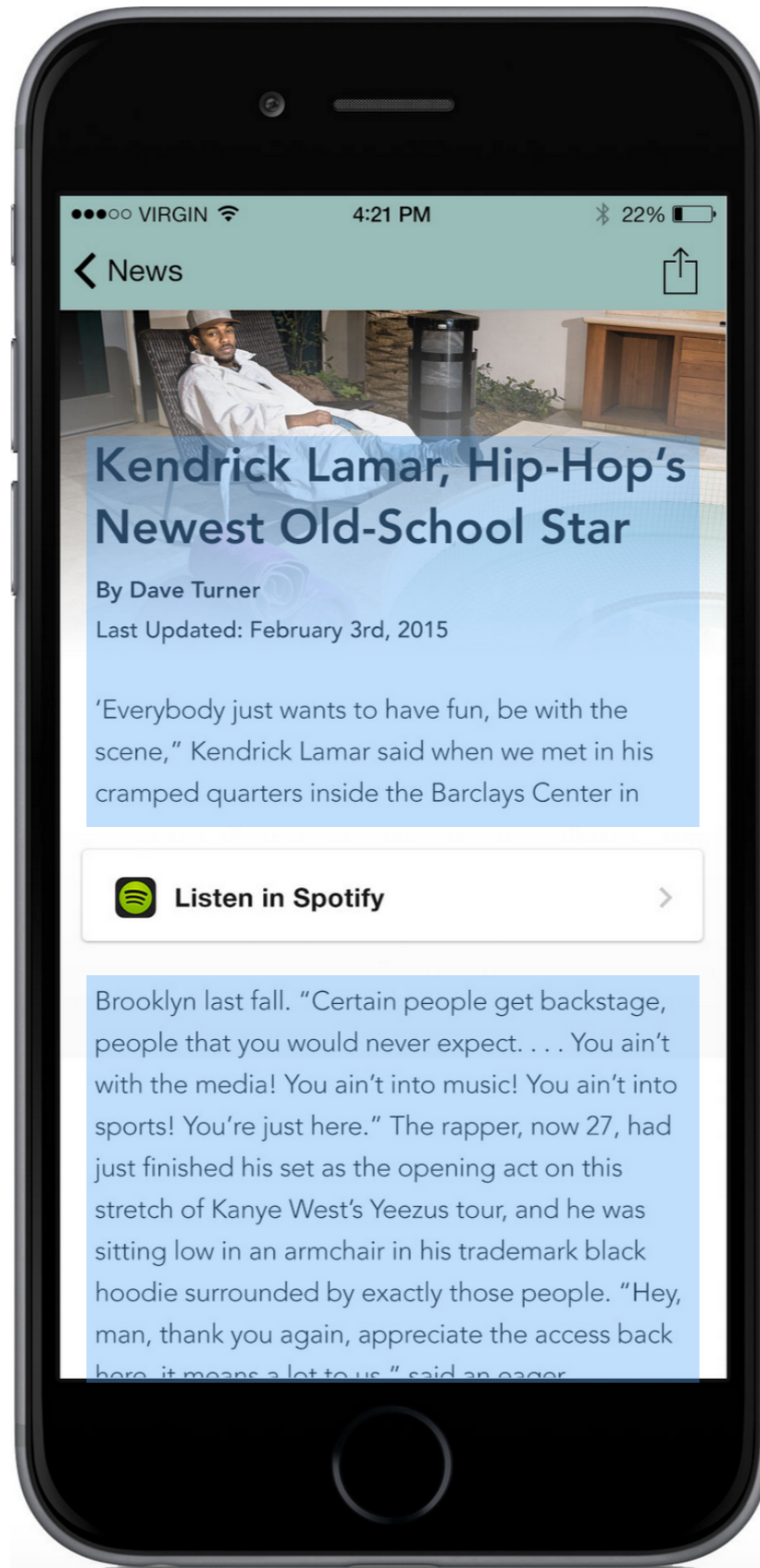


URX

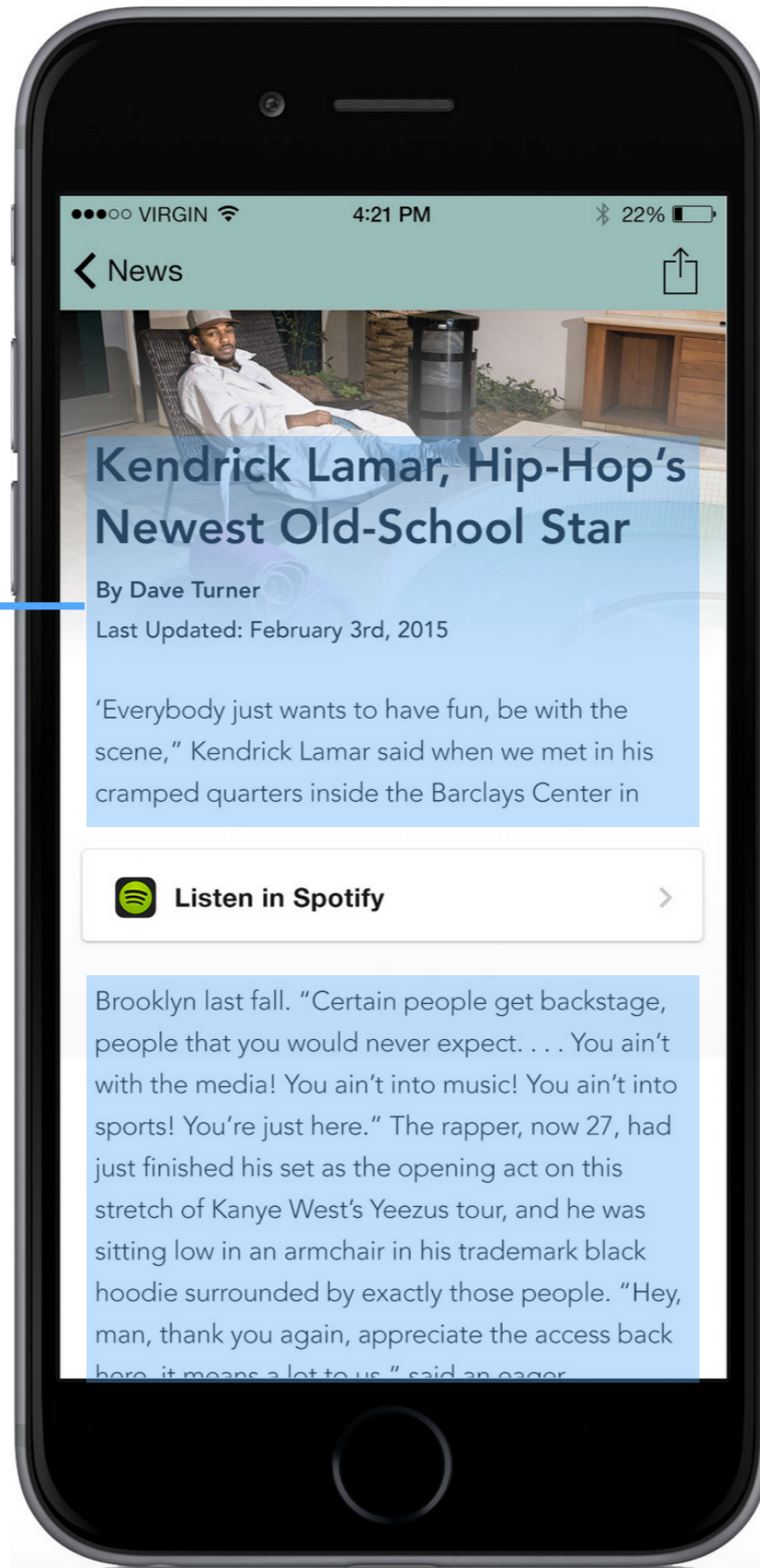
matching ads
to content



URX



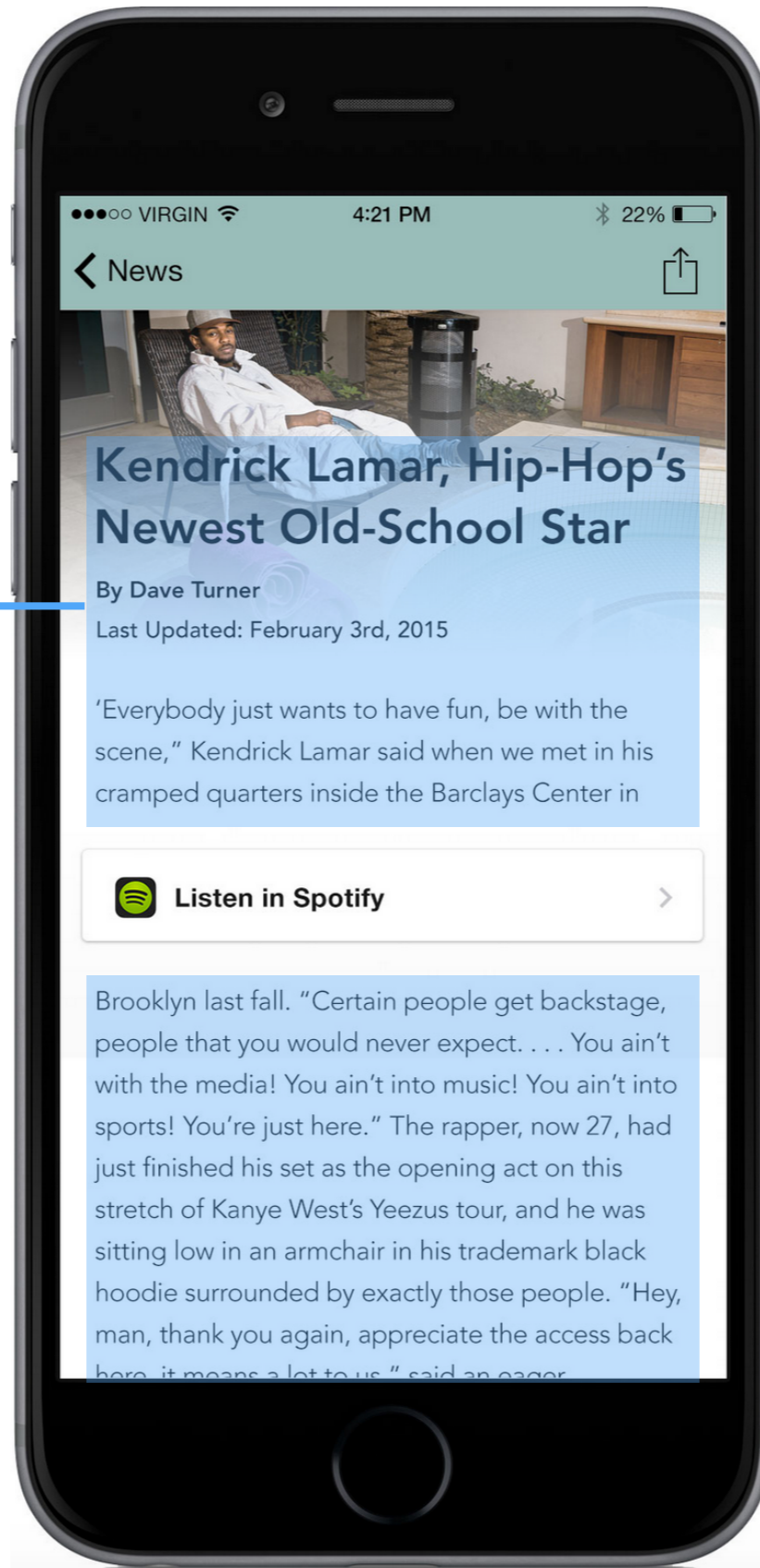
URX



keywords



URX

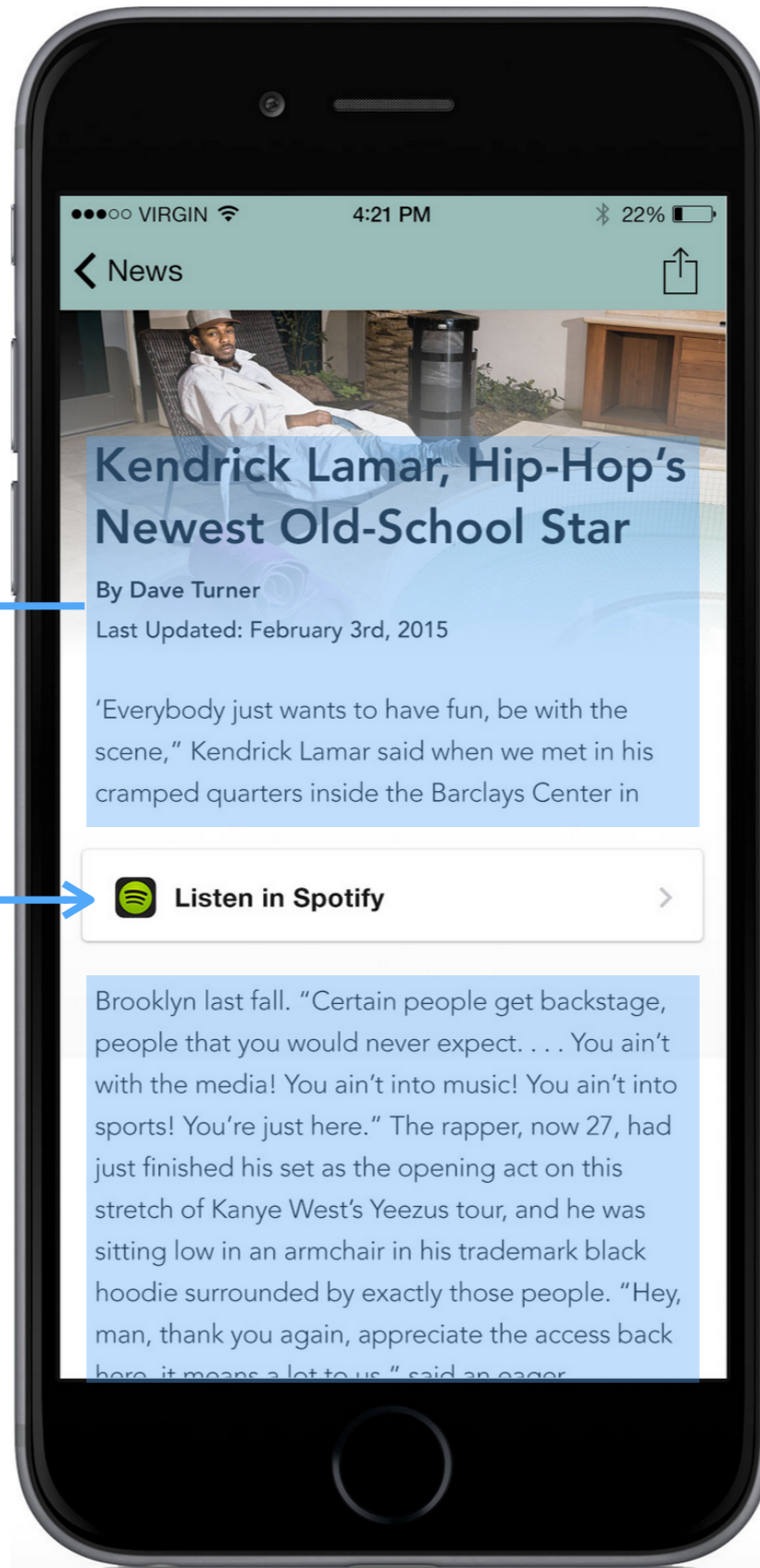


keywords



matching ad

URX



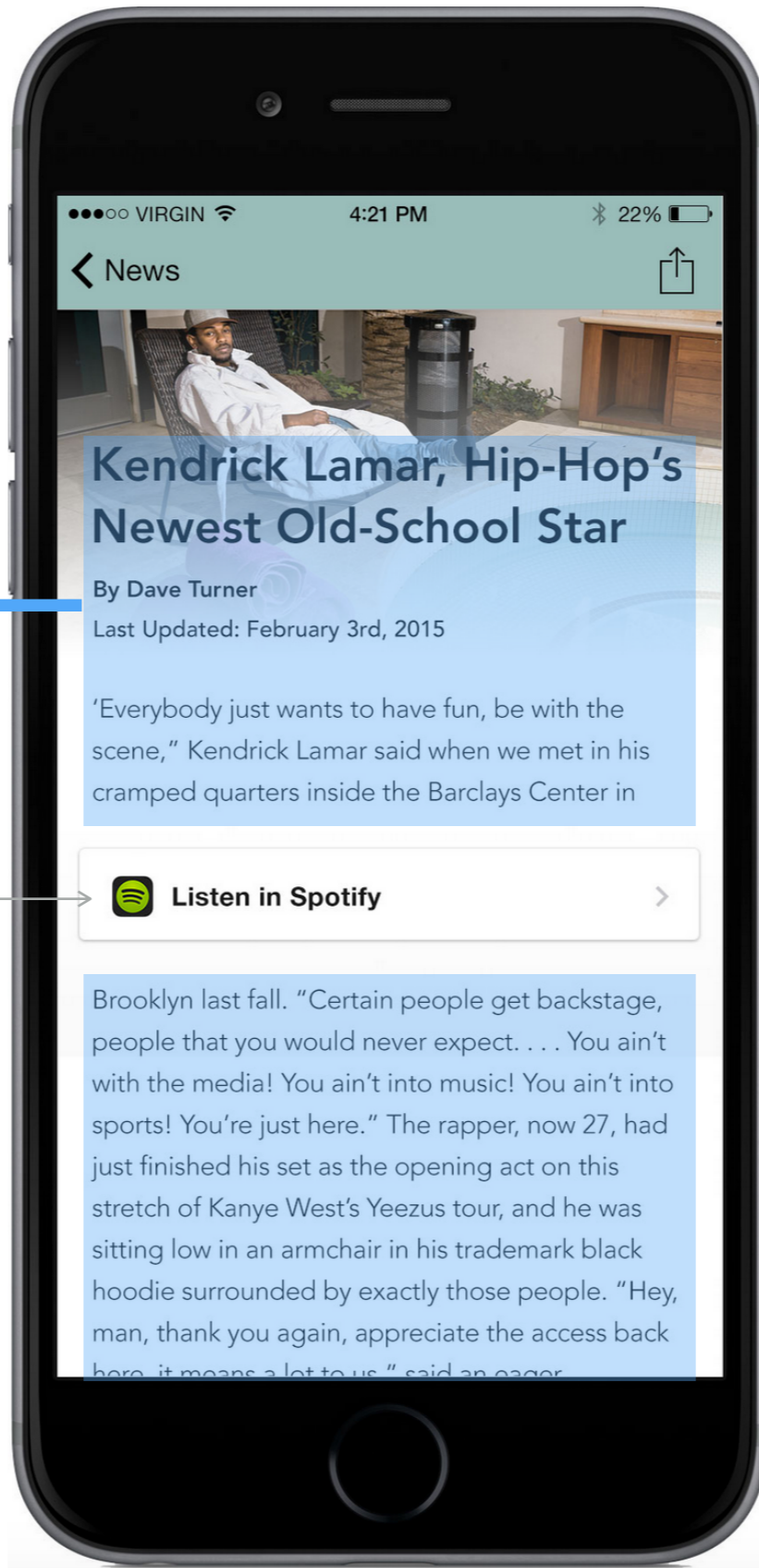
keywords



