Using Posters and Deep Learning to Recommend Anime & Mangas

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MANGAKI
LA RECOMMANDATION FRANCOPHONE D'ANIME ET MANGA

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Outline

Mangaki

- Recommender system for anime & manga
- Why nonprofit?

Research

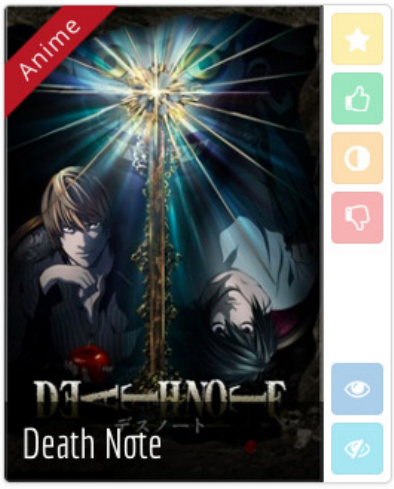
- The geometry of mangas
- Deep learning: learning from massive data (it's all blocks)
- Our new algorithm (name will come, wait for it)

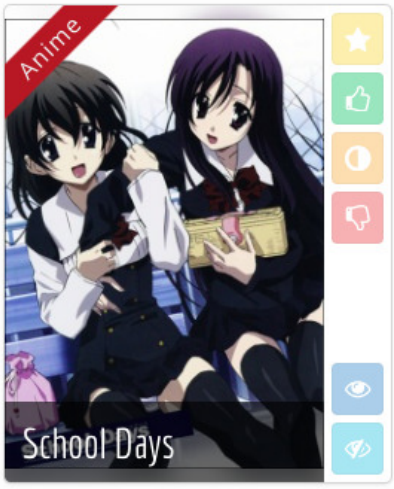
Future

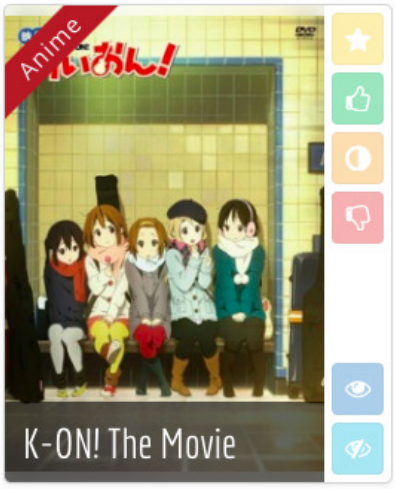
- ???

Mangaki, recommendations of anime/manga

Rate anime/manga and receive recommendations







2,000 users, 10,000 anime/manga, 350,000 ratings

- myAnimeList (RIP their API)
- AniDB
- AniList
- (soon) TVtropes

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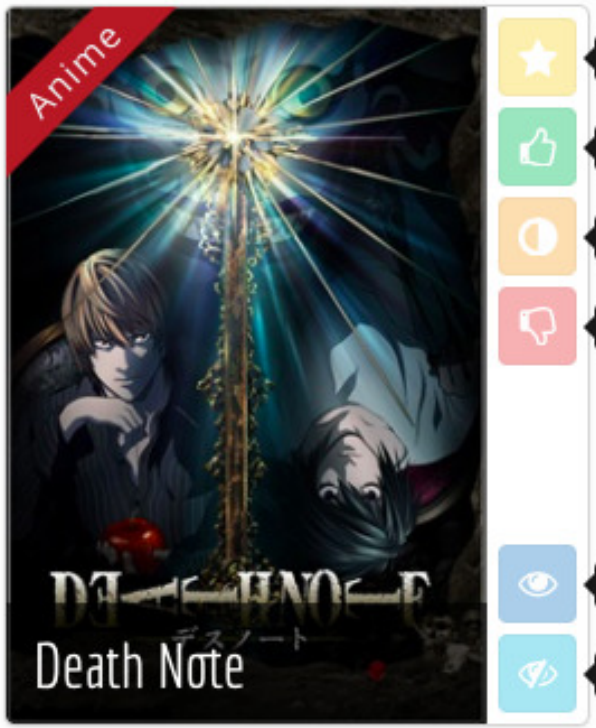
Mangaki



love

like

neutral

dislike

Watched ratings

willsee → I want to see

wontsee → I don't want to see

Unwatched ratings

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Build a profile

Steins;Gate

Suzumiya Haruhi no Shoushitsu

Suzumiya Haruhi no Yuuutsu

Terror in Resonance

The Night is Short, Walk On Girl

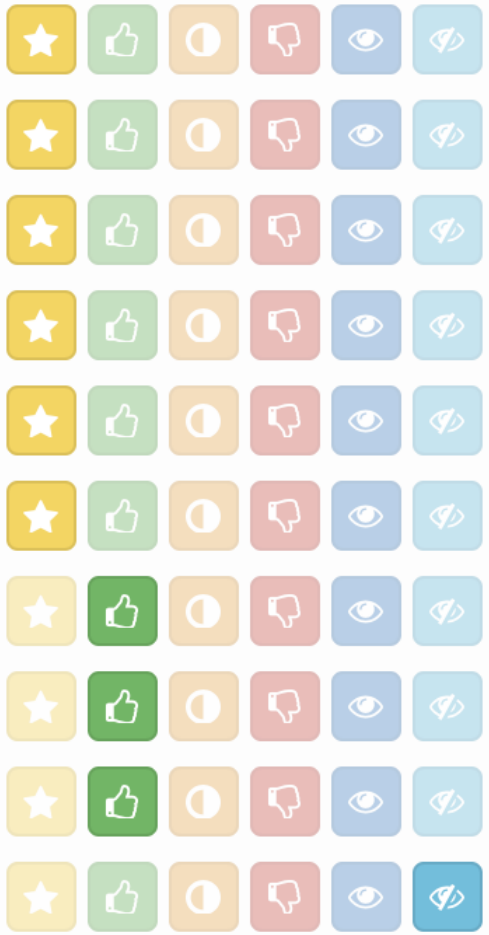
Time of Eve

5 centimètres par seconde

.hack//Liminality

.hack//Sign

A Certain Scientific Railgun S



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Mangaki prioritizes your watchlist

