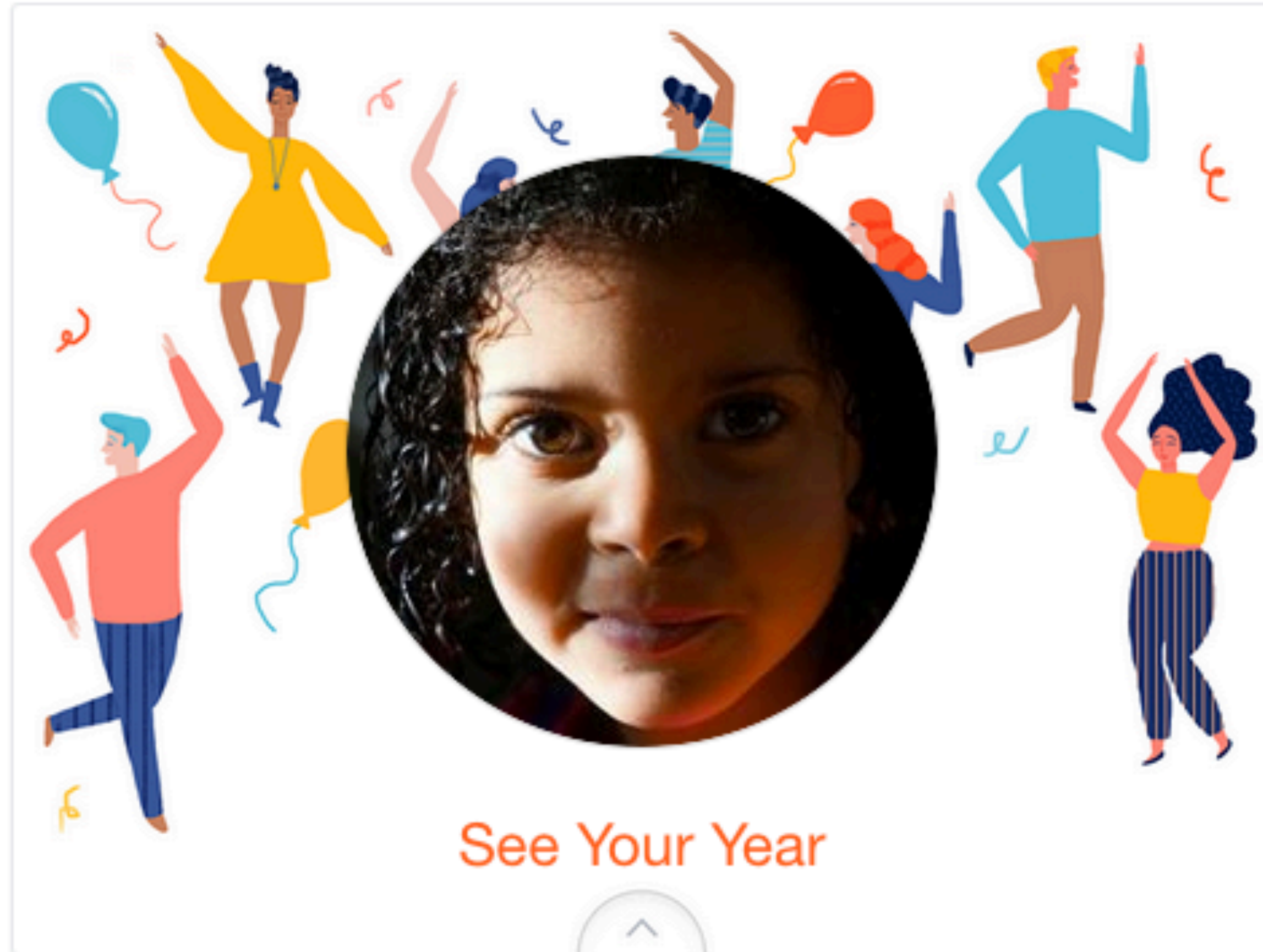


Your Year In Review

Eric, here's what your year looked like!

🔒 Only you can see this



See Your Year

In Memoriam

Published 3 years, 9 months ago



Rebecca Alison Meyer

Ahuva Raya bat Kayla

7 June 2008 – 7 June 2014



1.7 million

U.S. Facebook users
will die in 2018



1.7 million

U.S. Facebook users
will die in 2018



511 million

friendships will be
touched by these deaths



**How do we know if
someone is no longer alive?**

How to contact Twitter about a deceased family member's account

Deceased User

In the event of the death of a Twitter user, we can work with a person authorized to act on behalf of the estate, or with a verified immediate family member of the deceased to have an account deactivated.

