

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

OPENTV, INC.,	)	
	)	
Plaintiff,	)	
	)	C.A. No. 24-1301 (JCG)
v.	)	
	)	JURY TRIAL DEMANDED
PINTEREST, INC.,	)	
	)	
Defendant.	)	

DEFENDANT PINTEREST, INC.’S
ANSWER TO AMENDED COMPLAINT AND DEFENSES

Defendant Pinterest, Inc. (“Pinterest”), by and through its undersigned attorneys, responds to the First Amended Complaint for Patent Infringement (“FAC”) filed by Plaintiff OpenTV, Inc. (“Plaintiff”) on February 18, 2025. (D.I. 16). To the extent not specifically admitted herein, the allegations of the FAC are denied.

INTRODUCTION¹

1. Pinterest admits that Plaintiff purports to plead a cause of action for patent infringement. Pinterest denies it has committed acts of infringement, and denies the remaining allegations in Paragraph 1 of the FAC.

¹ The headings and numbered paragraphs herein correspond to those set forth in the First Amended Complaint and are provided for convenience only. Pinterest denies any allegations presented in those headings.

2. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 2 of the FAC and therefore denies them.

3. Denied.

4. Pinterest denies it has committed any acts of infringement, and therefore denies that Plaintiff is entitled to damages, a permanent injunction, or attorneys' fees and costs.

THE PARTIES

5. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 5 of the FAC and therefore denies them.

6. Pinterest admits that it is a Delaware corporation with a principal place of business at 651 Brannan Street, San Francisco, CA 94107.

JURISDICTION AND VENUE

7. Pinterest admits that Plaintiff purports to plead a cause of action for patent infringement. Pinterest denies that it has committed any acts of patent infringement, and denies any remaining allegations of Paragraph 7 of the FAC.

8. Pinterest admits that this Court has subject matter jurisdiction over the FAC pursuant to 28 U.S.C. §§ 1331 and 1338, provided that standing and other

requirements are met, but denies that Plaintiff's claims are valid or sustainable and denies any remaining allegations of Paragraph 8 of the FAC.

9. Pinterest admits that it is a Delaware corporation and does not contest that this Court has personal jurisdiction over it solely for the purposes of this action. Plaintiff's remaining allegations are legal conclusions to which no response is required. To the extent a response is required, Pinterest denies the remaining allegations in Paragraph 9 of the FAC, including that it has committed any acts of patent infringement in this or any other District.

10. Pinterest admits that it is a Delaware corporation and does not contest that venue is proper in this District solely for the purposes of this action.

FACTUAL BACKGROUND

I. OpenTV

11. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 11 of the FAC and therefore denies them.

12. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 12 of the FAC and therefore denies them.

13. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 13 of the FAC and therefore denies them.

14. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 14 of the FAC and therefore denies them.

15. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 15 of the FAC and therefore denies them.

16. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 16 of the FAC and therefore denies them.

17. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 17 of the FAC and therefore denies them.

18. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 18 of the FAC and therefore denies them.

19. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 19 of the FAC and therefore denies them.

20. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 20 of the FAC and therefore denies them.

21. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 21 of the FAC and therefore denies them.

22. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 22 of the FAC and therefore denies them.

23. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 23 of the FAC and therefore denies them.

24. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 24 of the FAC and therefore denies them.

25. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 25 of the FAC and therefore denies them.

26. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 26 of the FAC and therefore denies them.

27. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 27 of the FAC and therefore denies them.

28. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 28 of the FAC and therefore denies them.

29. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 29 of the FAC and therefore denies them.

30. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 30 of the FAC and therefore denies them.

31. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 31 of the FAC and therefore denies them.

32. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations in Paragraph 32 of the FAC and therefore denies them.

II. Pinterest

33. Pinterest admits that it is a Delaware corporation with a principal place of business in San Francisco, California.

34. Pinterest admits that, as of the date of this Answer, <https://help.pinterest.com/en/guide/all-about-pinterest> states: “Pinterest is a visual discovery engine for finding ideas like recipes, home and style inspiration, and more.” Pinterest admits that www.pinterest.com can be accessed via browser or from mobile applications, and that its website speaks for itself. Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies any remaining allegations of Paragraph 34 of the FAC.

