

Ranking Mechanisms in Twitter-Like Forums

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Ranking – Ubiquitous

- Web Search
- Blogs
- Forums
- Social Networks
- Question/Answers
- Online Shopping
- Movie Ratings

We explore Ranking based on user ratings.

Screen Shot - Digg

394 diggs



digg

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Let the Egg show you the way - Shell Shocker Alert

newegg.com - Exclusive Shell Shocker - Don't bury...it's updated daily!

Share Bury

154 diggs

Pittsburgh Police Charged for Beating HS Honor Student

cnn.com — An arrest in which several punches were thrown has triggered an accusation of brutality against Pittsburgh, Pennsylvania, police from the mother of the 18-year-old honor student who was taken into custody. (Submitted by itc518)

24 Comments Share Bury Made popular 30 min ago

191 diggs

National Geographic: Stuck Mars Rover About to Die?

news.nationalgeographic.com — Built to rove for 90 days, Spirit has lasted six years on Mars. But now it's stuck and may lose power by May. Even standing still, though, Spirit can do a surprising amount of science, NASA says. (Submitted by TheEngineer2008)

20 Comments Share Bury Made popular 50 min ago



Top in All Topics

all news videos images

1209



The Most Amazing M/V2 Knife Kill (Video)

1114



The cutest picture you will see today

930



... King to Serve Beer

841



AT&T Insider Reports Losing iPhone Exclusivity 1/27

693



OT VII Scientology minister charged with murder

642



What the #####? Google's Nexus One Censors Curse Words

616



Conan Saves His Best Ratings For Last Tonight Show

568



'Piracy Isn't Killing Music' Radiohead's Guitarist Says

Screen Shot - YouTube

The screenshot displays the 'Most Popular' section of a YouTube interface. At the top, there is a red lightning bolt icon and the text 'Most Popular (view all)'. Below this, the page is organized into a grid of video recommendations, each with a category header, a video thumbnail, a title, view count, channel name, and a star rating. Two items are circled in red: 'PRANKING YOUR BF!' in the Entertainment category and 'Dwayne Johnson' in the Sports category.

Category	Video Title	Views	Channel	Rating	Duration
Entertainment	PRANKING YOUR BF! (4.21.10 - Day 266)	137,843	CTFxC	★★★★★	10:35
Music	Kesha - Tik Tok Official Video with L...	576,000	EvrenMusicH	★★★★★	3:33
News & Politics	Keith Olbermann's Response	57,878	FixedNewsChannel	★★★★★	8:19
Film & Animation	Adventures in Music 01	10,333	StephenWorth	★★★★★	4:27
Sports	Dwayne Johnson	1,150,596	MuscleAndFitnes...	★★★★★	3:06
Howto & Style	Wait, are we rolling?!	161,220	AllThatGlitters21	★★★★★	7:43

Hot or Not?

Official Rating

8.9

Based on 2377 votes



[Add to Favorites](#)

[Meet Me](#)

Select a rating to see the next picture.

NOT 1 2 3 4 5 6 7 8 9 10 HOT

Show me Age

[Add to Favorites](#)

[CLICK HERE TO MEET ME!](#)



Share Link:

Share On: [Facebook](#) [My Space](#) [Bebo](#) [Twitter](#) [Share by email](#)

[Nominate for "Best Of"](#) | [Flag](#)

NYC Forum

New Thread

Page 1 of 10 1 2 3 4 5 > Last »

Threads in Forum : Photos and Videos of New York Forum Tools Search this Forum

	Thread / Thread Starter	Rating	Last Post	Replies	Views
	Sticky: Wired New York Group on Flickr (1 2) Edward		December 31st, 2008 06:40 AM by Lwood	22	16,130
 	New York Skyline at Night by Evan Joseph Derek2k3		January 29th, 2010 10:59 AM by rp23q7	5	299
	Can you identify building to right of Savoy Plaza? MewersDad		January 28th, 2010 11:57 PM by lofter1	1	82
	Relive the NYC of 1924 Merry		January 28th, 2010 05:24 AM by Merry	0	117
	2007. A week in New York 2007 in 67 minutes. brianac		January 25th, 2010 09:27 PM by infoshare	10	565
	Walking in Bedford Park, The Bronx (1 2) krulltime		January 24th, 2010 10:54 PM by Merry	17	5,850
	New Year 2010 tazar		January 24th, 2010 10:30 PM by tazar	0	97
	Roofs of New York (1 2) Edward		January 24th, 2010 12:54 PM by Derek2k3	28	12,606

Many more

Brand
< Any Brand

Avg. Customer Review
Any Avg. Customer Review
★★★★☆ & Up (1,000)
★★★★☆ & Up (1,159)
★★★★☆ & Up (1,214)
★★★★☆ & Up (1,214)

Green
All Products
Energy Star (15)

Price
Any Price
Under \$25 (1,315)

Canon PowerShot SD1200IS 10 MP Digital Camera with 3x Optical Image Stabilized Zoom and 2.5-inch LCD (Silver)
Buy new: ~~\$179.00~~ **\$149.00**
16 new from \$149.00
6 used from \$129.00
Get it by **Monday, Feb 1** if you order in the next **49 minutes** and choose one-day shipping.
Eligible for **FREE Super Saver Shipping**.
★★★★☆ (368)

Canon PowerShot SD780IS12.1 MP Digital Camera with 3x Optical Image Stabilized Zoom and 2.5-inch LCD (Black)
Buy new: ~~\$229.00~~ **\$199.00**
17 new from \$199.00
12 used from \$164.99
Get it by **Monday, Feb 1** if you order in the next **49 minutes** and choose one-day shipping.
Eligible for **FREE Super Saver Shipping**.
★★★★☆ (345)

RECENT ACTIVITY

- Atish likes Devdatta Gangal's album Mumbai...
- Atish likes Mark Davis's activity.
- Atish commented on Danupon Nanongkai's photo.
- Atish commented on Danupon Nanongkai's photo.
- Atish likes Danupon Nanongkai's album Hong Kong Jan-??? 2010.
- Atish commented on Danupon Nanongkai's photo.