[Request the removal of a deceased user's account.](#) After you submit your request, we will email you with instructions for providing more details, including information about the deceased, a copy of your ID, and a copy of the deceased's death certificate. This is a necessary step to prevent false and/or unauthorized reports. Be assured that this information will remain confidential and will be deleted once we've reviewed it.

Memorialization Request

After someone has passed away, we'll memorialize their account if a family member or friend submits a request. Keep in mind that memorialization is a big decision. If you're not a family member or close person who passed away, we recommend reaching out to the person's family before requesting memorialization.

[Memorializing](#) an account will do things like keep the account secure by preventing anyone from logging in. The only person who can manage a memorialized account is a [legacy contact](#) who must be selected by the account holder. A legacy contact can do things like:

- Pin a post on the person's profile
- Respond to new friend requests
- Update the profile picture and cover photo

If the account holder hasn't selected a legacy contact, the account won't be actively cared for by Twitter. If memorialization has been requested, the account will be memorialized.

If you'd like to request that an account be memorialized, please use this form to let us know.

Who passed away?

[If you can't find who you're looking for, try our special request form.](#)

When did they pass away?

If you don't know the exact date, please approximate.



**Computational approach to
detecting mortality**



TRAINING DATA

Comments posted to deceased MySpace profiles

Collected in April 2010

Fully labeled and verified based on MyDeathSpace



TRAINING DATA

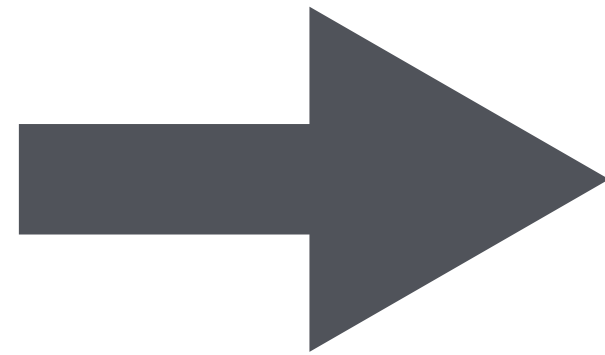
Total comments	870,326
Total profiles	2,688
Post-mortem comments	324,089 (37.24%)
Pre-mortem comments	546,327 (62.76%)



**Machine learning
classification**



**Common sense
classification**



**Machine learning
classification**

“Why don’t you just check for RIP?”



**BASELINE
CLASSIFIER**

Classify as post-mortem if contains "RIP"

Pre-mortem otherwise



TEXT
CLASSIFIERS

"RIP"

Naive Bayes (NB)

Logistic Regression (LR)

Linear SVM (SVM)

Boosted Trees



dmlc
XGBoost



FEATURES

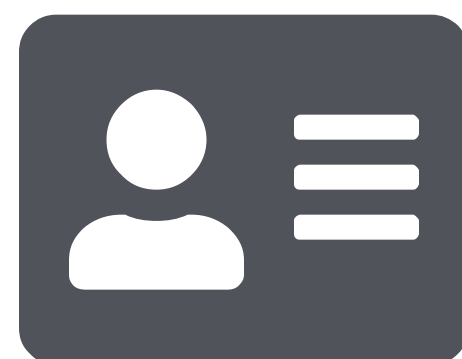
Bag-of-words features

+

Linguistic style features from
Computational Linguistic Tools (CLT):
LIWC, Empath, VADER



Classifying post-mortem profiles



BASELINE CLASSIFIER

0.736
F1 SCORE

0.697
PRECISION

0.778
RECALL

		Accuracy	F1	Precision	Recall
Baseline		0.696	0.736	0.697	0.778
<i>n</i> -gram	NB	0.835	0.837	0.901	0.782
	LR	0.856	0.858	0.946	0.785
	SVM	0.862	0.866	0.952	0.794
	XGBoost	0.876	0.881	0.942	0.827
CLT	NB	0.593	0.720	0.578	0.953
	LR	0.750	0.769	0.775	0.764
	SVM	0.789	0.793	0.846	0.747
	XGBoost	0.821	0.828	0.884	0.779
<i>n</i> -gram+CLT	NB	0.846	0.840	0.961	0.746
	LR	0.856	0.858	0.939	0.790
	SVM	0.865	0.865	0.952	0.793
	XGBoost	0.874	0.882	0.940	0.829