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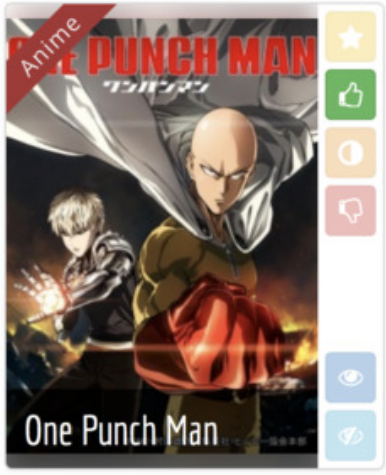
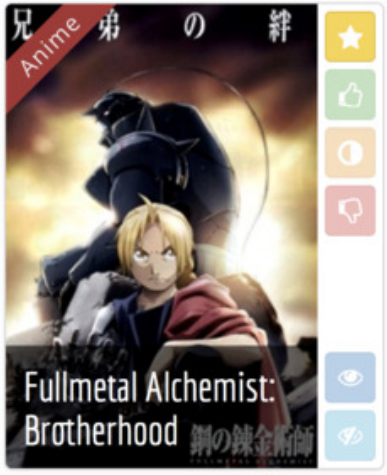
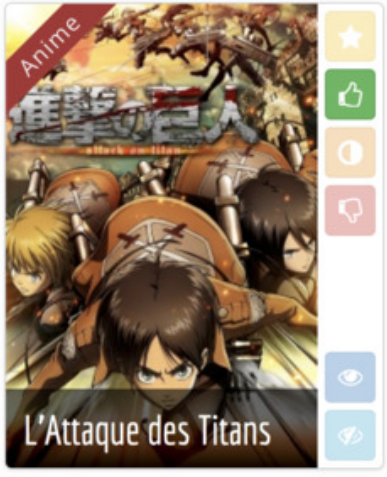
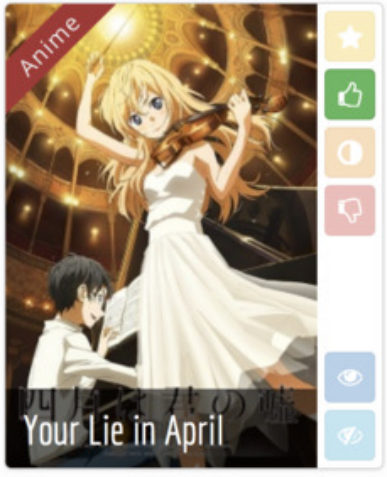
Browse the rankings: top works









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Why nonprofit?

- Why should blockbusters get all the fun/clicks/money?
- Maybe there is one precious, unknown anime for you
  - and we can help you find it
- Driven by passion, not money

Everything is open source: `github.com/mangaki` (Python, Vue.js)

Awards: Microsoft Prize (2014) Japan Foundation (2016)

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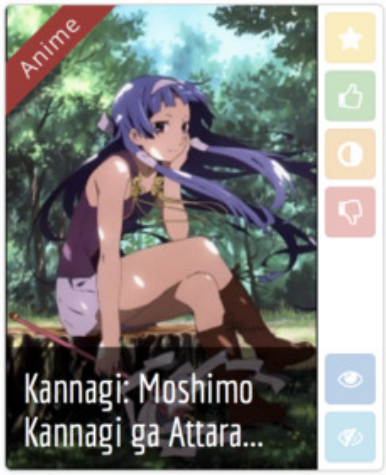
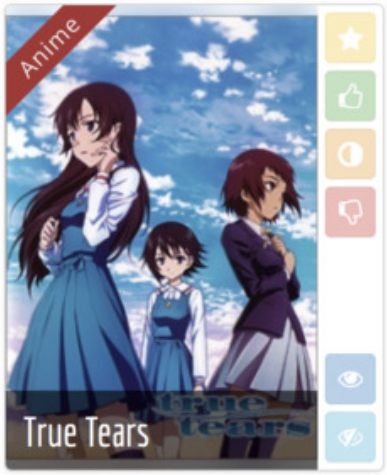
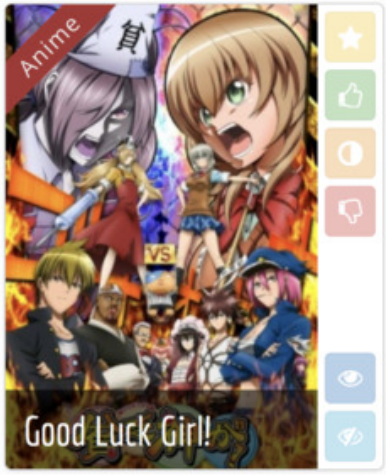
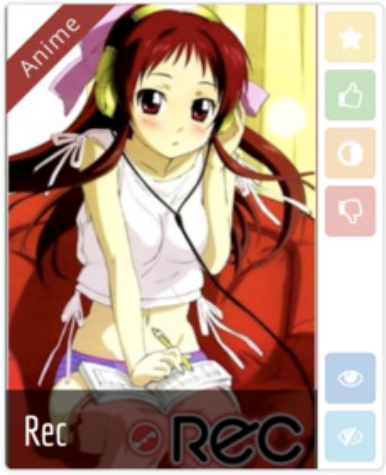
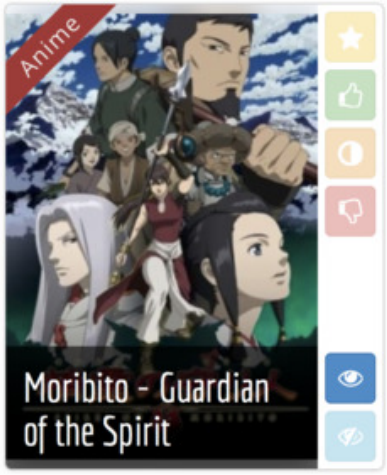
Browse the rankings: precious pearls