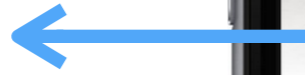
matching ad



URX



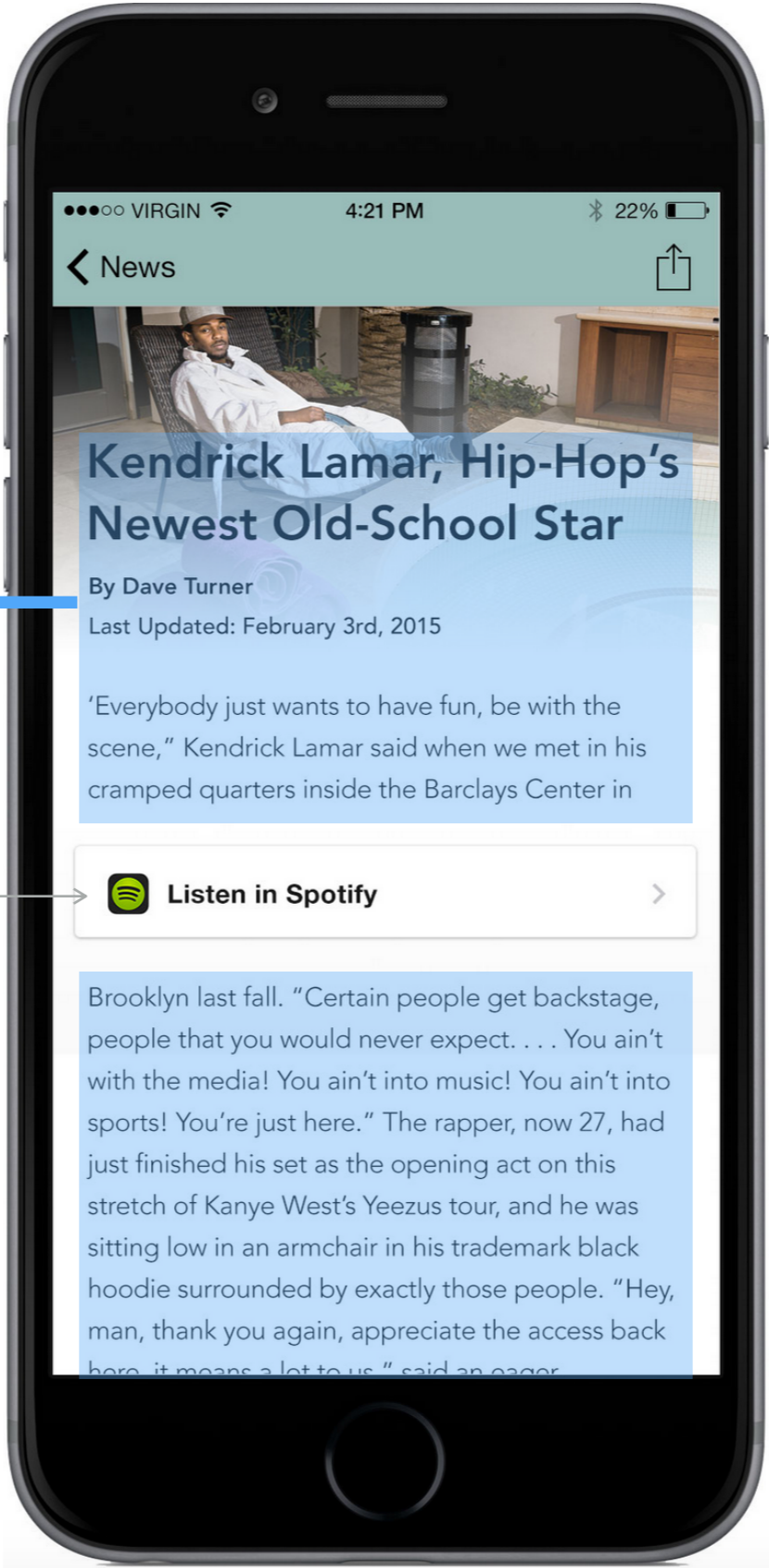
keywords



matching ad

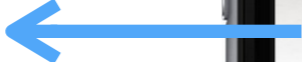


URX



keywords

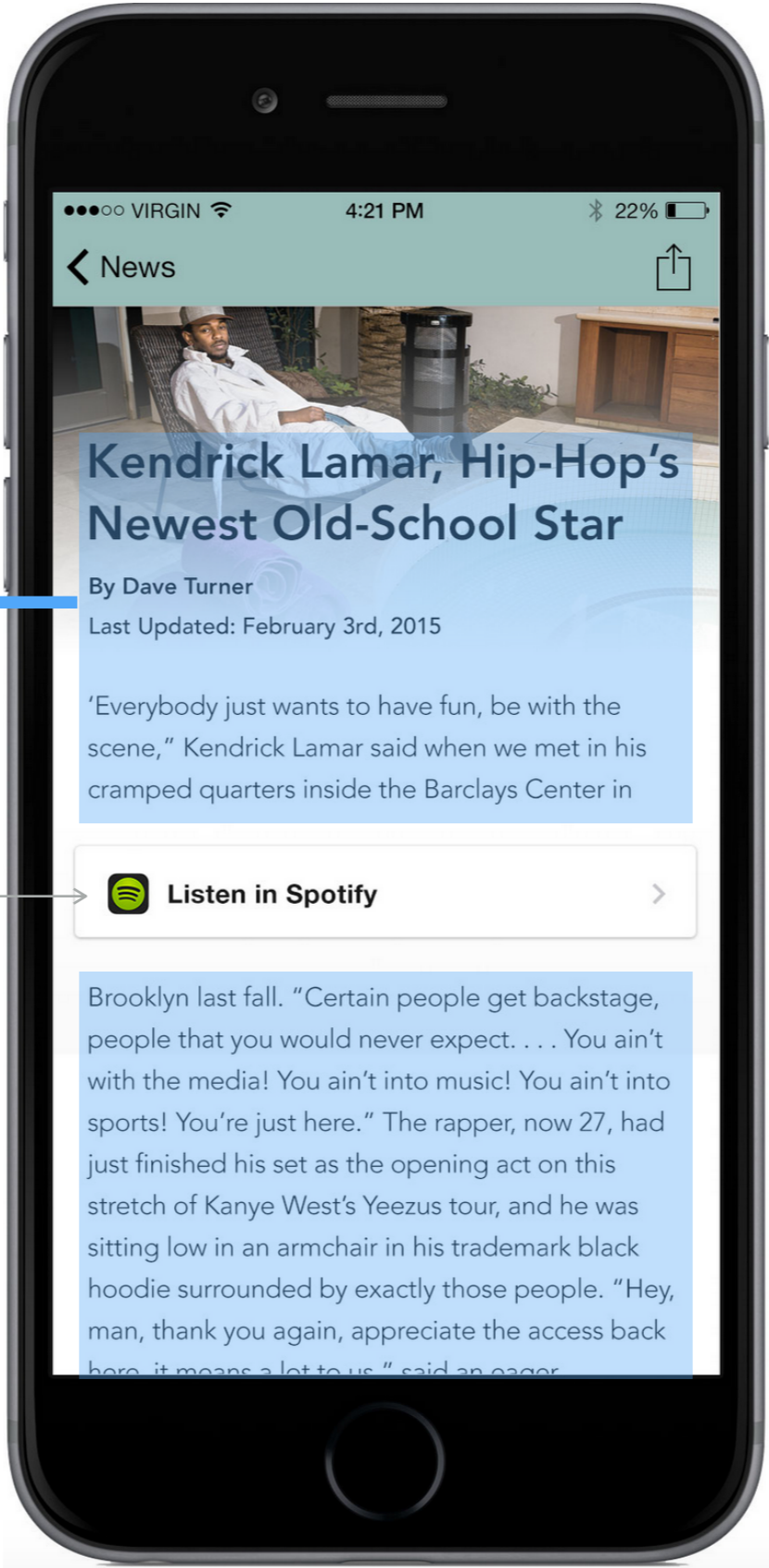
?



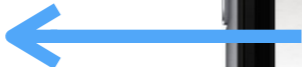
matching ad



URX



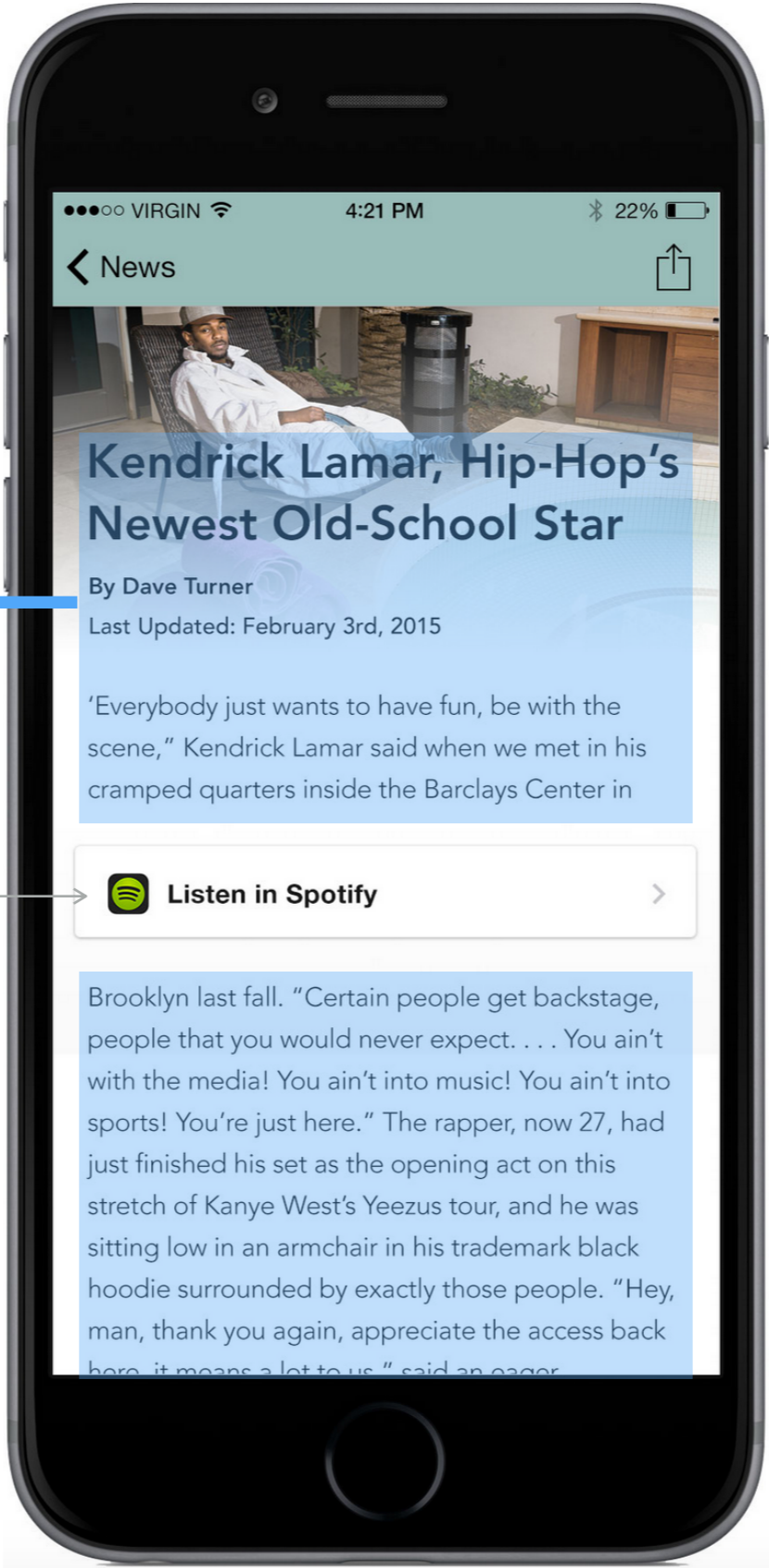
keywords