35. Pinterest admits that types of Pins include image Pins and video Pins. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/guide/all-about-pinterest> states: “To organize your

Pins within boards, create board sections. Add a ‘Decorations’ or ‘Party games’ section to your Birthday party board to keep similar ideas in the same place. Organize your Pins in whatever way makes sense to you.” Pinterest admits that the website also states: “Your home feed is where you'll find Pins, people and businesses we think you'll love, based on your recent activity. We’ll also show you Pins from the people and boards you choose to follow.” Pinterest states that its website speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies any remaining allegations in Paragraph 35 of the FAC.

A. The Importance of Video to Pinterest’s Platform

36. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-gif-performance-on-pinterest-8dad74bf92f1> states: “Pinterest is one of the most image-heavy services online, and so it’s crucial that we constantly work to improve the speed and quality of those images, whether static, GIF or video.” Pinterest further admits the website states: “. . . we began converting GIFs to videos after building out our native video platform in 2016.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 36 of the FAC.

37. Pinterest admits that as of the date of this Answer, <https://newsroom-archive.pinterest.com/introducing-new-ways-for-creators-to-build-and-grow-with-pinterest> states “Story Pins is an all new type of Pin and publishing option that gives creators a way to tell dynamic and visual stories with videos, voiceover and image and text overlay.” Pinterest further admits that as of the date of this Answer, <https://newsroom-archive.pinterest.com/pinterest-introduces-idea-pins-globally-and-launches-new-creator-discovery-features> states: “Idea Pins are an evolution of Story Pins, with a fresh name to better match the uniqueness of a product that empowers creators to share long-lasting ideas and not ephemeral stories. Starting today, creators will have a suite of new publishing tools including, video-first features, fresh editing tools and updates to make creating Idea Pins easier and more creative.” Pinterest states that its website speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 37 of the FAC.

38. Denied.

39. Pinterest admits that as of the date of this Answer, <https://www.businesswire.com/news/home/20220203005895/en/Pinterest-Announces-Fourth-Quarter-and-Full-Year-2021-Results> states: ““We took important steps in 2021 with the launch of our foundational technology to deliver a

video-first publishing platform. And I'm proud to say that for the first time, we surpassed \$2 billion in revenue for the year — growing 52% over the previous year — and reached our first full year of GAAP profitability,' said Ben Silbermann, CEO and co-founder, Pinterest.” Pinterest states that this article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 39 of the FAC.

40. Pinterest admits that as of the date of this Answer, the UK-facing webpage <https://business.pinterest.com/en-gb/blog/video-ads-pinterest-high-intent-shoppers> states: “This presents a unique opportunity for advertisers to share video content that not only grabs our users’ attention but takes them from inspiration to action.” Pinterest further admits that the UK-facing website states: “Video plays a critical role in this journey. On Pinterest, people view videos mindfully, scrolling three times slower than they do on other social platforms.” Pinterest further admits that the UK-facing website states: “When viewers are captivated by the videos they see and watch them until the end, they’re more likely to remember your brand and take action, transforming viewers into potential customers.” Pinterest admits that as of the date of this Answer, <https://newsroom-archive.pinterest.com/en-gb/mastering-the-art-of-inspirational-videos-on-pinterest> states: “In fact, 66% of Pinners say that videos add to their discovery experience more significantly than

videos on other media platforms. Pinnerers are also 54% more likely to say that videos on Pinterest inspire them to take action.” Pinterest states that these webpages speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 40 of the FAC.

41. Pinterest admits that as of the date of this Answer, the webpage <https://help.pinterest.com/en/article/create-a-pin-from-an-image-or-video> states “Create a video Pin” and to click “the arrow circle up icon to select a video from your computer (or drag and drop into the upload window).” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 41 of the FAC.