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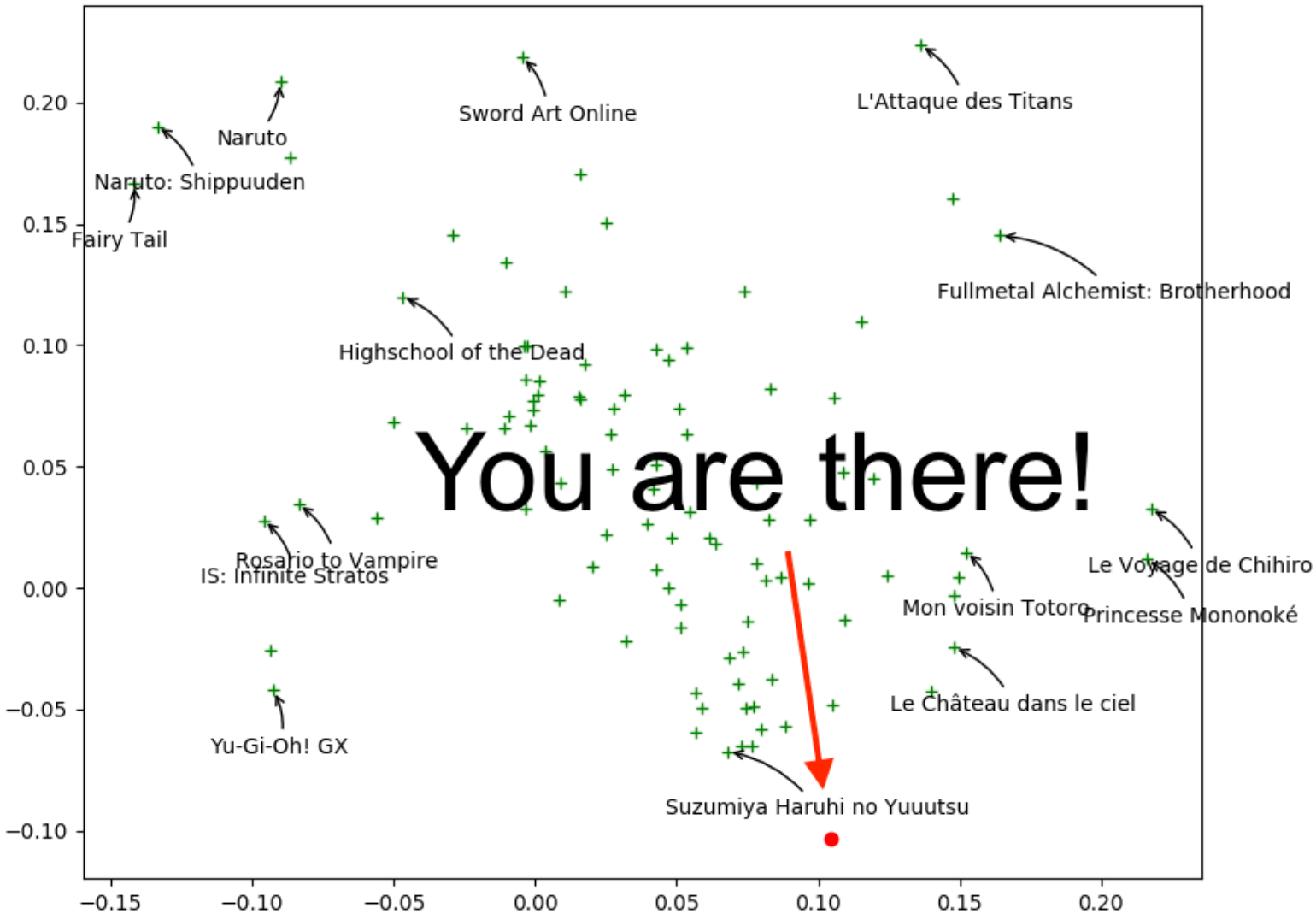
Embedding you in the geometry of mangas



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Many blocks for recommendation

KNN *K*-Nearest Neighbors

ALS Alternating Least Squares

FMA Factorization Machines

Input: ratings
Output: representation of users and items
(geometry used for reordering & recommendation)

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A new block appears!

Illustration2Vec (by Masaki Saito & Yusuke Matsui, 2015)

Prediction results

#	General Tag	Confidence
1.	1girl	86.1%
2.	thighhighs	84.0%
3.	solo	79.2%
4.	red hair	73.1%
5.	long hair	66.4%
6.	breasts	53.7%
7.	gloves	38.0%
8.	weapon	34.0%
9.	elbow gloves	28.3%
10.	high heels	14.0%
11.	tattoo	10.9%

 # Character Tag

 # Copyright Tag

 # Rating

1.	safe	68.4%
2.	questionable	29.3%
3.	explicit	1.92%

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We have (many) posters

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Existing algorithms

ALS Take ratings $\rightarrow$ recommendations
Does not work when no ratings are available (ex. new work)