Atish Das Sarma had an absolutely wonderful trip to Lucknow+Kannur after almost 10 years!
January 8 at 11:09pm · Comment · Like

Amitabh Trehan, Danupon Nanongkai, Apoor Kishore and 2 others like this.

score **1690** time **1:16**

Matchin
A question of taste.

Which image do you prefer?

This one!

That one!

Peach

I use a Macbook and Mozilla Firefox... are there any applications that I can download that will allow me to take a screen shot? (preferably not InstantShot, since I've tried and either I can't figure it out because I'm dumb, or something isn't right.)

2 years ago

Report Abuse

Best Answer - Chosen by Voters

Actually, your mac should have an application called Grab that does this for you. Just type "Grab" in the Finder and you should find it.

Pablos+3

With Grab, you can set a timer for screenshots, select areas to 'grab', select windows, or take a shot of the whole screen.

I suggest dragging Grab to the Dock, once you find out where it is, for quick access.

May God bless you.
Source(s):
I use Firefox on a Mac.

2 years ago

100% 1 Vote

Report Abuse

Is this what you are searching for?

[Hacker-von Ahn]

Popular Ranking Methods

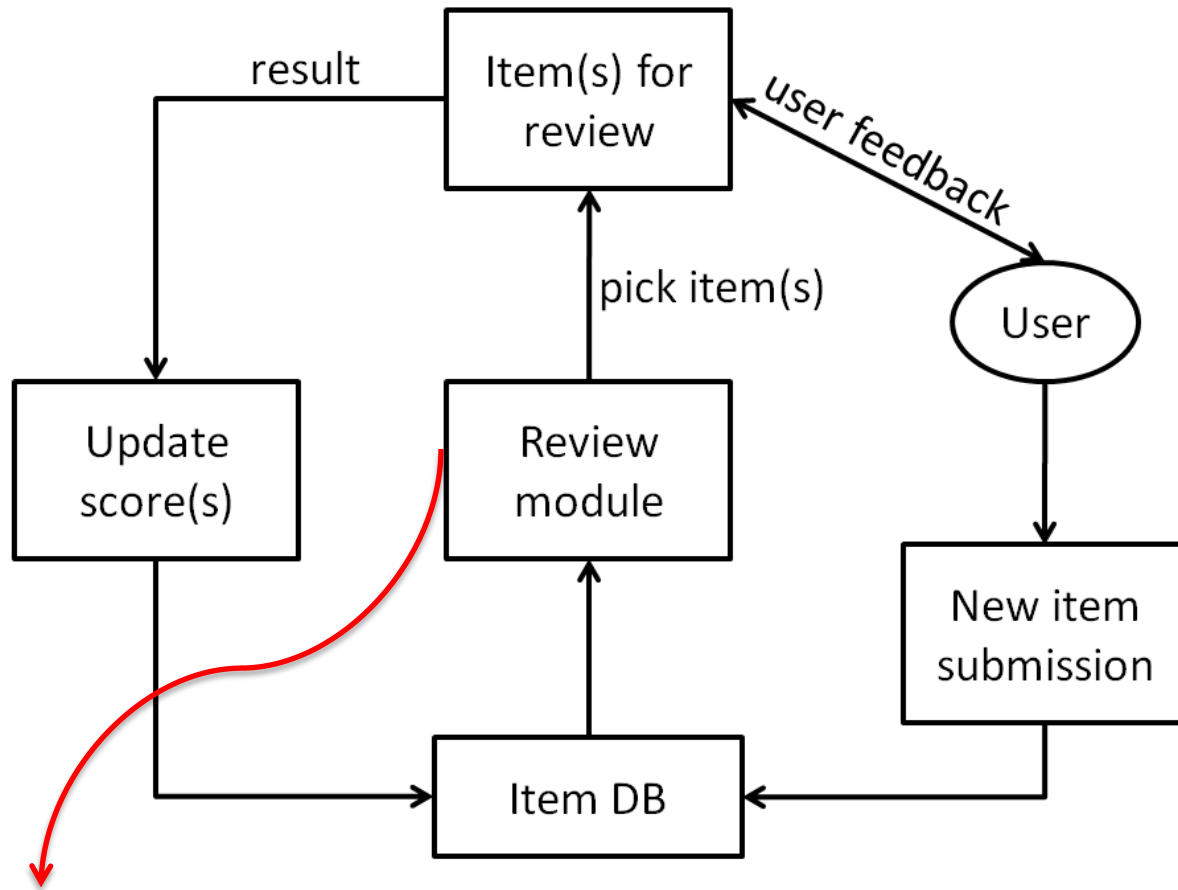
- Star Ratings



- Thumbs up-down (or just Thumbs-up) ratings
- Reputation Points
- Comparisons/Votes



Generic Architecture



YOUR CONTROL

KEY QUESTION: How do you pick items for review?