matching ad



URX



keywords



matching ad



URX

A machine learning model for keyword extraction



A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner

Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

A machine learning model for keyword extraction



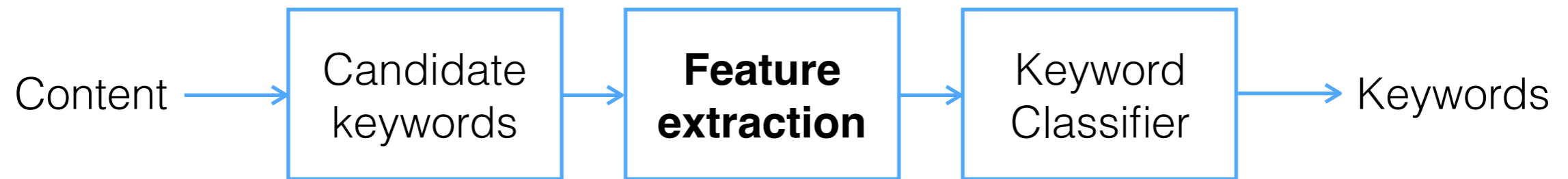
Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner
Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

→ **Brooklyn**

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star

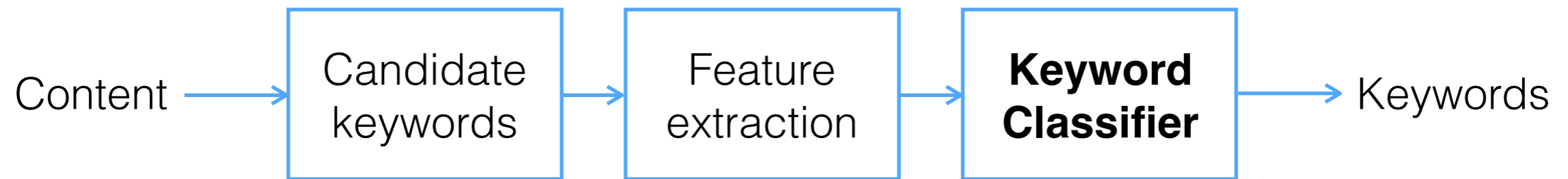
By Dave Turner
Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

→ **Brooklyn** →

Term length
Wikipedia freq
TF-IDF score
...