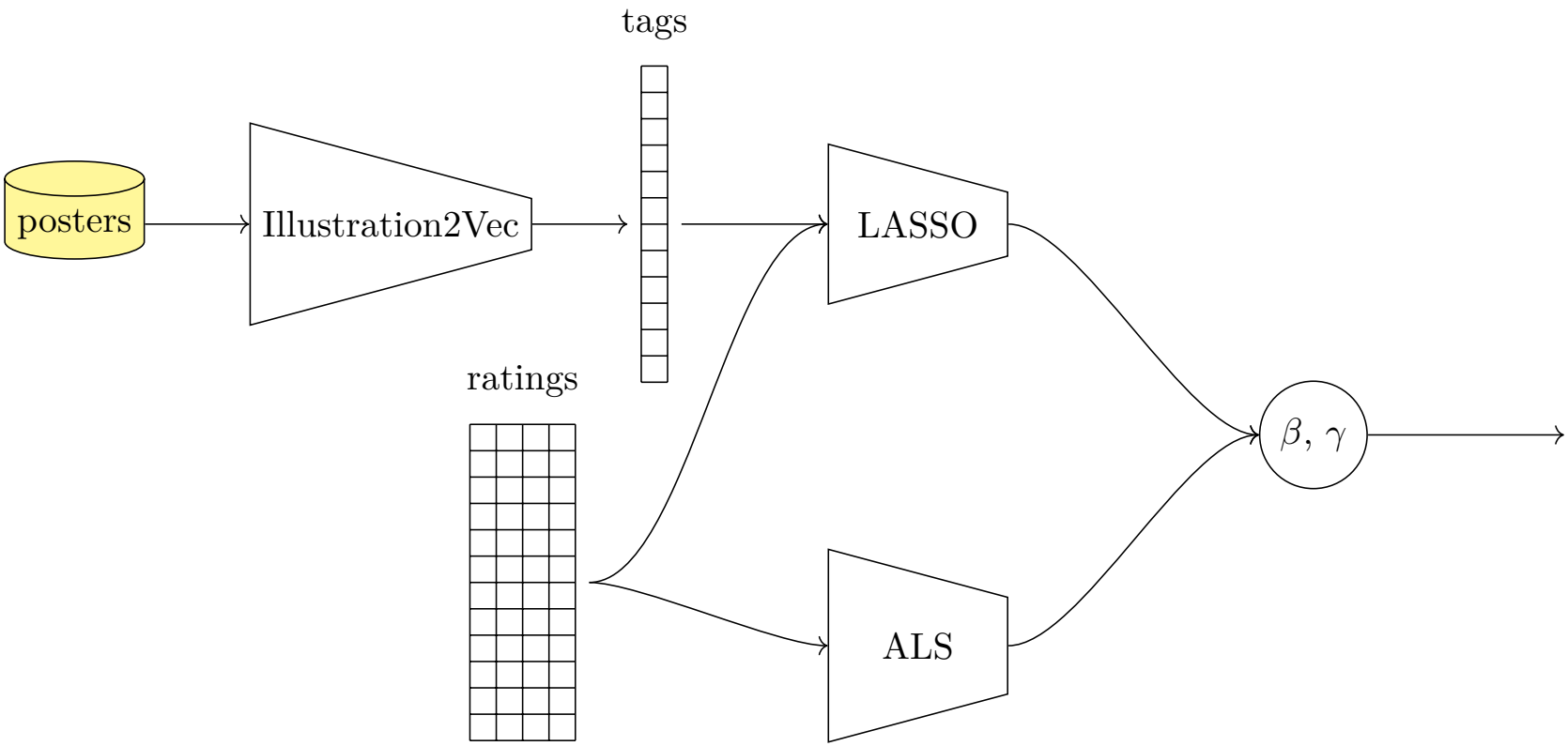
LASSO Take tags/ratings $\rightarrow$ recommendations
Does not take care of people with similar taste

I2V Take posters $\rightarrow$ tags

Our new algorithm

Combine blocks

Use machine learning to select the best model



Blended Alternating Least Squares with Explanation

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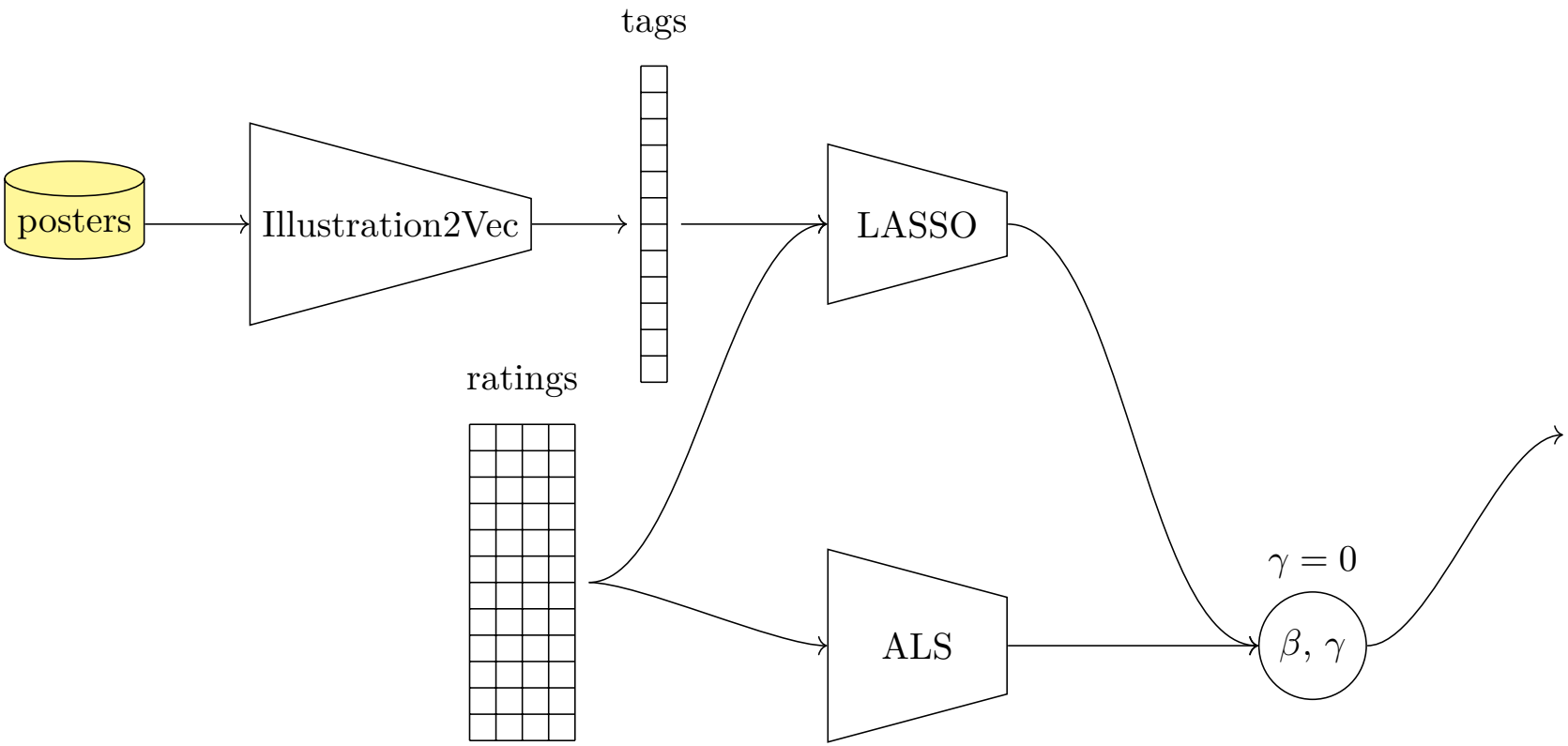