Classifying post-mortem comments



BASELINE CLASSIFIER

0.204
F1 SCORE

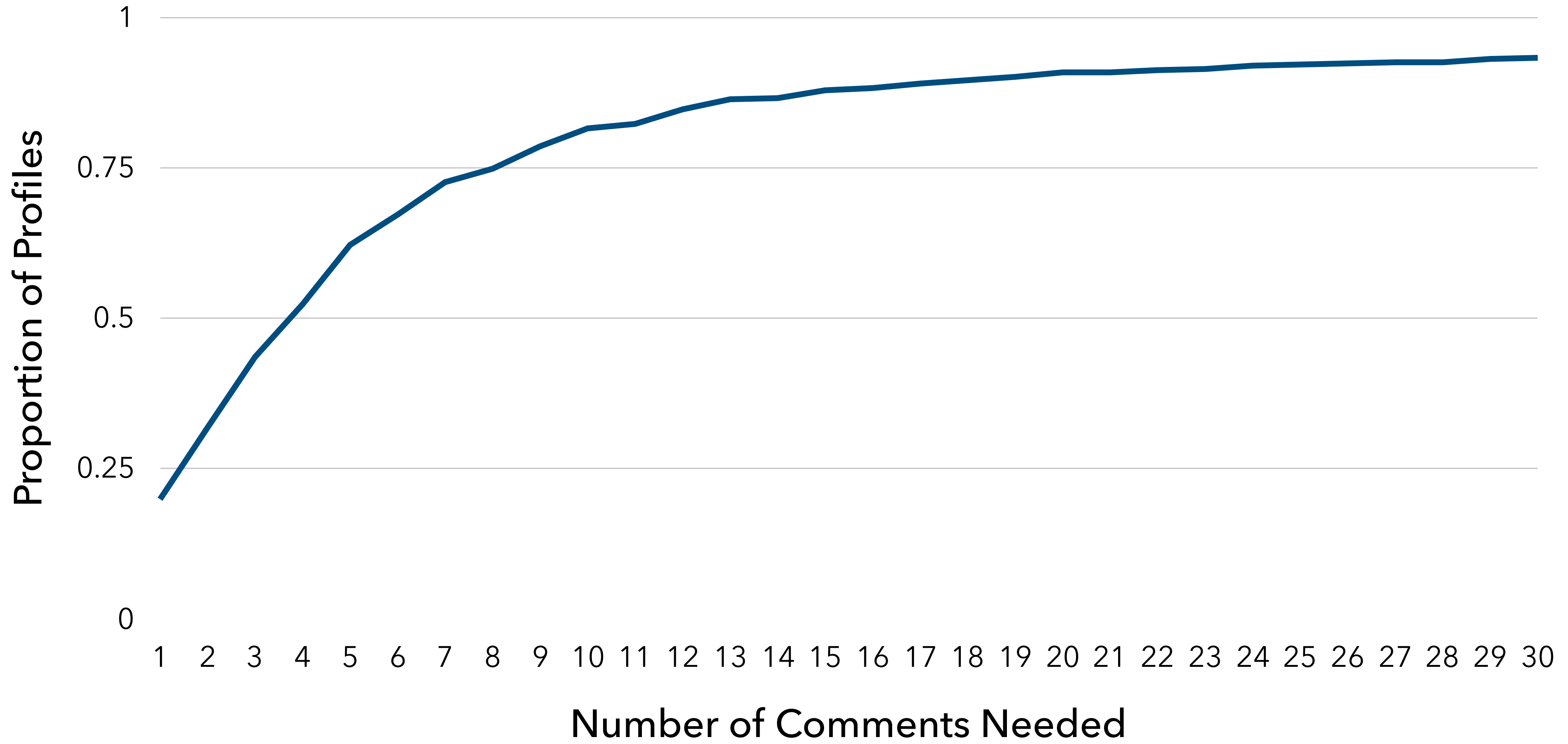
0.892
PRECISION

0.115
RECALL

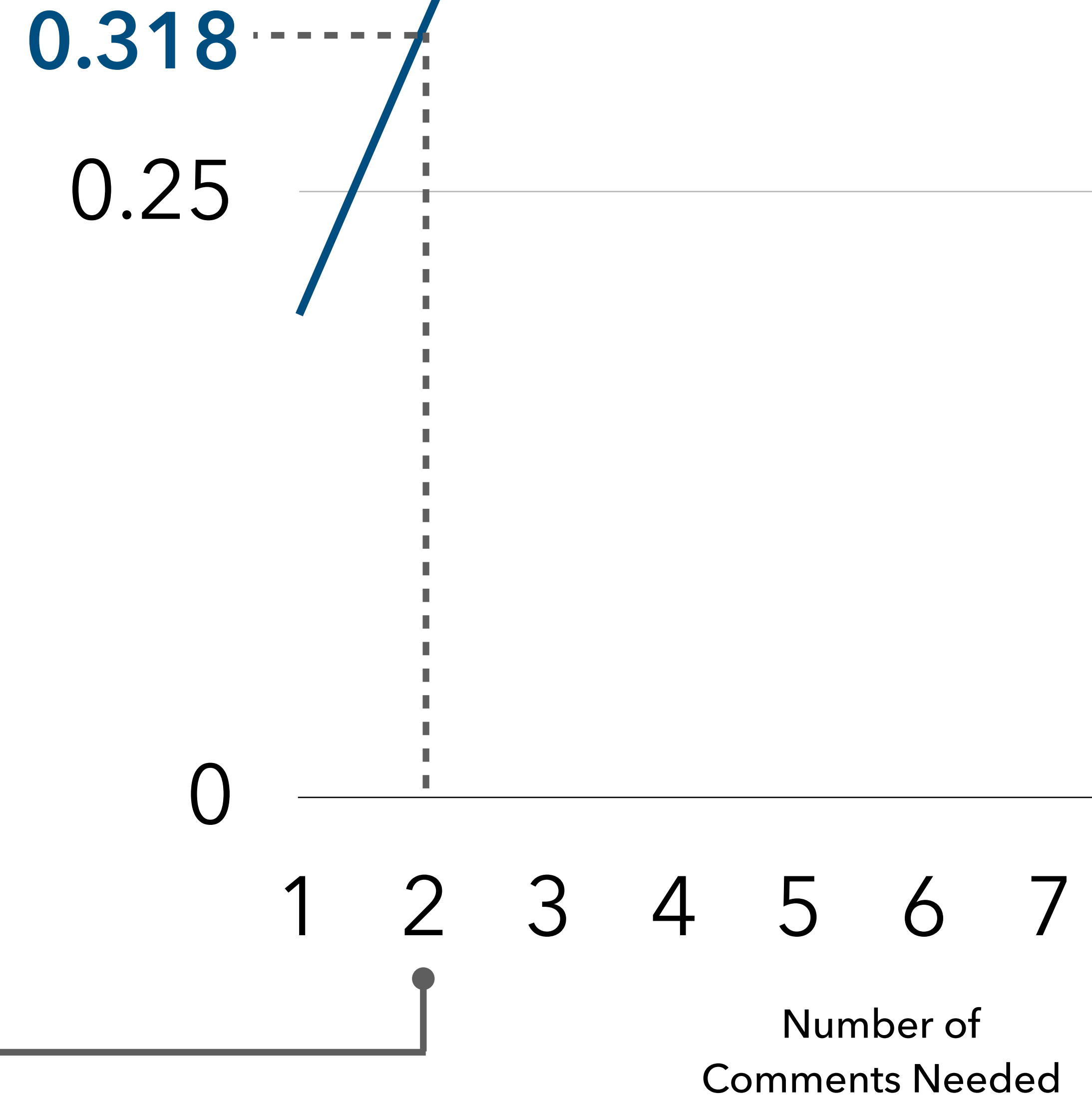
		Accuracy	F1	Precision	Recall
Baseline		0.662	0.204	0.892	0.115
<i>n</i> -gram	NB	0.881	0.836	0.870	0.804
	LR	0.898	0.858	0.898	0.822
	SVM	0.897	0.857	0.898	0.819
	XGBoost	0.867	0.812	0.869	0.761
CLT	NB	0.780	0.633	0.848	0.505
	LR	0.833	0.770	0.810	0.734
	SVM	0.847	0.790	0.818	0.763
	XGBoost	0.871	0.820	0.862	0.781
<i>n</i> -gram+CLT	NB	0.888	0.848	0.870	0.827
	LR	0.886	0.843	0.881	0.808
	SVM	0.903	0.865	0.901	0.833
	XGBoost	0.884	0.838	0.885	0.795