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner
Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

→ **Brooklyn** →

Term length
Wikipedia freq
TF-IDF score
...

→ Logistic regression

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner
Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

→ **Brooklyn** →

Term length
Wikipedia freq
TF-IDF score
...

→ Logistic regression

Crowd500

500 news articles
Human-annotated keywords
9:1 training-test split

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star
By Dave Turner
Last Updated: February 3rd, 2015

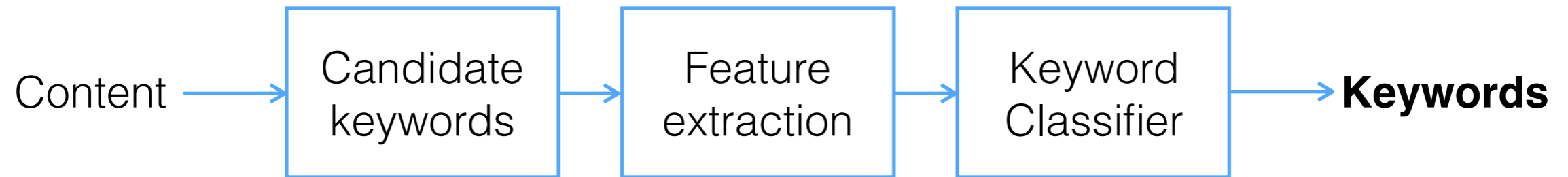
"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

→ **Brooklyn** →

Term length
Wikipedia freq
TF-IDF score
...

→ Logistic regression

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner
Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

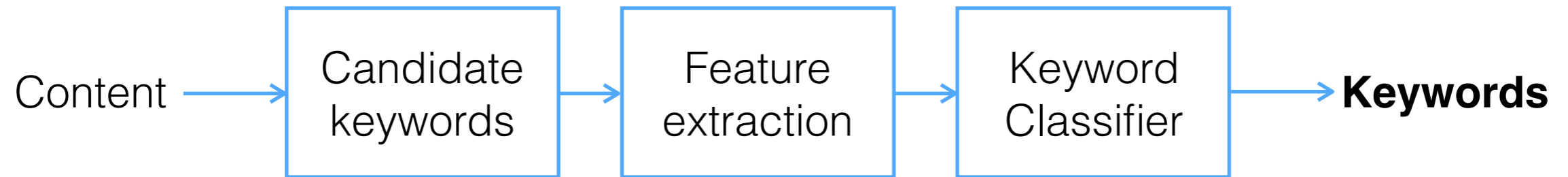
→ **Brooklyn** →

Term length
Wikipedia freq
TF-IDF score
...

→ Logistic regression →

P(keyword) = 0.81

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star
By Dave Turner
Last Updated: February 3rd, 2015

"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

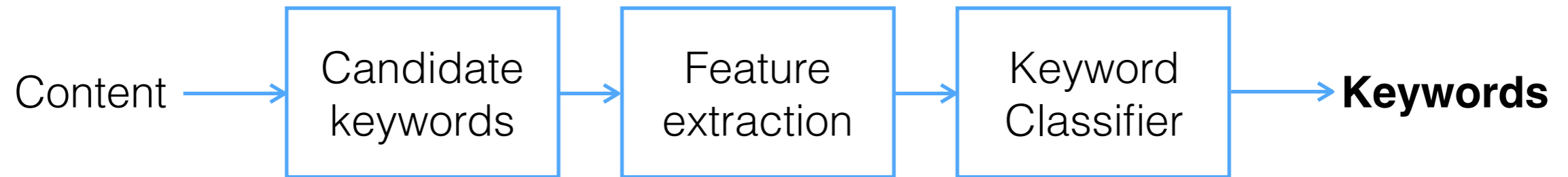
→ **Brooklyn** →

Term length
Wikipedia freq
TF-IDF score
...

→ Logistic regression →

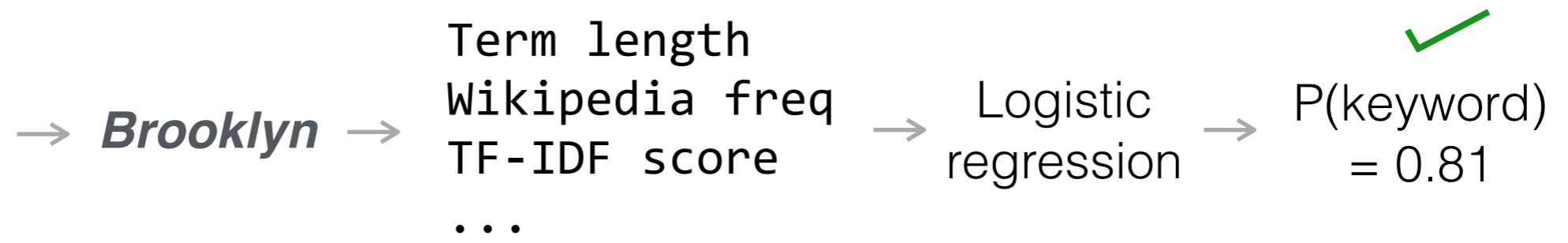
P(keyword) = 0.81 ✓

A machine learning model for keyword extraction



Kendrick Lamar, Hip-Hop's Newest Old-School Star
By Dave Turner
Last Updated: February 3rd, 2015

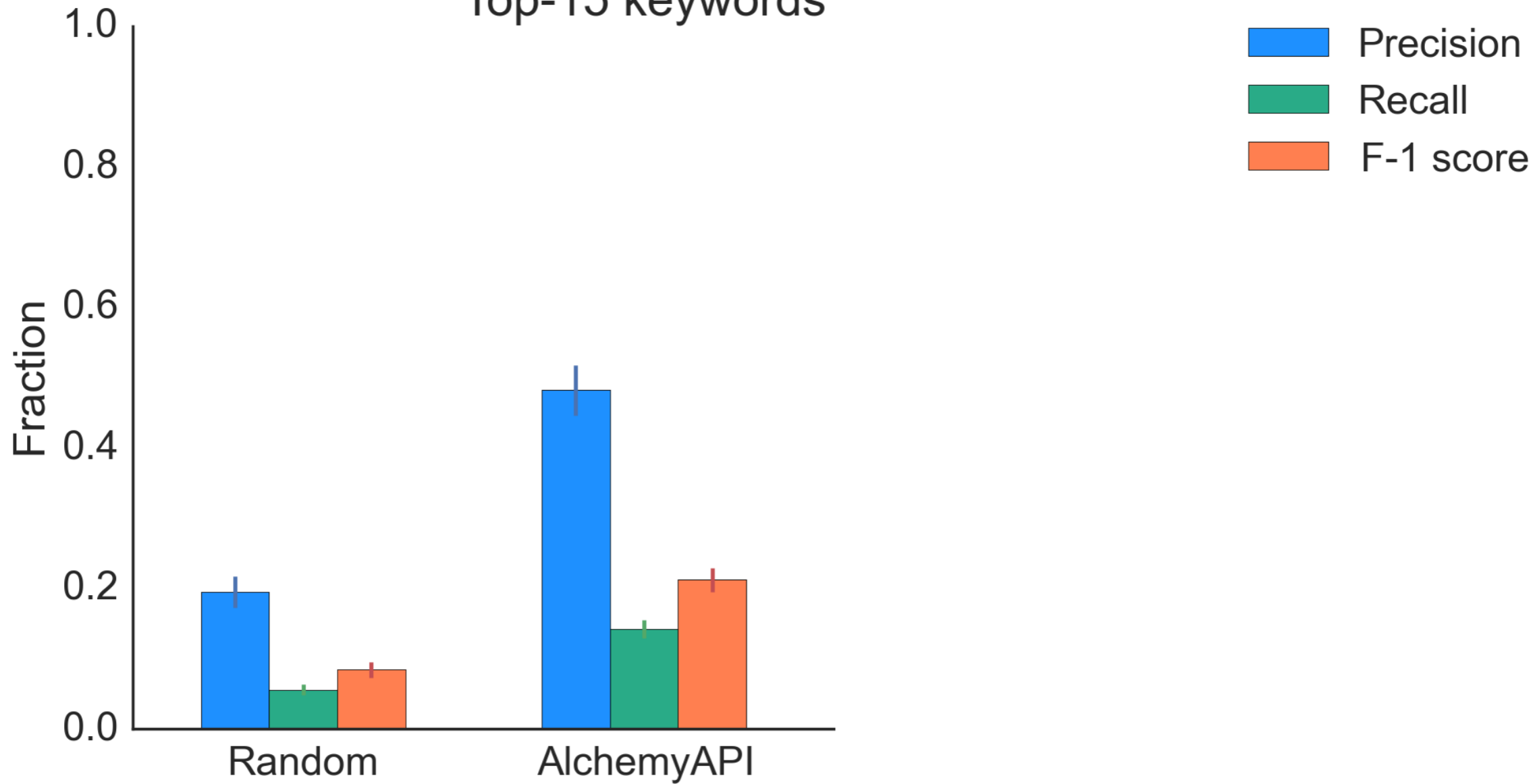
"Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back