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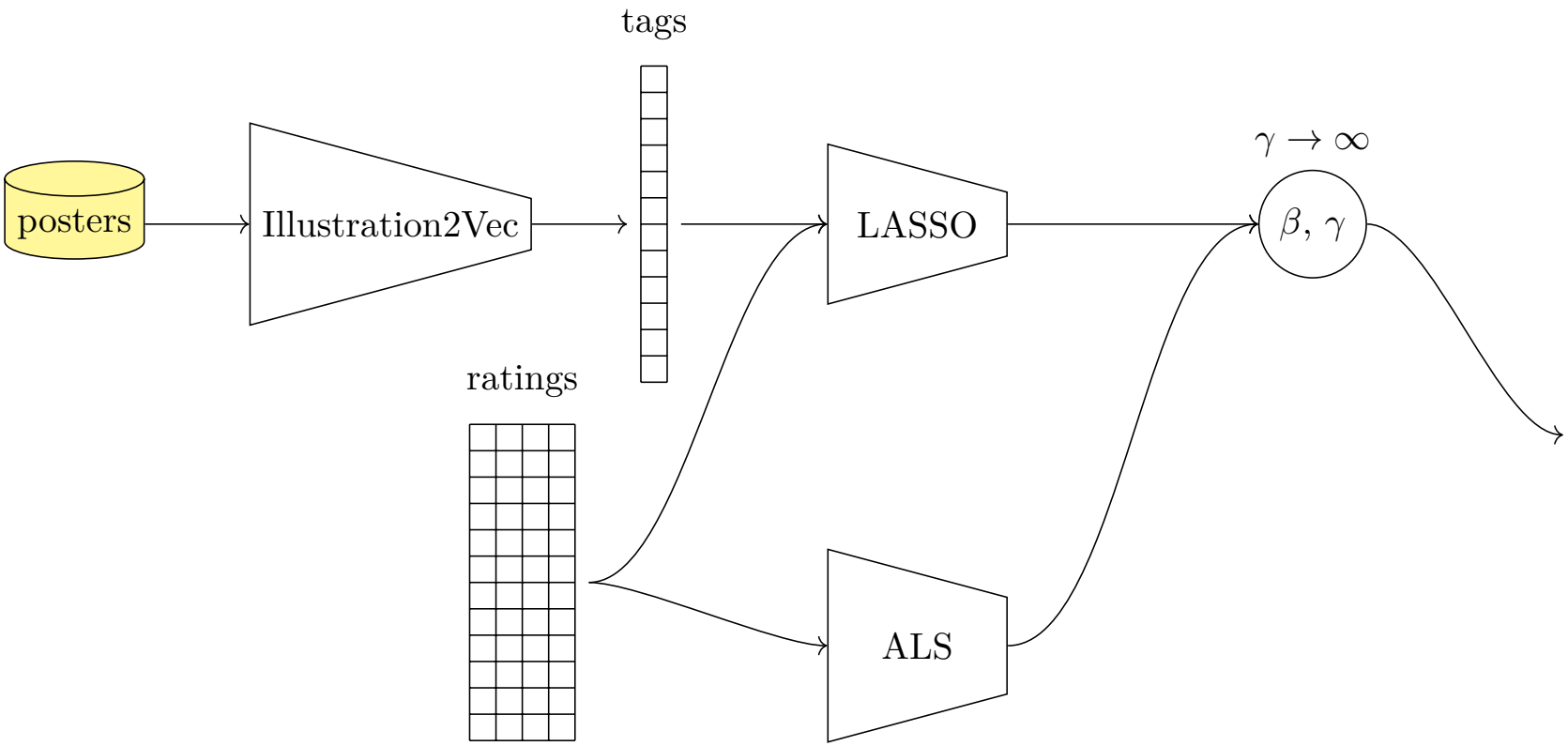

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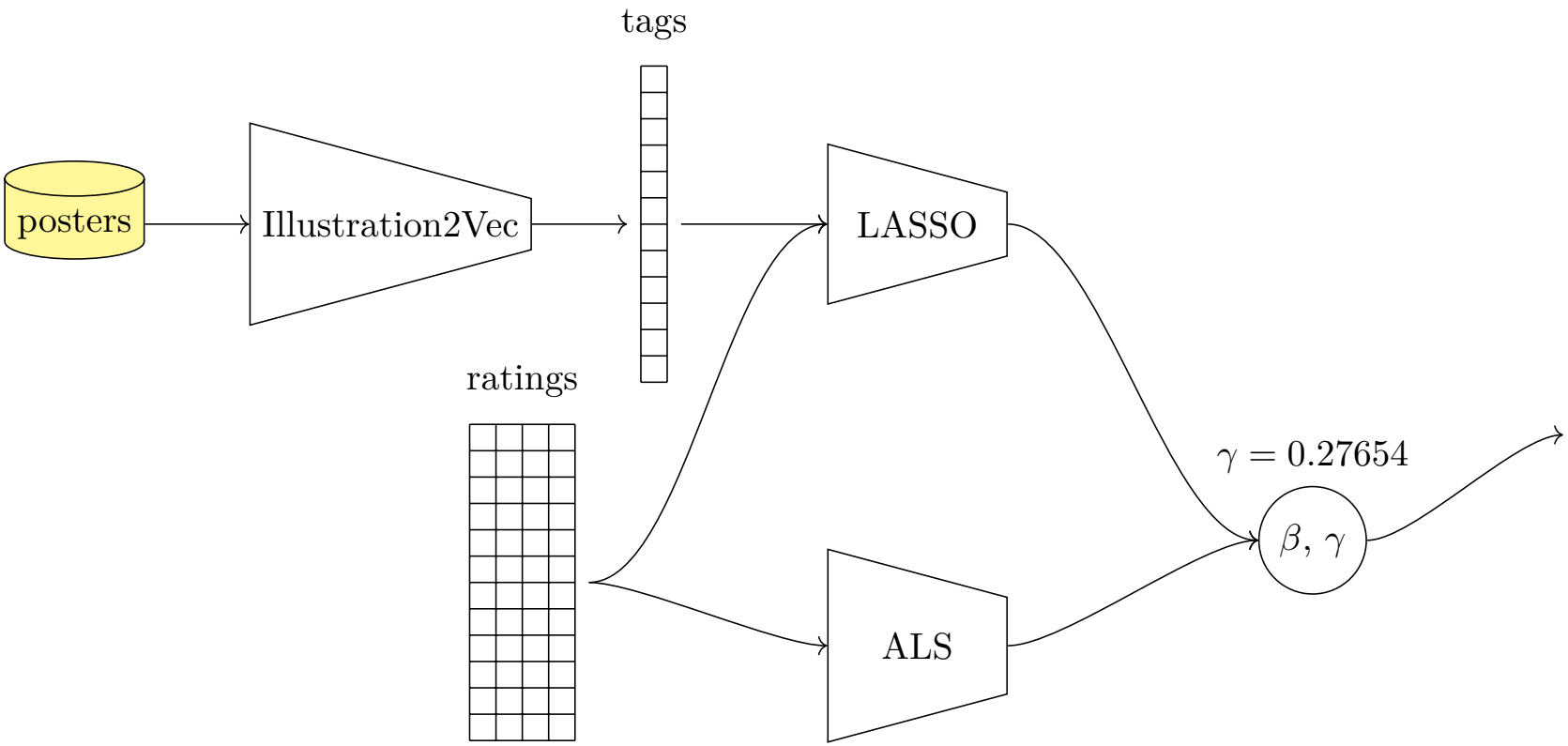