What is a Ranking Mechanism

- How to **seek reviews**
 - Dissociated from display (**floating**)
 - Along with display (**tied**)
- **Star-based** or **Comparison-based**? How many?
- What **order** to display? Or which ones to pick?
 - Can bias users to seek review on what you wish
 - Recent ones? (Users won't see good ones)
 - Good ones? (Rich gets Richer?)
 - Good but time decayed?
- How to **update scores**
- **Incentive** to review/vote.

Metrics for evaluating Mechanism

- **Quality of Ranking** per cost of review
- Cannot afford too much **review bandwidth**
 - A small fraction of users viewing items actually take the effort to review
- **Bounded Feedback Accurate Rankings**
 - Preferably no good item goes unnoticed
 - Only constant reviews. Is this even POSSIBLE?
- **Latency**
 - Forum writers want feedback quickly to keep them motivated

Our Contributions

- What is a good ranking mechanism?
- Study properties and analyze theoretically different ranking mechanisms
 - Thumbs/Stars-based
 - Comparison-based
- System that implements comparison-based ranking
- Simulations and Experiments

Results

- Our theorems informally
 - Under assumptions of score distribution and voting patterns – **accurate rankings possible under comparison based ranking with bounded feedback.**
 - Parameters where it is **impossible for thumbs-based ranking**
- Experimental results (synthetic and real) corroborate theory results
- Comparison-based may be superior to star-based

Possible disadvantages of Stars

Most Popular (view all)

Category	Title	Views	Channel	Rating	Duration
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Music	Kesha - Tik Tok Official Video with L...	576,000	EvrenMusicH	★★★★★	3:33
News & Politics	Keith Olbermann's Response	57,878	FixedNewsChannel	★★★★★	8:19
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Howto & Style	Wait, are we rolling?!	161,220	AllThatGlitters21	★★★★★	7:43

Rich gets Richer:
Large volume on all sites.

Unnormalized: Scoring
Independent of quality of
other item.

Current systems:
Not sufficient incentive
for users to vote.

Comparison-based ranking

- Feedback sought in the form of comparisons
 - Users shown a pair of items and have to choose which they prefer
- Advantages:
 - Automatic Normalization
 - Algorithm that converges to accurate rankings faster
 - Requires a bounded (constant) feedback bandwidth
 - Theoretically prove and show through system
- Disadvantages
 - Too expensive?
 - Need to choose pairs (users cannot choose what to review)

Where to use comparisons?

- Public forums:
 - Twitter
 - Digg
 - Jokes sites
 - Ranking messages on social networks (status messages on Facebook)
- Ranking blog posts
- Online shopping sites – Ebay, Amazon
- Generic/Personalized movie recommendations – IMDb
- Flickr, Youtube – applicable but perhaps burdensome (comparing videos)?
- Peer reviewing of papers?

ShoutVelocity System





- <http://shoutvelocity.com>
- Like twitter/digg – can post anything.
- Comparison-based ranking mechanism
- Items picked for review are inversely proportional to current rank estimates
 - Compare with similar approach in Thumbs
 - Even on Digg/Twitter, more popular item likely to be seen (and therefore rated) more.
- We solicit reviews.

ShoutVelocity Screen Shot

All Top Shouts : ([Aged Top Shouts](#), [Top Shouts in Last: 3 Days](#), [30 Days](#), [6 Months](#), [1 Year](#))

9.7
score

75% of all statistics are made up on the spot.

 9 Comments  Wins 38/57  Rank 1  **Atish Das Sarma** 387 days ago

9.6
score

"The fellow that agrees with everything you say is either a fool or he is getting ready to skin you." - Kin H...

 2 Comments  Wins 25/33  Rank 2  **Akriti Agrawal** 200 days ago

9.5
score

If it's true that we are here to help others, then what exactly are the others here for?

 3 Comments  Wins 27/34  Rank 3  **Akash Das Sarma** 191 days ago



9.3
score

And over there we have the Labyrinth guards. One always lies, one always tells the truth, and one stabs people who ask t...

 5 Comments  Wins 25/31  Rank 4  **Julia** 180 days ago

9.2
score

A mathematician is someone who thinks x is a number.


 1 Comments  Wins 18/22  Rank 5  **Aravind** 178 days ago

9.1
score

Management - Place where ineffective ppl are promoted to where they can

ShoutVelocity Screen Shot

Hi , Please tell us which shout do you prefer

-  **aqeel** shouts: Anytime you have a 50-50 chance of getting something right, there's a 90% probability you'll get it wrong :(

Nice one.

(491 chars left)



-  **Sin** shouts: Defeat is not when you fall down, its when you refuse to get up.

Absolutely :)

(487 chars left)