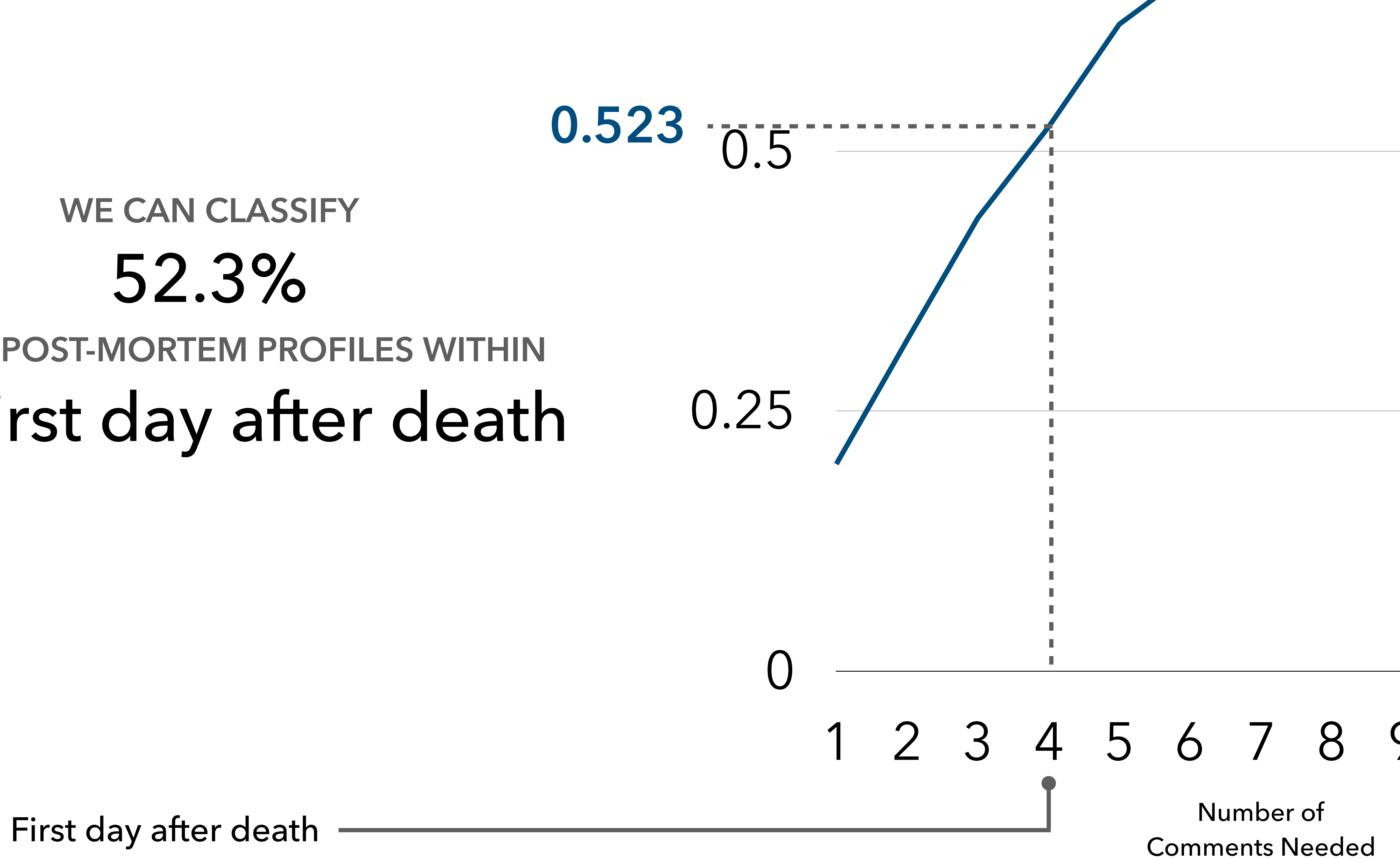
How fast can we classify
death?