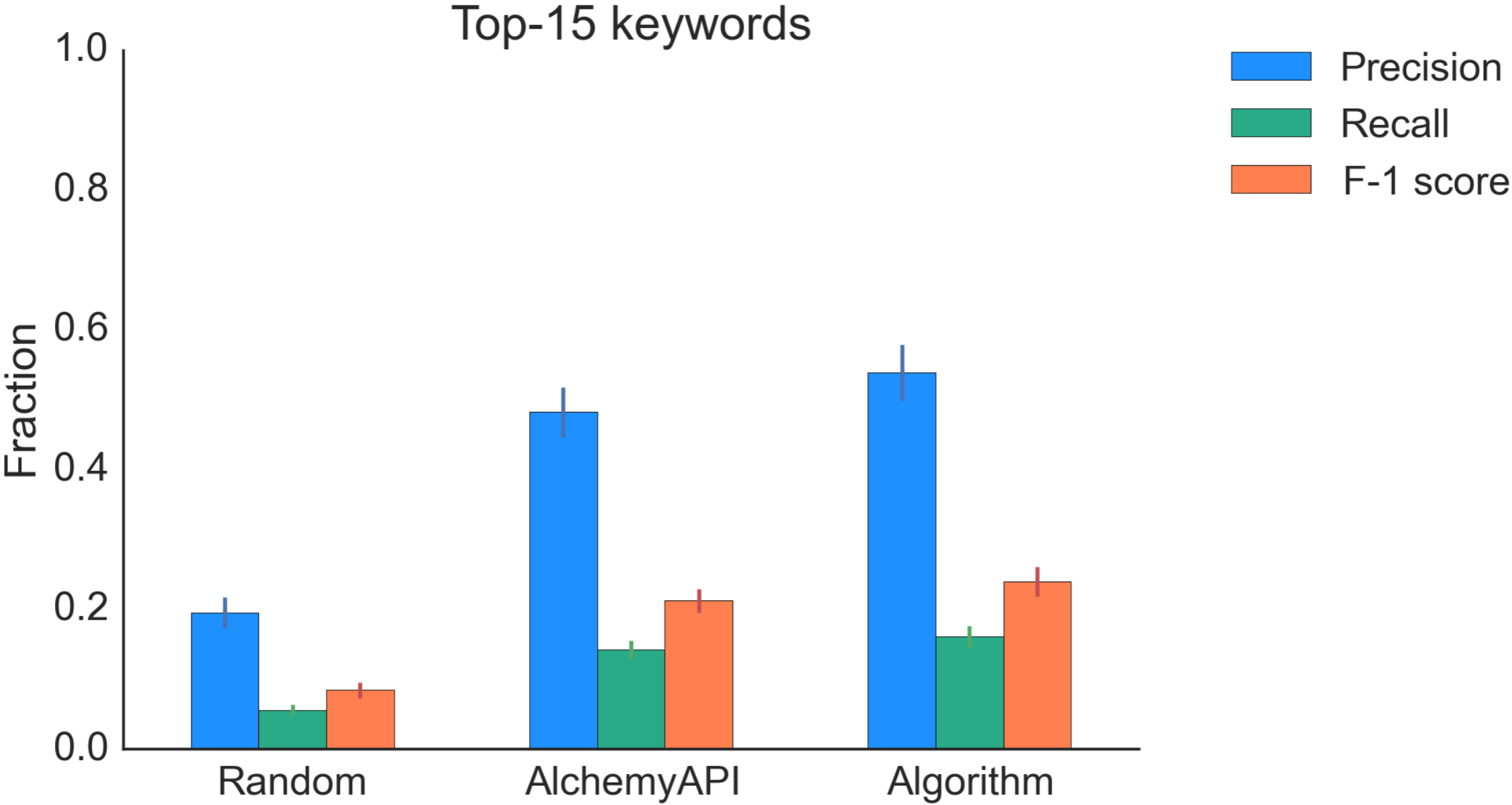
nltk



Top-15 keywords



State-of-the-art performance on Crowd500



Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner

Last Updated: February 3rd, 2015

'Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back



Kendrick Lamar, Hip-Hop's Newest Old-School Star

By Dave Turner

Last Updated: February 3rd, 2015

'Everybody just wants to have fun, be with the scene," Kendrick Lamar said when we met in his cramped quarters inside the Barclays Center in Brooklyn last fall. "Certain people get backstage, people that you would never expect. . . . You ain't with the media! You ain't into music! You ain't into sports! You're just here." The rapper, now 27, had just finished his set as the opening act on this stretch of Kanye West's Yeezus tour, and he was sitting low in an armchair in his trademark black hoodie surrounded by exactly those people. "Hey, man, thank you again, appreciate the access back

Kendrick Lamar

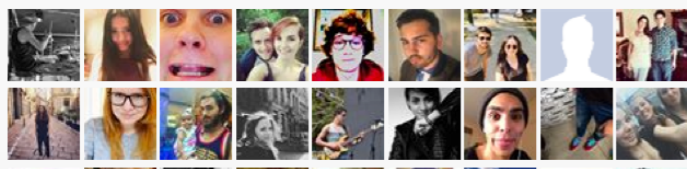
Tour History 2010 - 2015

On Tour | 4 Upcoming Tour Dates





1,082,800 trackers



| TOUR DATES | | PAST DATES | |
|--------------|------------------------------|-----------------------|-----------------------------|
| Date | Venue | Location | |
| Jul 11, 2014 | Winston Far, | Saugerties, NY | I was there |
| Jun 28, 2014 | Mid-America Center | Council Bluffs, IA | I was there |
| Jun 21, 2014 | Scottrade Center | St Louis, MO | I was there |
| Jun 20, 2014 | BBVA Compass Stadium | Houston, TX | I was there |
| Jun 14, 2014 | Joe Louis Arena | Detroit, MI | I was there |
| Jun 12, 2014 | BB&T Center | Sunrise, FL | I was there |
| Jun 07, 2014 | Gorge Amphitheatre | George, WA | I was there |
| Jun 06, 2014 | Fiddler's Green Amphitheater | Greenwood Village, CO | I was there |
| Jun 05, 2014 | Optimus Primavera Sound | Porto, Portugal | I was there |
| May 31, 2014 | Primavera Sound Festival | Barcelona, Spain | I was there |
| May 30, 2014 | Xfinity Center | Mansfield, MA | I was there |

Keyword finder: automatic keyword extraction from text

October 14, 2015 Cameron Grace

Dr. Lavanya Sharan, PhD, studies human visual perception from a behavioral and a computational perspective at M.I.T. As part of the [Insight Data Science Fellows Program](#), she worked with URX to help us tackle an important business question: how can we use context to match publisher page content with advertisers? This gives an overview of her [impressive findings and deliverables](#) in collaboration with URX.

Problem

For my project, I partnered with [URX](#), a San Francisco-based startup that helps advertisers build brand discovery experiences. The problem URX wants to solve is the following: **how to match advertisers to content providers in a context-specific way?** For example, if the content consists of a [news article](#) about Kendrick Lamar, a hip-hop musician, a matching ad would link to Kendrick Lamar's [latest album](#). One way to accomplish this matching is to extract keywords from the news article, use those keywords to search a database of advertisers, and then serve the best matching ad.