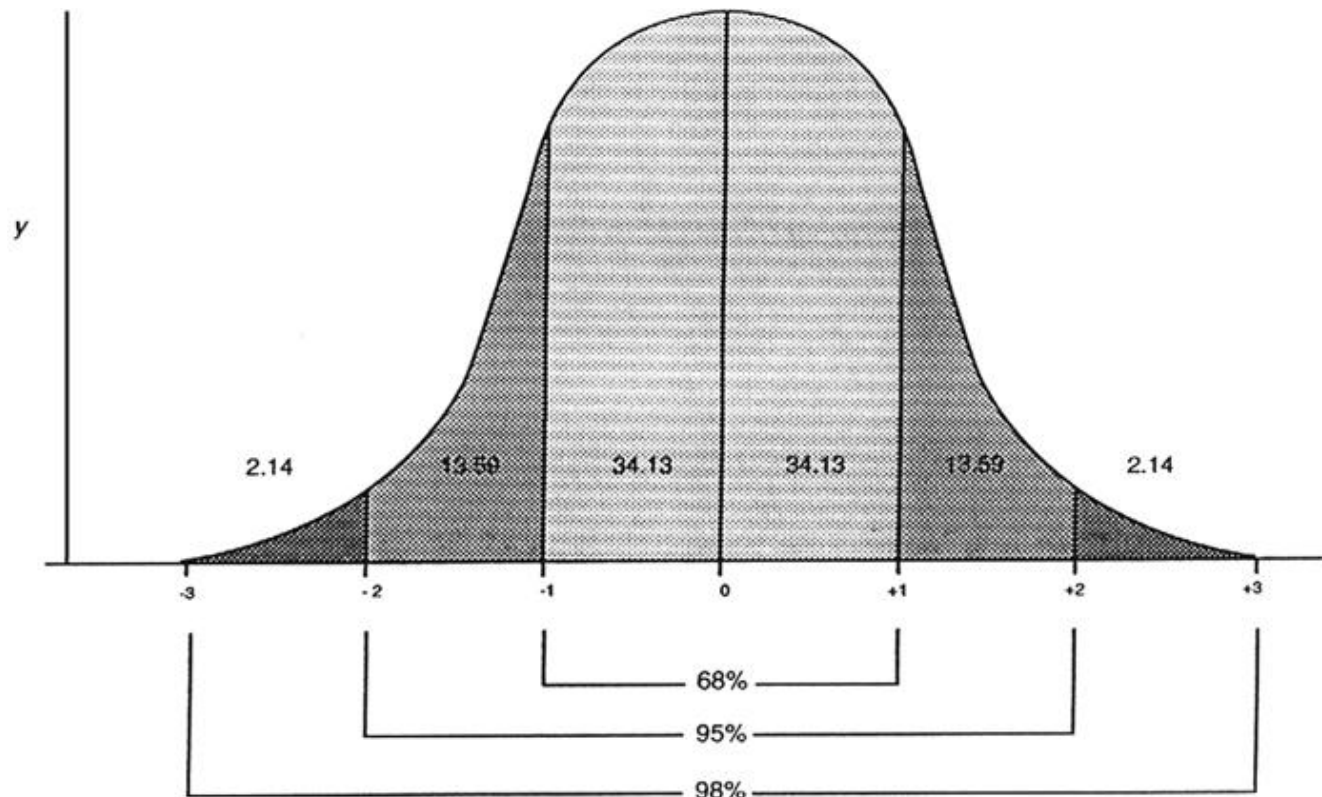
SUBMIT

Our System

- **Incentives** for providing feedback:
 - If user wants score/ranking for her post, she is required to provide feedback
 - Therefore, incentive to vote
 - If not, can read and post unhindered
 - Voting allowed even without posting
- **Sufficient Bandwidth?**
 - For every new item that requires a vote we have two previous items voted!
 - Two reviews per item – how to choose which two to review next?