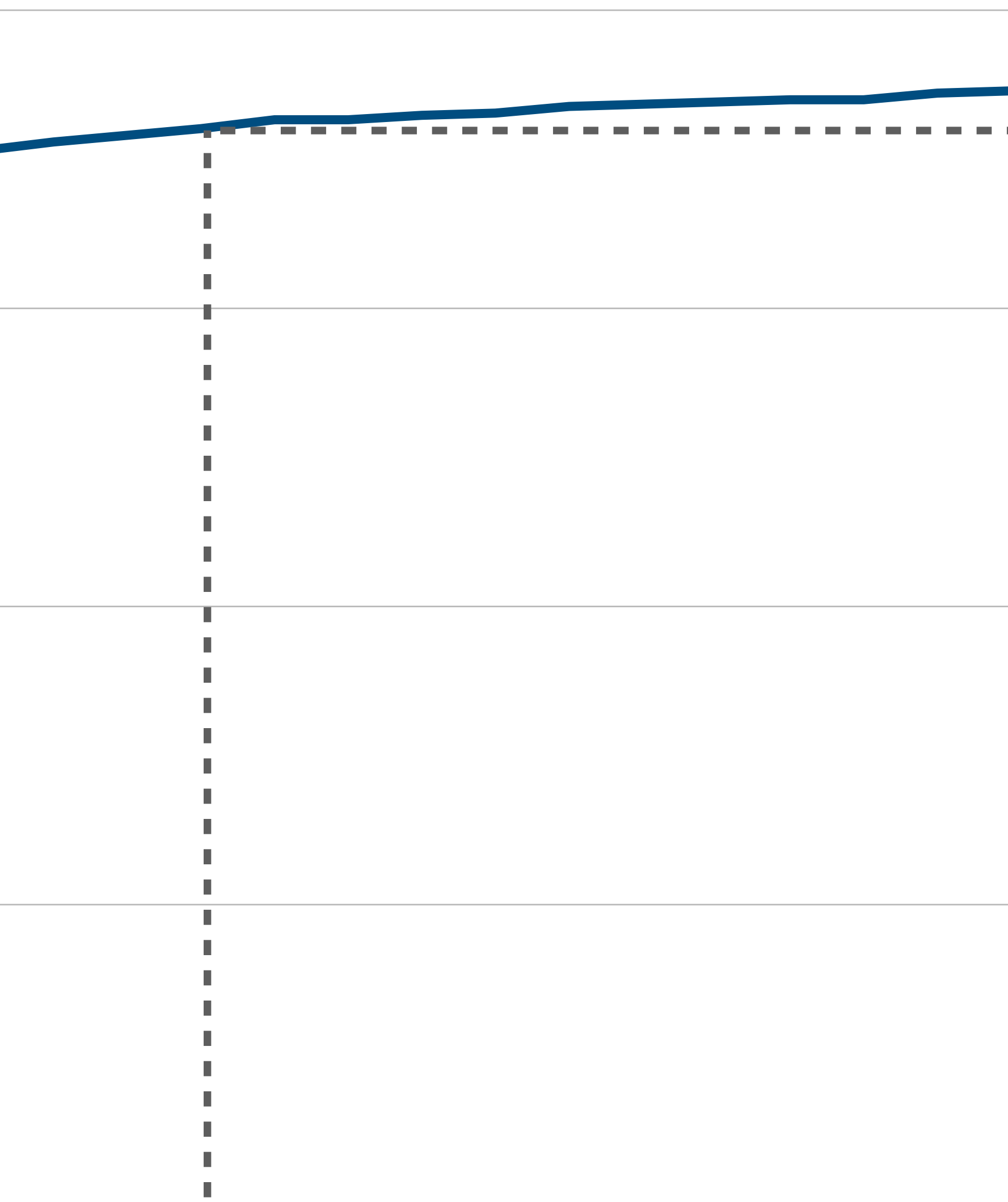


WE CAN CLASSIFY
31.8%
OF THE POST-MORTEM PROFILES WITHIN
the day of death



WE CAN CLASSIFY
52.3%
OF THE POST-MORTEM PROFILES WITHIN
the first day after death





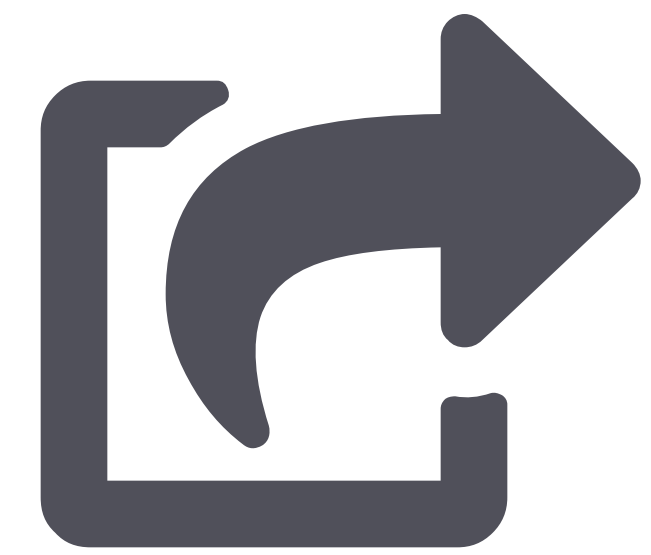
0.901

WE CAN CLASSIFY
90.1%
OF THE POST-MORTEM PROFILES WITHIN
10 days after death

17 19 21 23 25 27 29

Number of
Comments Needed

10 days after death



How generalizable is the
classifier?