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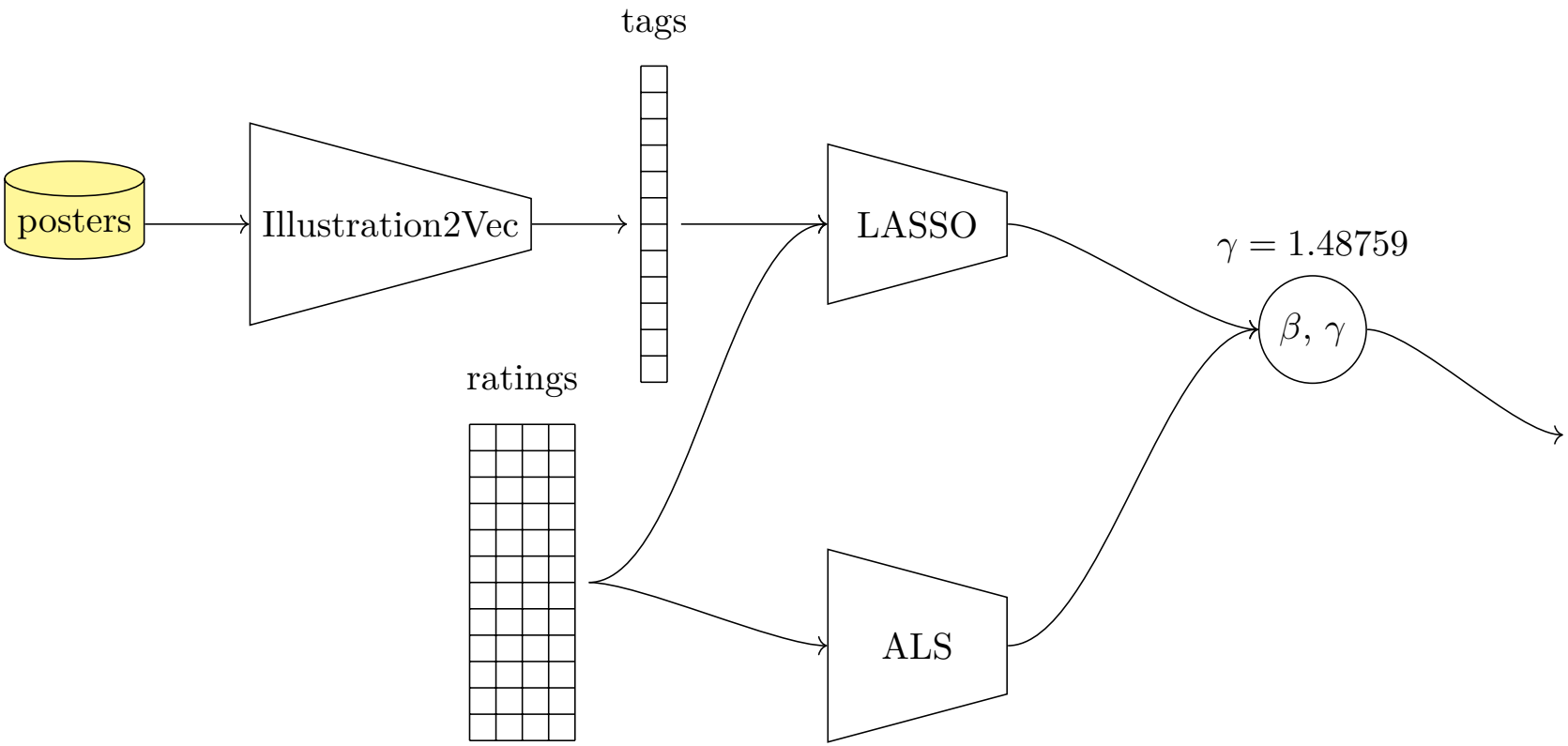