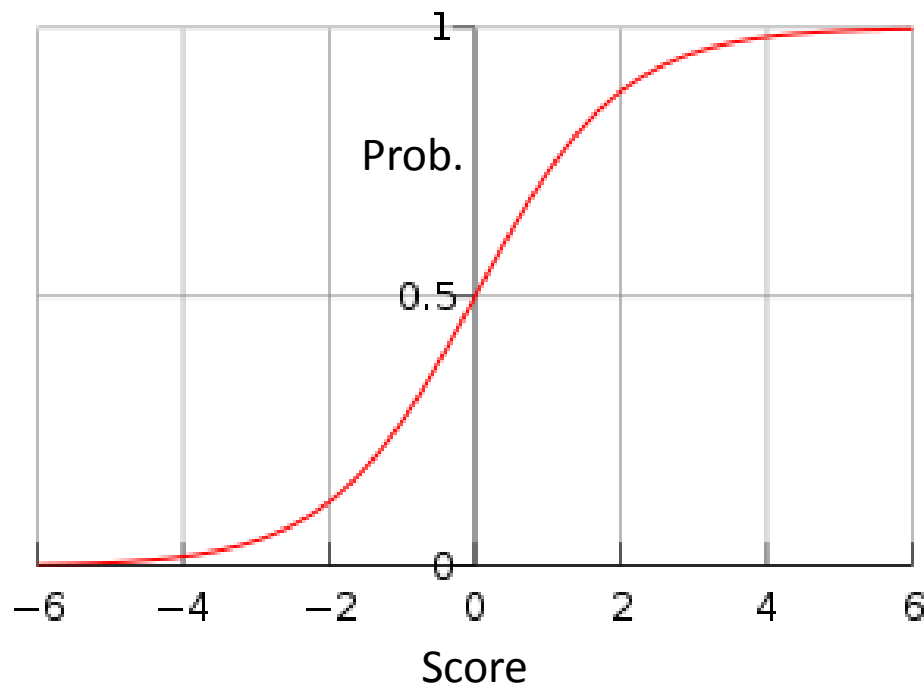
Theoretical Model - Scores

- Distribution of Scores



Probabilistic Voting Model

- Thumbs/Comparisons Scoring Mechanism



Score: x

Thumbs prob: $f(x)$

Comparisons

Prob. of score x beating score y

$$f(x - y)$$

$$f(x) = \text{erf}(\alpha x)$$

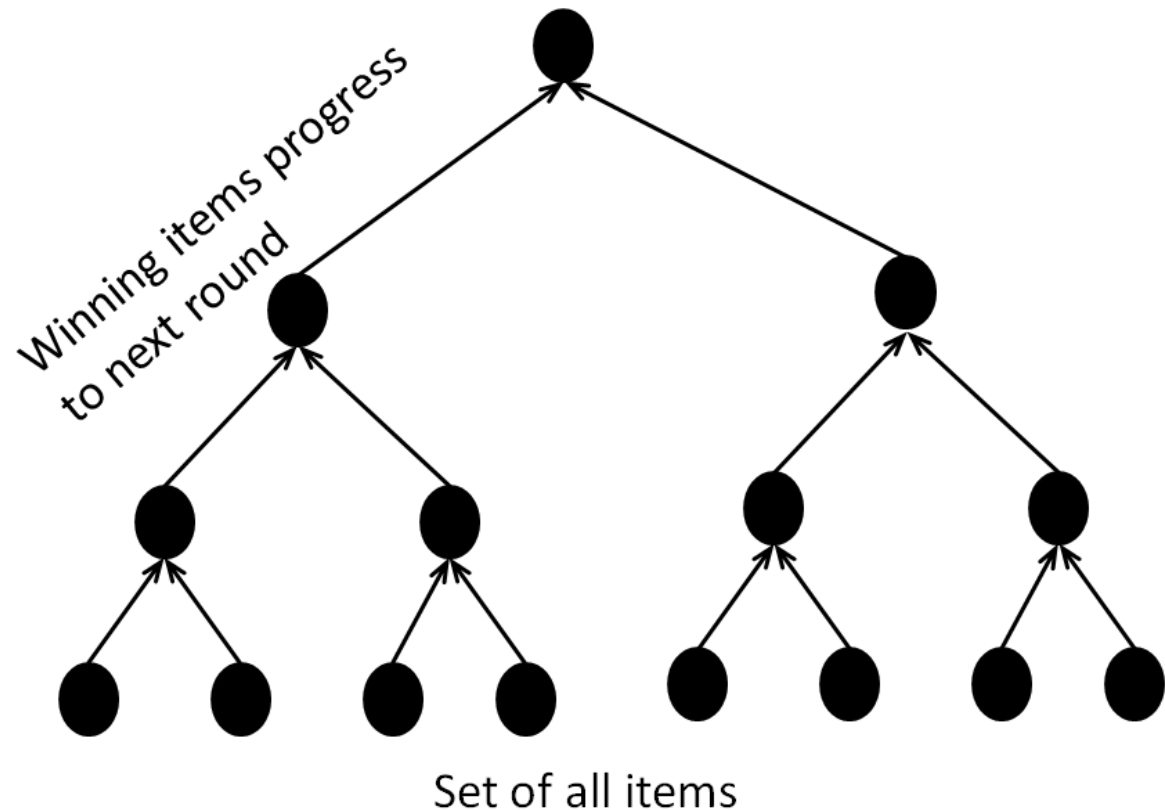
Probability that normal random variable with mean 0 variance $\alpha/\sqrt{2}$ exceeds x

Theory Results

- Comparisons: If scores normal distribution,
 - Algorithm to estimate rank r to within $r(1 \pm \epsilon)$
 - Bounded feedback per item.
- Thumbs: If scores normal distribution
 - If $(\alpha > 1)$
 - No algorithm can approximate rankings

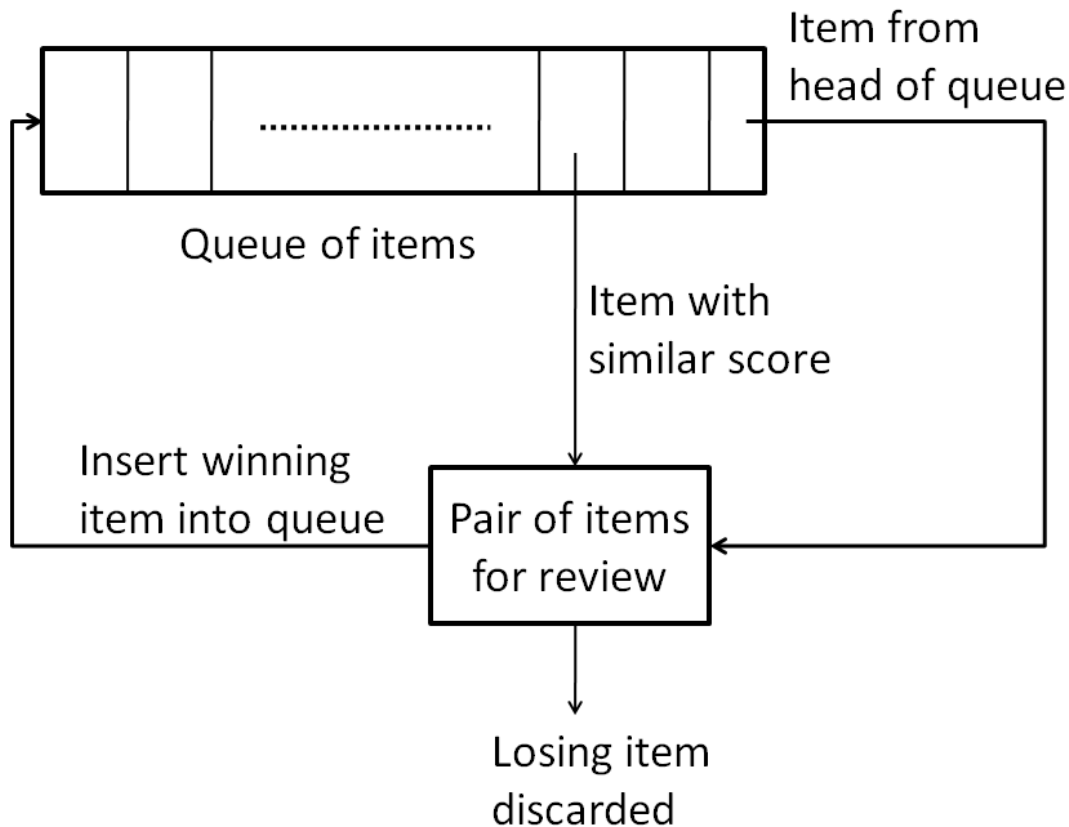
Algorithm (Intuition for Static)

- Static Tournament to estimate score of each item.