**Facebook
memorial groups**

Legacy.com[®]

Obituaries



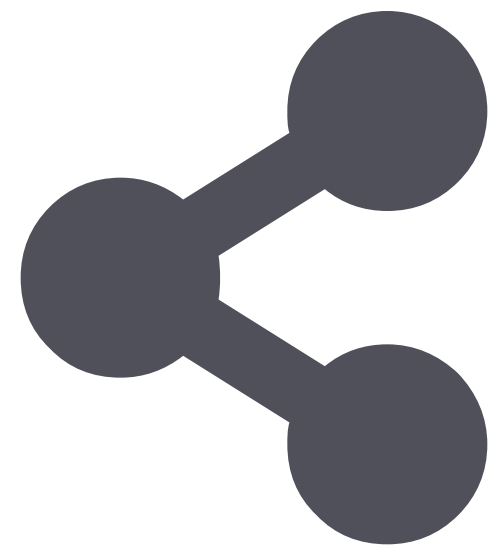
0.871

RECALL

Legacy.com[®]

0.797

RECALL



What can we do with the
classifiers?

Mortality classifiers help designers shape where and how people see post-mortem content.



**Limit access to
profiles**



**Encourage in-person
interaction**





Did the classifiers solve
the problem?

Classification is not the entire solution.



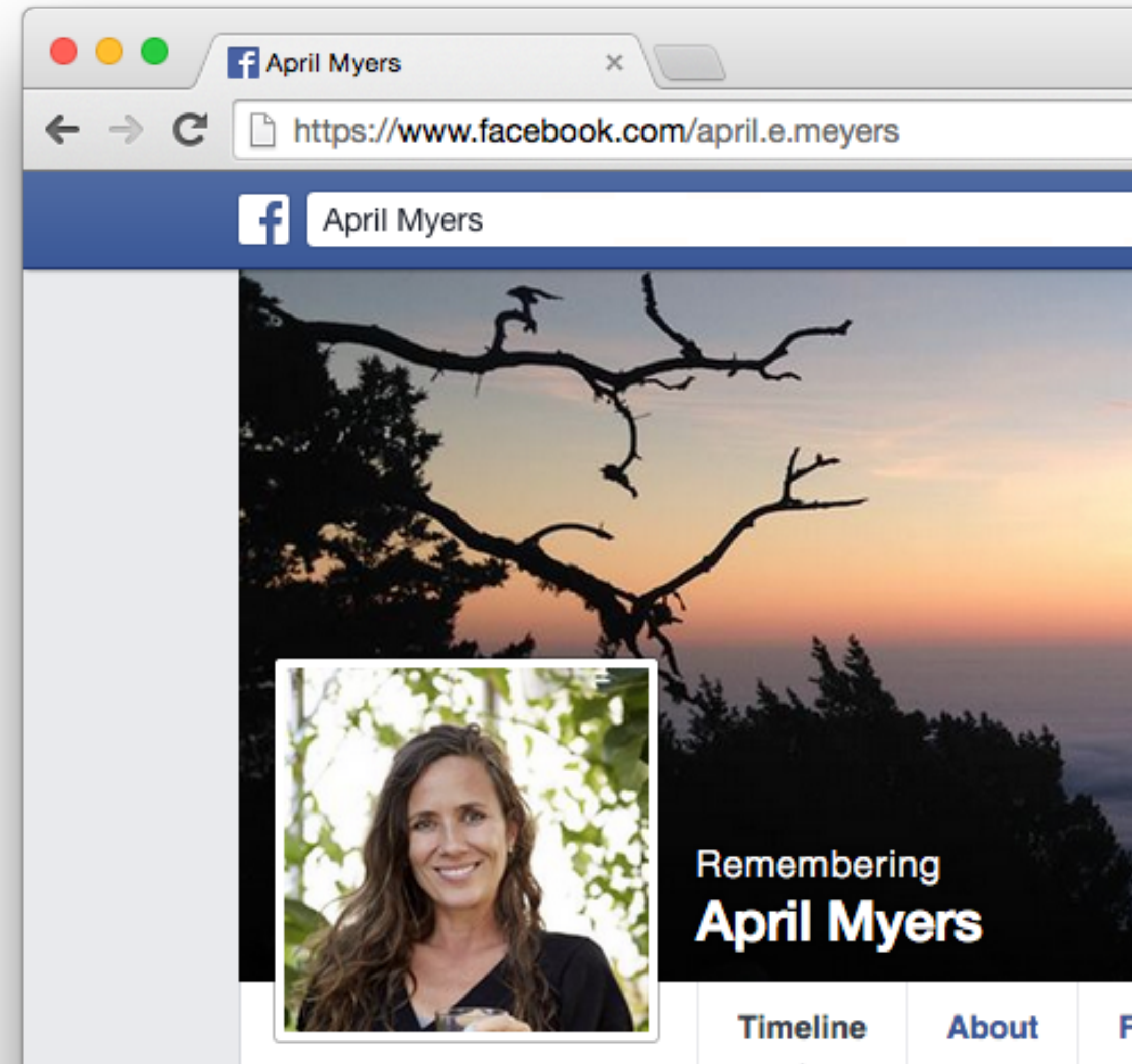
Hey bro. Spring seems to be here.
Now time for new life to begin. I
[hope] you are doing ok. I['m] just
eating a bagel. I keep telling myself
you guys are in a better place.