42. Pinterest admits that as of the date of this Answer, the UK-facing webpage <https://business.pinterest.com/en-gb/blog/video-ads-pinterest-high-intent-shoppers/> states: “Your ads work harder here [¶] Pinterest’s suite of full-funnel video ads is designed to cater to every stage of the purchase journey, no matter your objectives. Whether aiming to drive brand lift in the upper funnel or achieve conversions in the lower funnel, there’s a video solution to match. [¶] Video ads: Available in two formats: standard, which is the same size as a vertical Pin, and max-

width, which covers the full width of the Pinterest mobile feed. These eye-catching videos are designed to grab attention as people scroll their feed, making them ideal for driving both awareness and consideration. [¶] Idea ads: Dive into the world of mobile-first native storytelling. With an array of creative and interactive features at your disposal, you can either take the reins or collaborate with a creator to craft a compelling narrative via our paid partnership tool. [¶] Premiere Spotlight: Want to make a splash at the moments that matter most for your brand? By using Premiere Spotlight, our newest high-impact awareness offering designed to reach Pinners at scale, brands observed a staggering 8.2x surge in Aided Brand Awareness.⁶ [¶] Video shopping ads: Currently in beta, merchants have the opportunity to include a video clip in their product catalogue and promote the product as an ad.⁷” Pinterest further admits that the UK-facing webpage website states: “In fact, advertisers leveraging at least two video formats saw a notable increase in various brand metrics, from a 1.4x uplift in brand awareness and favourability to a 1.2x boost in brand recall and action intent.” Pinterest states that these webpages speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 42 of the FAC.

43. Denied.

B. Pinterest's Alleged Use of Adaptive Bitrate Streaming

44. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/optimizing-video-playback-performance-caf55ce310d1> states: “There are external analyses showing how interruption or slowness of video loading can result in users abandoning the experience. A three second delay can cost you 13 percent of views.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 44 of the FAC.

45. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/optimizing-video-playback-performance-caf55ce310d1> states: “To enable efficient streaming and mitigate some of the problems listed above we use adaptive bitrate streaming, which is currently the industry standard for video delivery. Two of the most popular implementations of ABR streaming are Apple’s HLS and MPEG-DASH. Both of these technologies work by encoding a source video file into multiple streams with different bitrate. Then those streams split into smaller segments with similar duration times (e.g. few seconds). The video player then seamlessly switches between the streams depending on the available bandwidth and other factors. This allows the video to still play (at a

lower quality) when the signal is poor and jump to the higher quality stream when the signal strengthens.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 45 of the FAC.

46. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-abr-video-performance-at-pinterest-f0ea47a6d4fc> states: “HLS is supported through iOS’s AVPlayer, while DASH is supported by Android’s ExoPlayer. Currently, HLS accounts for approximately 70% of video playback sessions on iOS apps, and DASH accounts for around 55% of video sessions on Android.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 46 of the FAC.

47. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-abr-video-performance-at-pinterest-f0ea47a6d4fc> states: “ABR Streaming is a widely adopted protocol in the industry for delivering video content. This method involves encoding the content at multiple bitrates and resolutions, resulting in several rendition versions of the same video. During playback, players enhance the user experience by selecting the best

possible quality and dynamically adjusting it based on network conditions.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 47 of the FAC.

C. Pinterest’s Website, Mobile Applications, and Pin Recommendation System(s)

48. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “User experience in modern content discovery applications critically depends on high-quality personalized recommendations. However, building systems that provide such recommendations presents a major challenge due to a massive pool of items, a large number of users, and requirements for recommendations to be responsive to user actions and generated on demand in real-time.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 48 of the FAC.

49. Pinterest admits that it collects certain technical information when its service is used. Pinterest states that its website speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that

Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 49 of the FAC.

50. Pinterest admits that as of the date of this Answer, <https://policy.pinterest.com/en/privacy-policy> states: “To do that, we use your information to provide and improve your experience, including to: [¶] • Identify you when you use our Services. [¶] • Recommend Pins, boards, or content you might like based on your activity on our Services and your offsite behavior.” Pinterest states that its website speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 50 of the FAC.