Algorithm (Dynamic)

- Dynamic tournament using a queue



Sample by $\frac{1}{r^\gamma}$

$\gamma \in [0, 1]$

Update Scores (similar to ELO in chess)

[Arpad Elo, 1978]

Discount factor (to capture intuition that after lot of comparisons, scores stabilize)

$$c_i = \frac{2}{(1 + k_i)^{0.5}}$$

If i_1 beats i_2 :

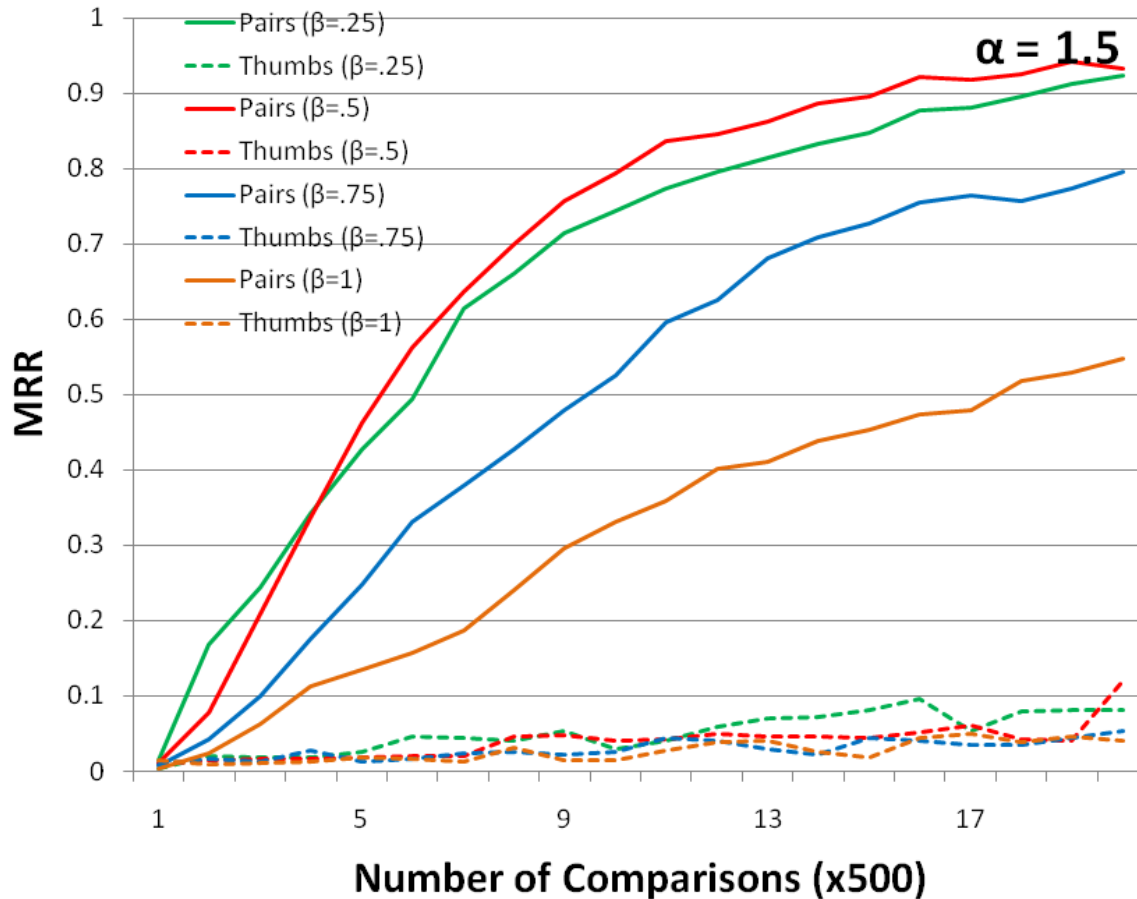
$$s_1 = s_1 + c_1 * \left(1 - \frac{1}{1 + 2^{(s_2 - s_1)}} \right)$$

$$s_2 = s_2 - c_2 * \left(\frac{1}{1 + 2^{(s_1 - s_2)}} \right)$$

Experimental Evaluation

- **Simulations: (synthetic)**
 - 1000 players with normal distribution scores (variance 1)
 - Twice the number of thumb evaluations as the number of comparisons
- **Experiments on ShoutVelocity: (real)**
 - 4853 comparisons over 1245 items
 - True score not known so estimated using many random ELO rated tournaments