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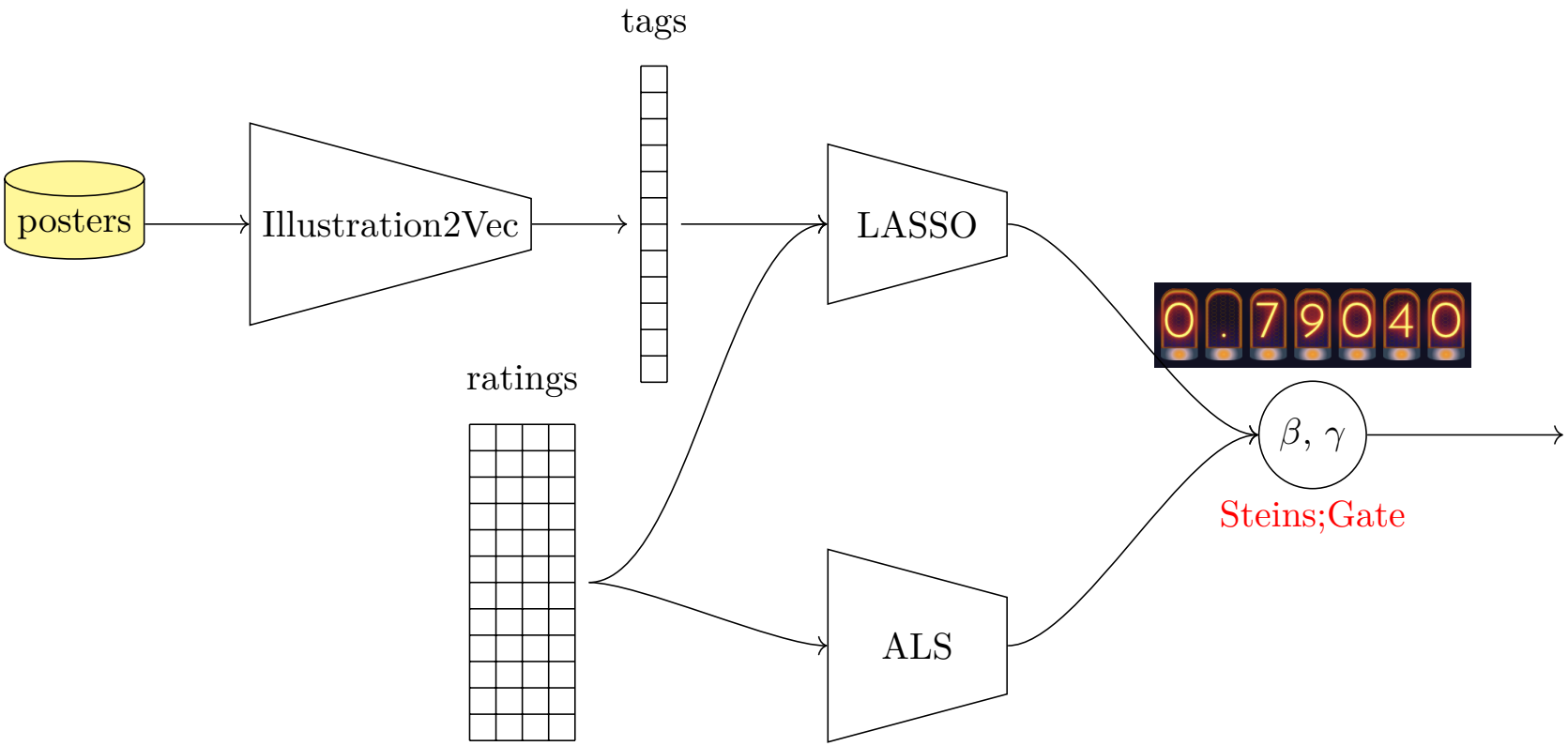

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BALSE

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Our paper BALSE was accepted at the MANPU workshop!

MANPU 2017

The Second International Workshop on coMics ANalysis, Processing and Understanding

November 10, 2017
Kyoto, Japan

To be held in conjunction with the 14th IAPR International Conference on Document Analysis and Recognition (ICDAR 2017).

Genuine excerpt from the reviewers

> *Two models individually are existing methods, but this work presents a novel fusion method called Steins gate to integrate results given by two models.*

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Make your neural network look at the manga

Extract frames from episodes

Cowboy Bebop EP 23 “Brain Scratch”, Sunrise

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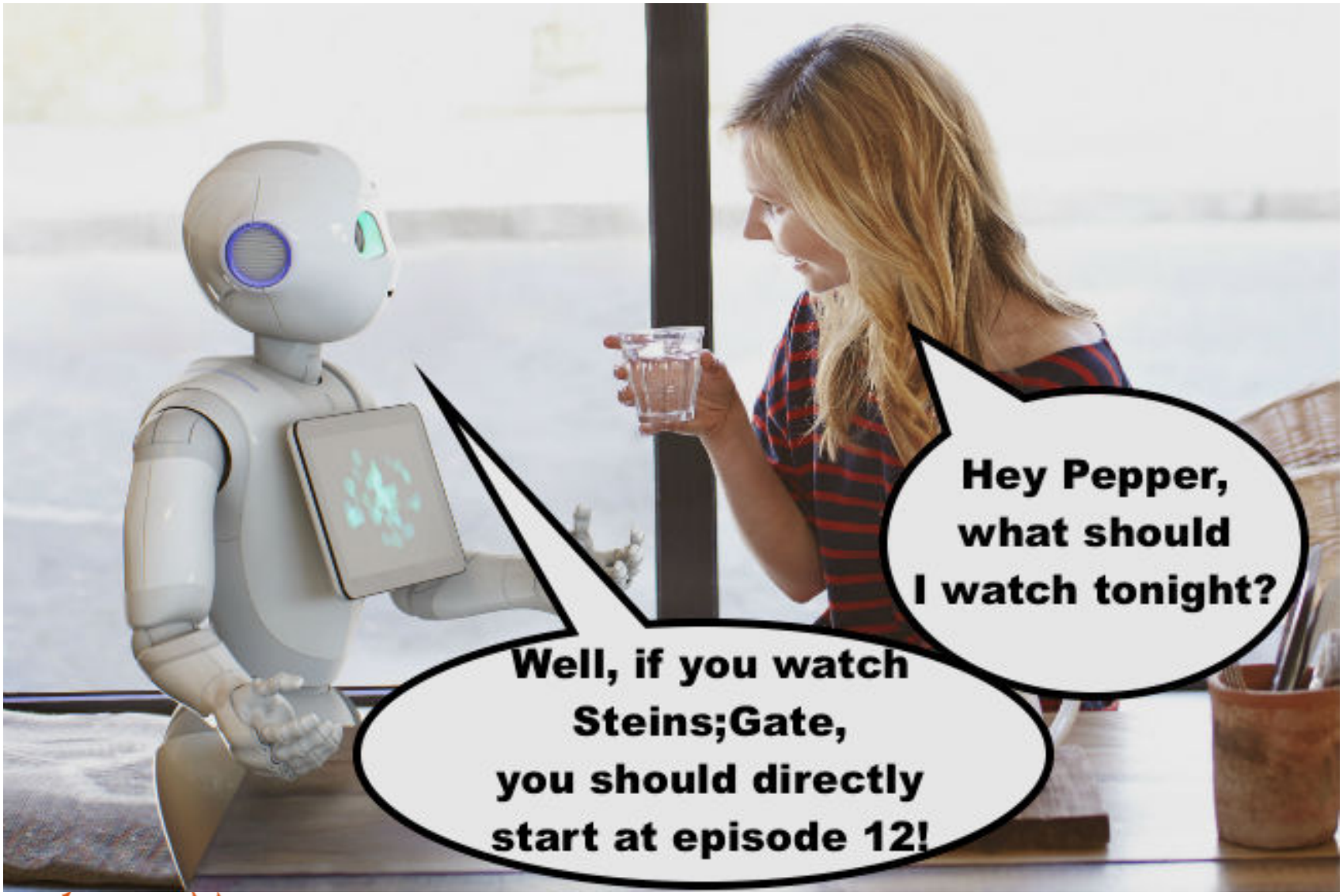
Watching assistant