PARTNER WITH URX

JOIN NEWSLETTER

[Keyword finder: automatic keyword extraction from text](#)

Oct 14, 2015

[URX and Bitly make it easy for marketers to integrate deep links into mobile campaigns.](#)

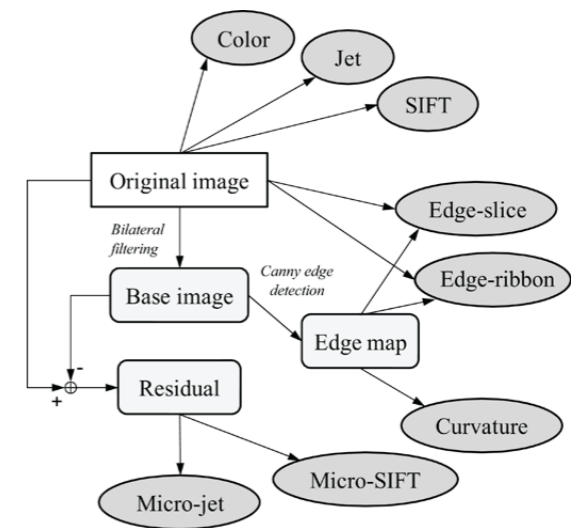
Sep 16, 2015

[Fleksy Partners with URX to Bring Relevant Actions to World's Fastest Keyboard](#)