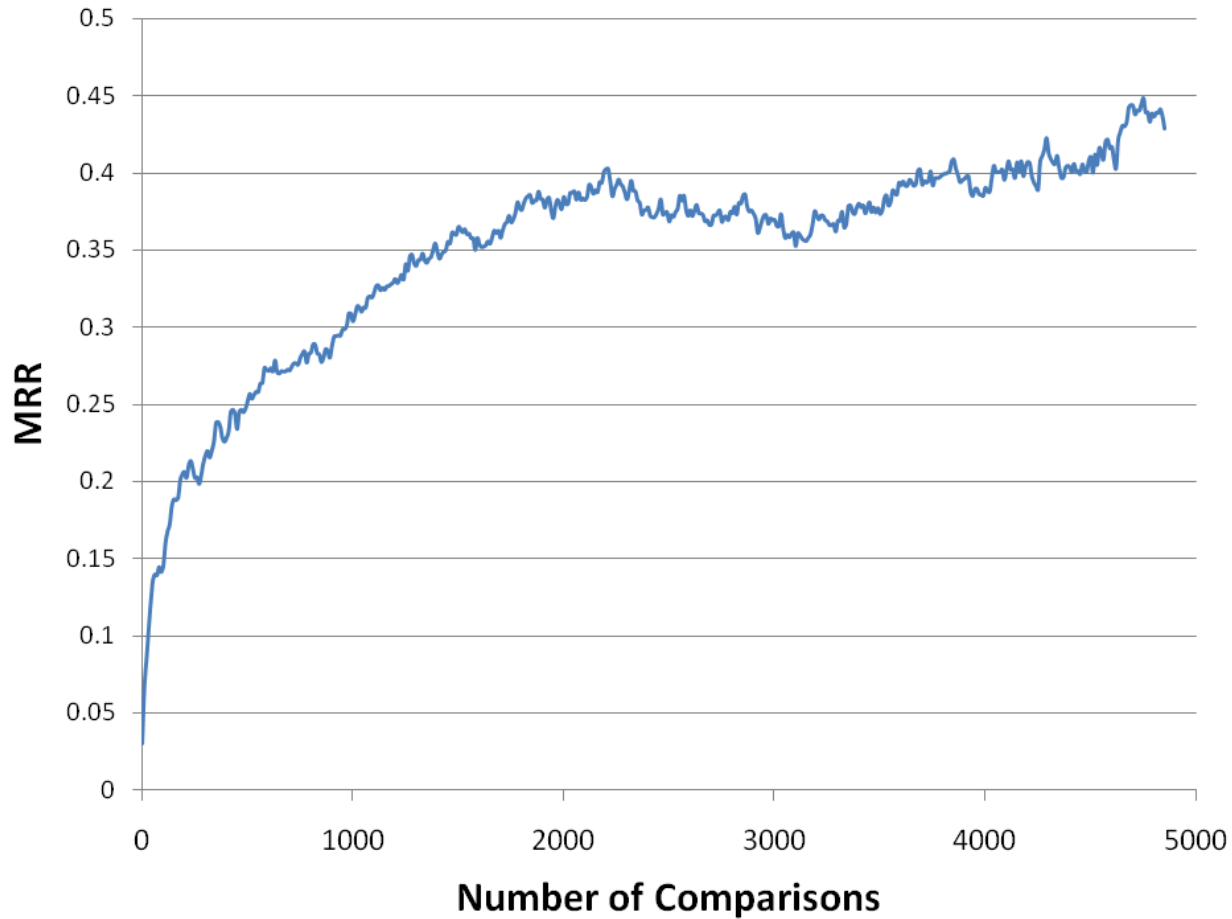
Simulation



$$\beta = 1 - \gamma$$

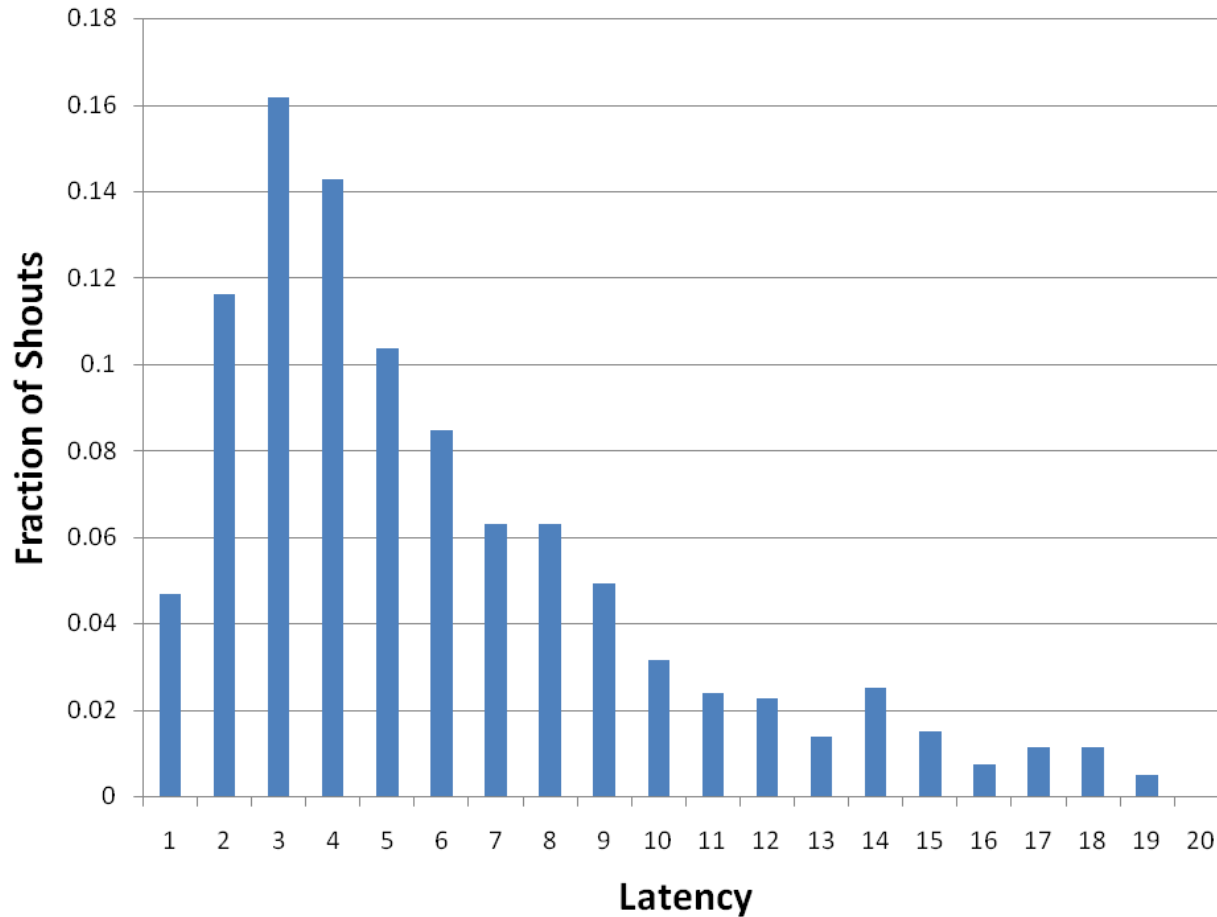
At 1000, 2000 reviews (comparison, thumbs), MRR are 0.244 and 0.019