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Take home message

- Using machine learning, you can predict the future
- Machine learning is made of many blocks put together
- But they need data
- To get data, interoperability is super important
  - Let's work together to pair myAnimeList / AniDB / TVtropes!
  - Contact us to know more

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Still, there are things we can never predict

hime@Anime Expo
@hime_bun

Suivre

If you told me this shit would happen like 3 years ago I would've laughed at your face

Traduire le Tweet

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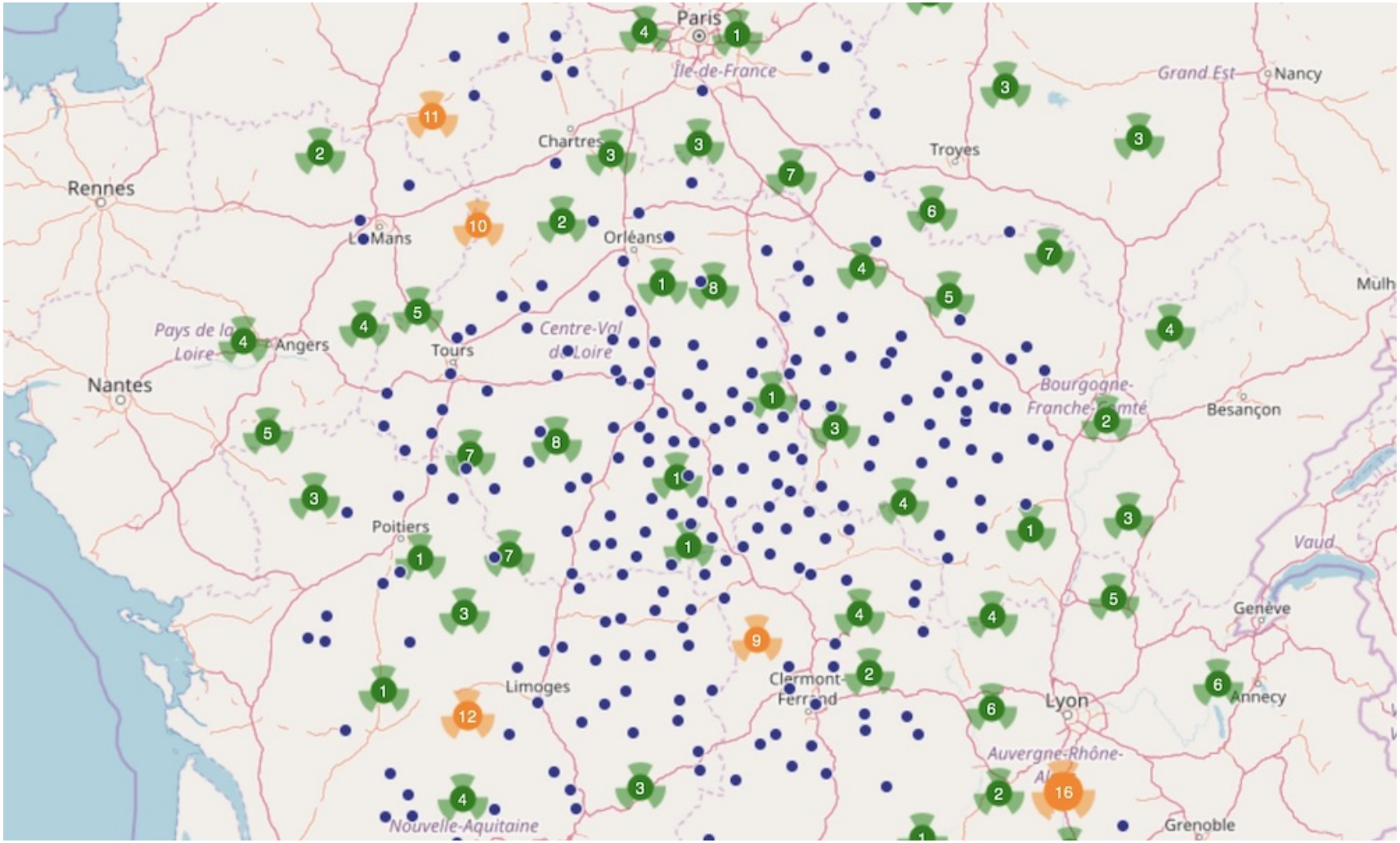
Thanks! Do you have any questions? jj@mangaki.fr



mangaki.fr/map

github.com/mangaki

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