51. Pinterest admits that as of the date of this Answer, <https://policy.pinterest.com/en/privacy-policy> states: “By using our products or services, you authorize us to transfer and store your information outside your home country, including in the United States, for the purposes described in this policy.” Pinterest further admits that the webpage states: “When you use a website, mobile application or other internet service, certain internet and electronic network activity information gets created and logged automatically.” Pinterest further admits that as of the date of this Answer, <https://policy.pinterest.com/en/technical-information-we-collect-when-you-use-our-service> states:

- Session log
 - Actions taken during session
- Device specific information (device type and identifiers; events, such as crashes)
- Account profile information
- Social contacts you authorize us to receive
- Pinterest content engagement
 - Search queries
 - Actions on Pins (clicks, close-ups, likes, saves and shares of Pins)
 - Actions on Boards (creation of boards, likes, saves and shares of Pins)
 - Comments
- Ads engagement
 - Ads served to a page and likelihood you have seen them
 - Actions on ads (clicks on ads, saves on pages featuring ads)

Pinterest states that its website speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 51 of the FAC.

52. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/representation-online-matters-practical-end-to-end-diversification-in-search-and-recommender-cb60b547f2e0> states: “Advanced search and recommender systems, which operate at the large-scale of hundreds of millions of active users and billions of items, tend to be very complex and have multiple components. These systems often comprise two major stages: retrieval and ranking.” Pinterest further admits that the webpage states: “The retrieval stage consists of one or more candidate generators that narrow down the set of candidates from a large corpus of items (in the range of 10^6 to 10^{10}) to a much

narrower set (in the range of 10^2 to 10^4) based on some predicted scores, such as the relevance of the items to the query and the user.” Pinterest further admits that the webpage also states: “In the ranking stage, the goal is to find an ordering of the candidates that maximizes a combination of objectives, which may include utility metrics, diversity objectives, and additional business goals.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 52 of the FAC.

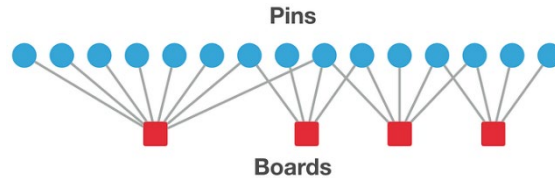
53. Plaintiff purports to excerpt a diagram from a webpage, <https://medium.com/pinterest-engineering/pinteresthome-feed-unified-lightweight-scoring-a-two-tower-approach-b3143ac70b55>. Pinterest admits that as of the date of this Answer, the webpage includes that diagram. Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 53 of the FAC.

54. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “The first step, ‘Candidate Generation’, is a recall-driven step that aims to efficiently fetch a set of broadly relevant Pins. Pixie is one such candidate generator. This step uses recent user

engagement to formulate an input representative of the Pinner's interests. The input Pin is used to fetch similar Pins, which are quickly scored based on simple heuristics (in Pixie's case, this is the visit count score), with additional boosting logic applied for specific business needs. The Pins with the highest score are then passed to the next step of the funnel." Plaintiff purports to excerpt a diagram from the webpage. Pinterest admits that as of the date of this Answer, the webpage includes that diagram. Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 54 of the FAC.

55. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: "**Present work: Pixie.** Here we present Pixie, a scalable real-time graph-based recommendation system deployed at Pinterest. Currently, pins recommended by Pixie represent more than 80% of all user engagement at Pinterest. In an A/B tests recommendations provided by Pixie increase per pin engagement by up to 50% higher compared to the previous Pinterest recommendation systems." Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 55 of the FAC.

56. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/introducing-pixie-an-advanced-graph-based-recommendation-system-e7b4229b664b> states: “Pixie [¶] We started from a bipartite graph where each edge shows that a person saved a Pin to a board.