A comment addressed to a deceased user

Mortality classifiers should be used differently in different contexts.

WHEN FALSE NEGATIVE IS BETTER

Make sure to not
memorialize someone
alive.



WHEN FALSE POSITIVE IS BETTER

Make sure to not
accidentally celebrate
death.

Your Year In Review

Eric, here's what your year looked like!

🔒 Only you can see this



SENSITIVE CLASSIFICATION

What is the context in which the classifiers are being used?

How will classification shape the interaction we design?

Thank you.

Jialun "Aaron" Jiang

@aaroniidx | aaron.jiang@colorado.edu

Jed R. Brubaker

@whatknows | jed.brubaker@colorado.edu



Information Science
UNIVERSITY OF COLORADO **BOULDER**

 #cscw2018

What does this presentation do well?

What does this presentation do not so well?


Tending Unmarked Graves

Classification of Post-mortem Content
on Social Media

Jialun "Aaron" Jiang | Jed R. Brubaker

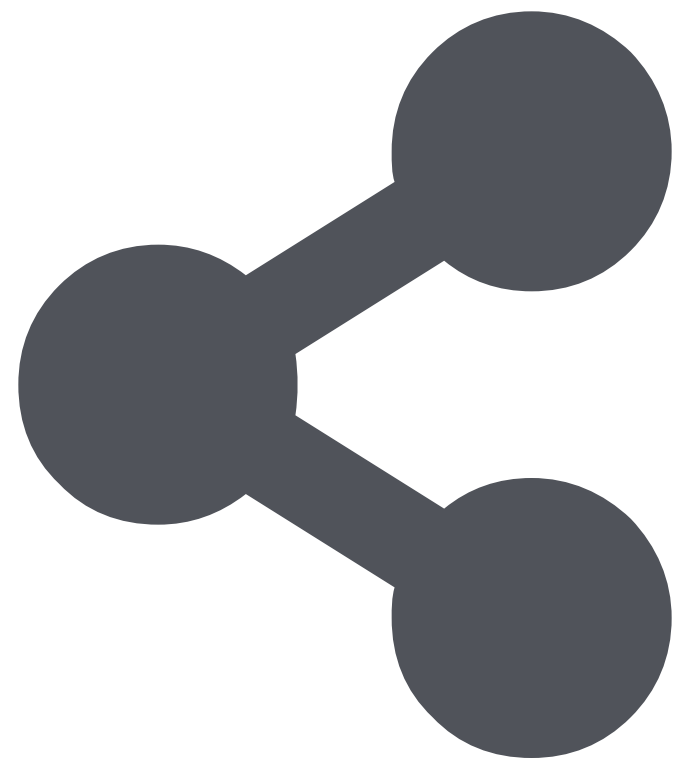


Information Science
UNIVERSITY OF COLORADO **BOULDER**

 @aaroniidx
#cscw2018

How would this presentation be different if you were to present it in this class?

Is everything in the paper included in the presentation?



TUNING

χ^2 feature selection

Removed stop words

Grid searched hyperparameters

10-fold cross validation

What if I didn't test the classifiers on Facebook
Groups or Legacy.com?

Did everything about this project make it into the paper?

How would you change this presentation if it was for general audience (say your mom)?

How would you change the paper if it was for general audience (say your mom)?

<https://medium.com/acm-cscw>