Experiments



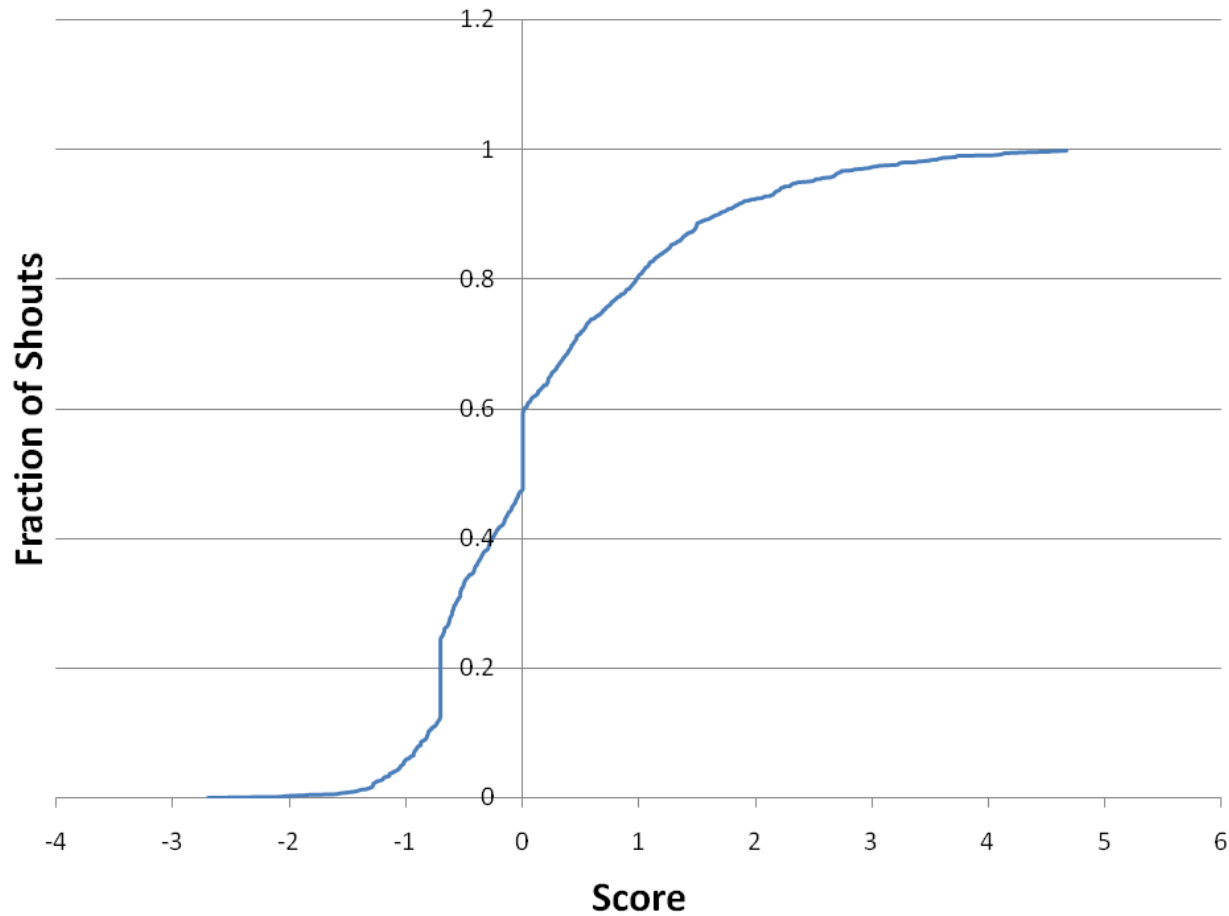
MRR shoots up fast

ShoutVelocity System Latency



Number of reviews to wait before getting first review

Scores (CDF) on ShoutVelocity



Assumption that Normal distribution is reasonable.

Conclusions

- Comparison Based Ranking presented
 - different categories? can one say unrelated/equal?
- ShoutVelocity System
- Star ratings
 - Generalization of Thumbs (and theoretical analysis can easily be extended)
- Generalize pairwise to n-wise comparisons?
 - Practicality questionable (more significant burden on users)
- Paper reviewing? 😊

Ranking Mechanisms in Twitter-Like Forums

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Yahoo! Research, ~~Georgia Tech.~~, **On the job market!** atish@cc.gatech.edu
Microsoft Research, Microsoft Research

Thank You!