Aug 13, 2015

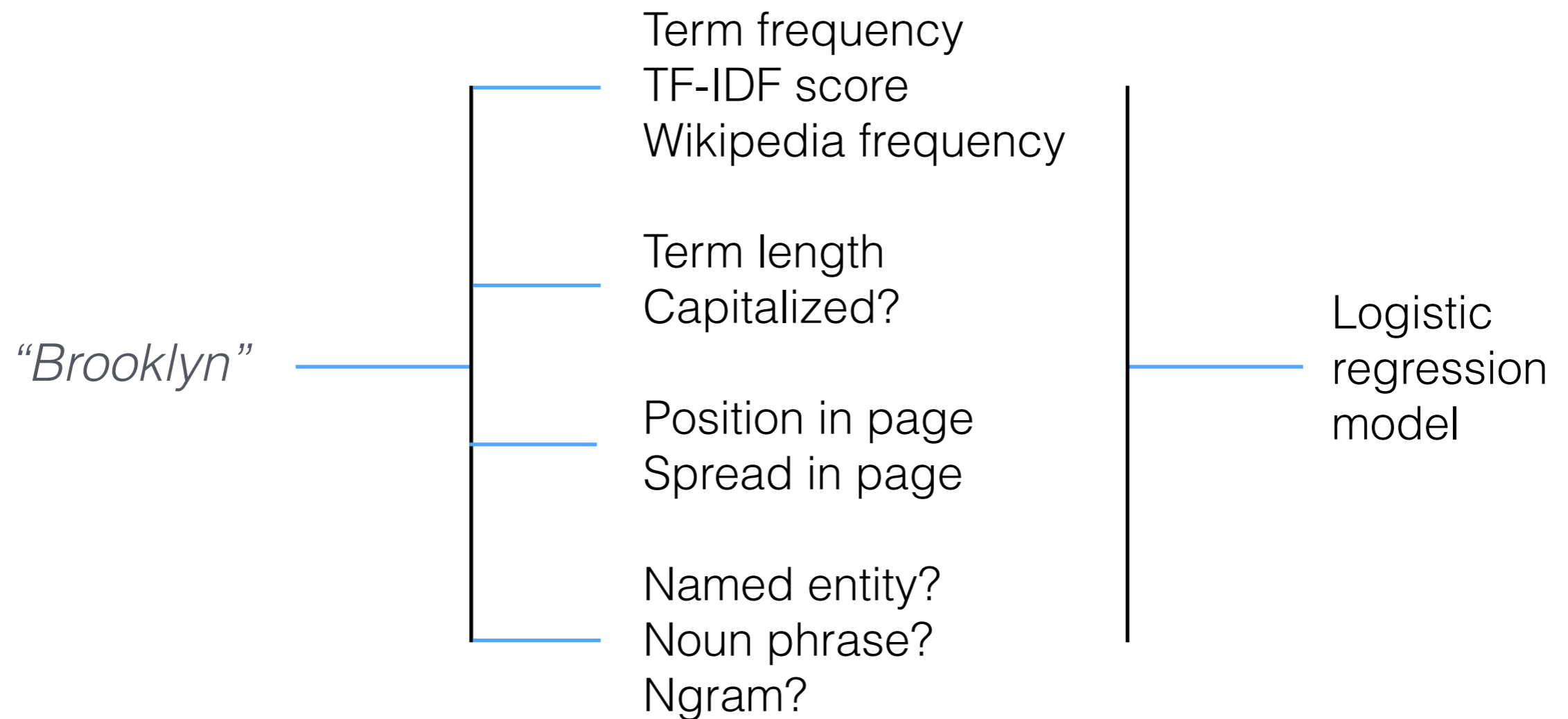
About me

Keywords: Lavanya, image recognition, foodie

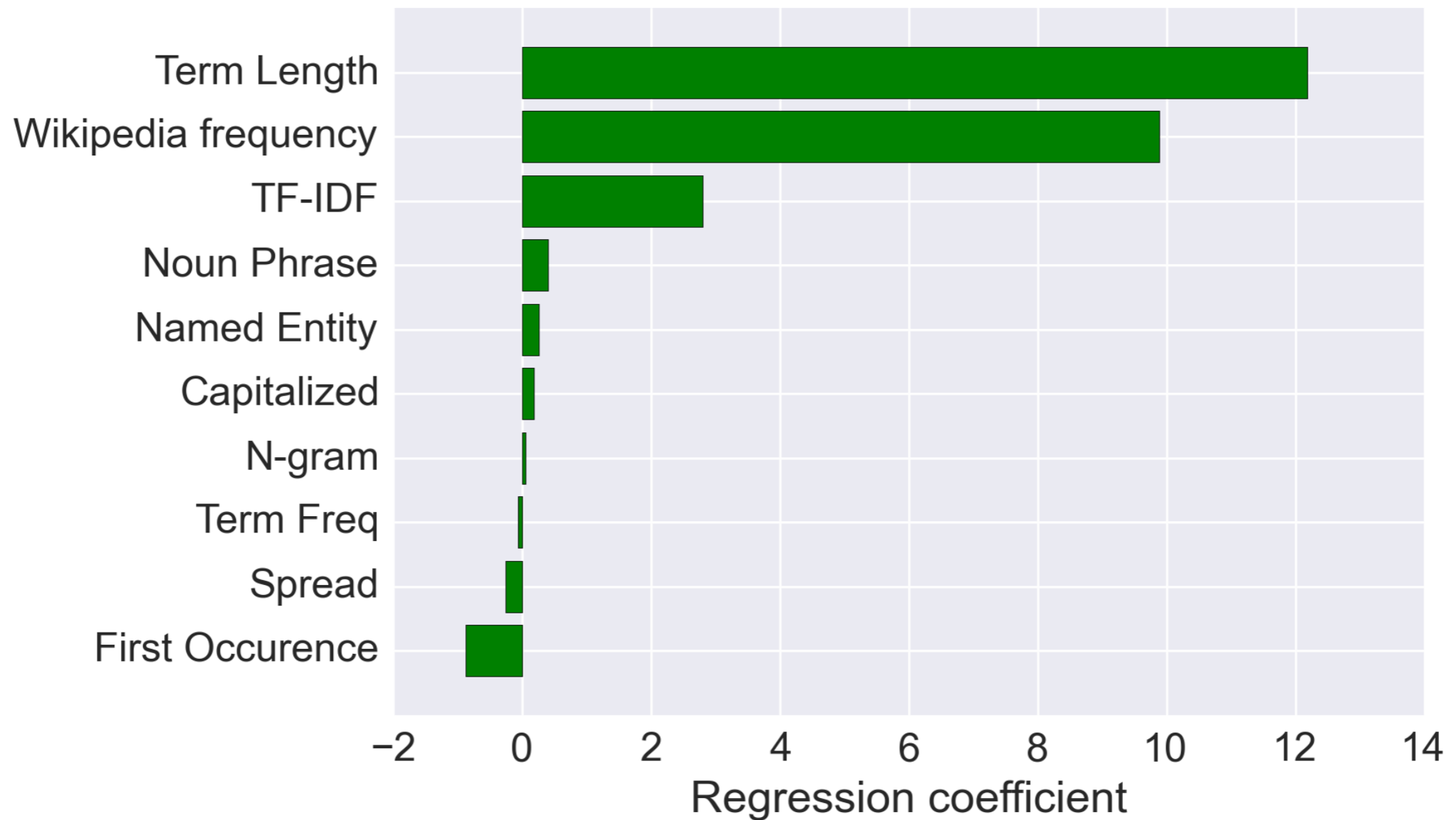


Keyword classifier

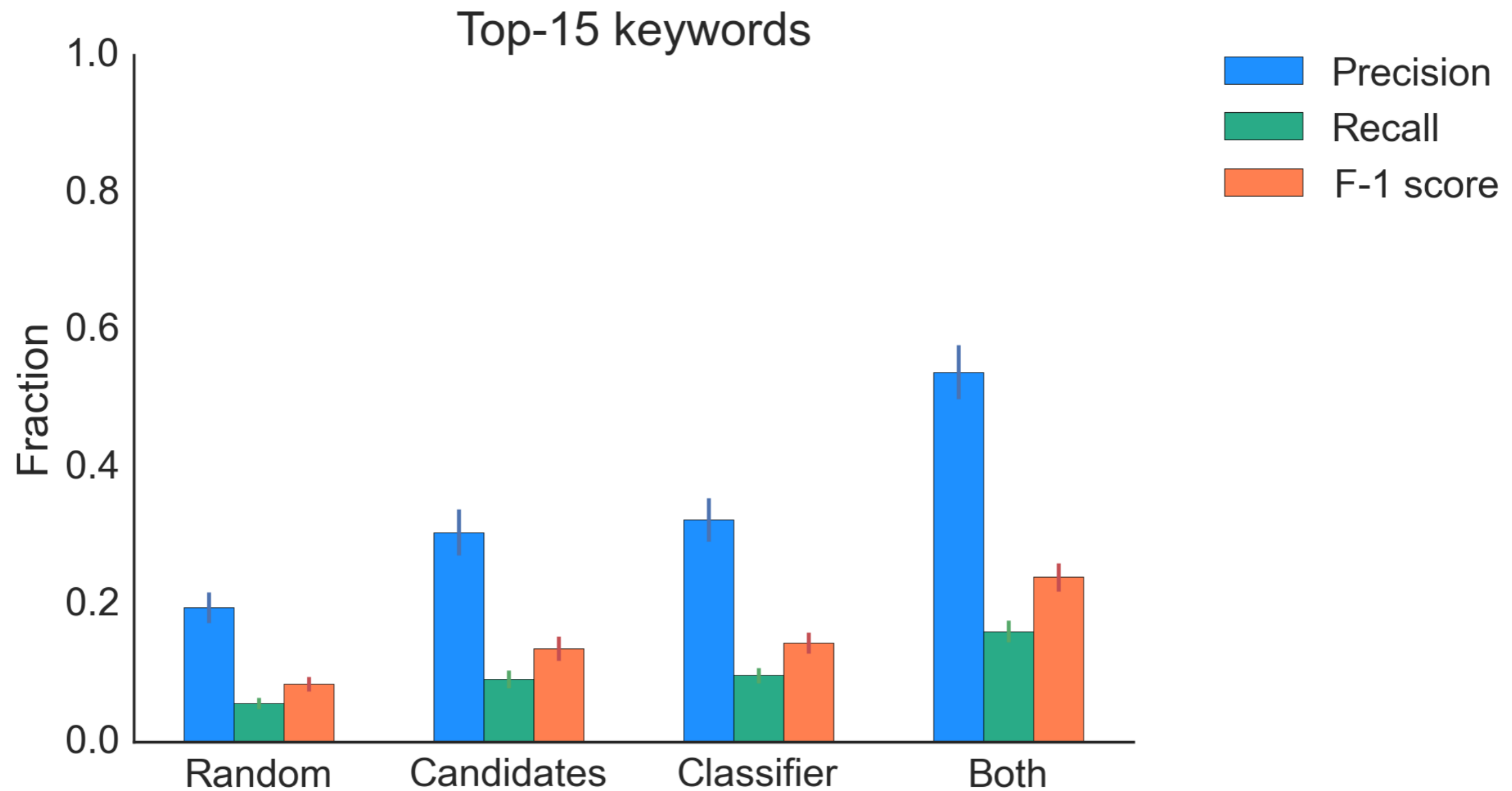
In-sample: 65%, out-of-sample: **65%**, chance: 50%



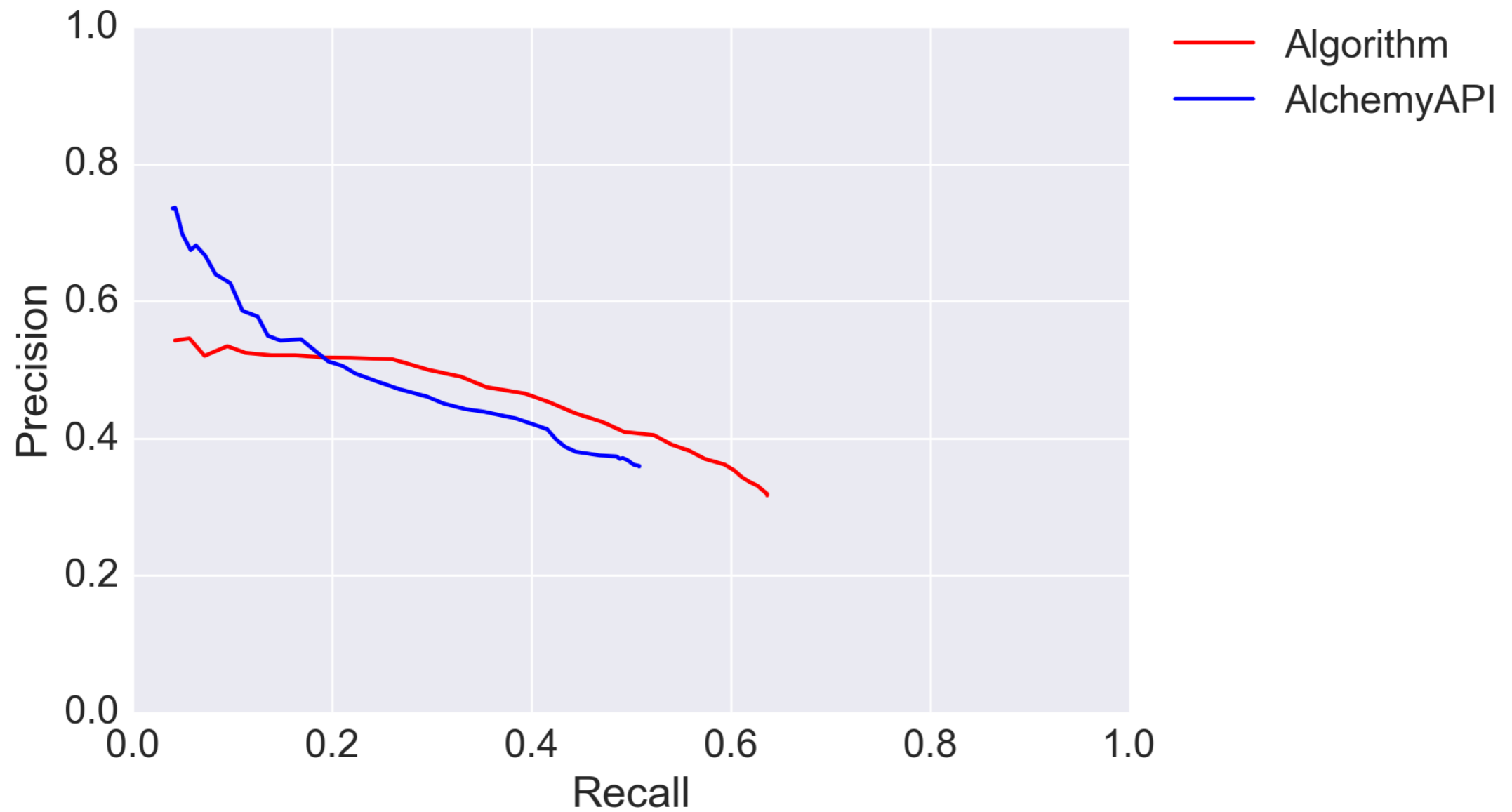
Simple heuristics beat complex features



All stages of model required for performance



Beats AlchemyAPI for a range of parameters



Beats AlchemyAPI for a range of parameters