This graph captures a huge amount of rich data from our users, and is quite large, with more than 100 billion edges and several billion nodes. Thankfully, RAM today is incredibly cheap, and big data like this is small enough to fit on readily available AWS machines. Before terabyte-scale RAM machines were available, complex distributed systems like Hadoop or Spark were needed to compute algorithms for data of this scale. Fortunately, in a way big data is actually getting smaller! Now we can load the entire graph into a single machine and traverse all of it without making any network calls. This makes real-time algorithms on densely connected graphs much easier to develop and deploy at scale, and allows us to make recommendations in real-time the moment a Pinner opens our app (instead of computing them in batch jobs the night before).” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications,

insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 56 of the FAC.

57. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “Making Pixie recommendations even more personalized [¶] Despite its great success across multiple major product surfaces at Pinterest, Pixie currently faces several challenges that limit it from generating even more relevant content: [¶] 1. Pixie’s ‘visit count’ score sorts the generated pins purely on graph structure; it does not take any user preferences into account. At Pinterest, we’ve built a bunch of features that represent user interest and pin information that may help improve personalization.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 57 of the FAC.

58. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “**(1) Biasing the Pixie Random Walk.** It is important to bias the random walk in a user-specific way. This way, even for the same query set Q, recommendations will be personalized and will differ from a user to user. For example, Pinterest graph contains pins and boards

with different languages and topics and from the user engagement point of view it is important that users receive recommendations in their language and on the topic of interest. [¶] We solve the problem of biasing the random walk by changing the random edge selection to be biased based on user features. The random walk then prefers to traverse edges that are more relevant to that user. One can think of these edges as having higher weight/importance than the rest of the edges in the graph. This way we bias the random walk in a user-specific way towards a particular part of the graph and let it focus on a particular subset of pins. In practice, this modification turns out to be very important as it improves personalization, quality, and topicality of recommendations, which then leads to higher user engagement.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 58 of the FAC.

59. Plaintiff purports to excerpt a diagram from a webpage, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3>. Pinterest admits that as of the date of this Answer, the diagram is included in the webpage. Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the

admitted facts. Pinterest denies the remaining allegations in Paragraph 59 of the FAC.

60. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “Since our lightweight model is followed by a more precise full ranking step downstream, the major design choice during model training came in choosing the model optimization strategy.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 60 of the FAC.

61. Pinterest denies that the webpage cited by Plaintiff in support of Paragraph 61 of the FAC discusses Pinnability; however, Pinterest admits that as of the date of this Answer another webpage, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60>, states: “Pinnability is the collective name of the machine learning models we developed to help Pinners find the best content in their home feed.” Pinterest states that the webpages speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 61 of the FAC.

62. Pinterest admits that <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Figure 3 summarizes the three major components of our Pinnability workflow, namely training instance generation, model generation and home feed serving.

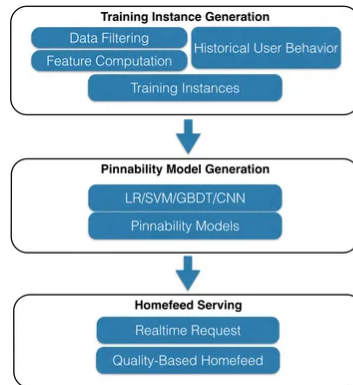


Fig 3: Pinnability pipeline overview.

Training instance generation [¶] The basis of the Pinnability training data is the historical Pinner interaction with home feed Pins. For example, after viewing a Pin in home feed, a Pinner may choose to like, repin, click for a Pin closeup, clickthrough, comment, hide, or do nothing. We record some of the “positive actions” and “negative action” as training instances. Naturally the number of Pins viewed is often much larger than the number of Pins in which the Pinner made a positive action, so we sample the positive and negative instances at different rates. With these defined, we test thousands of informative features to improve Pinnability’s prediction accuracy.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or

speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 62 of the FAC.

63. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Our unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included. [¶] • Pinner features are about the particulars of a user, such as how active the Pinner is, gender and board status. [¶] • Interaction features represent the Pinner’s past interaction with Pins of a similar type.” Pinterest states that this article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 63 of the FAC.

64. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/how-pinterest-leverages-realtime-user-actions-in-recommendation-to-boost-homefeed-engagement-volume-165ae2e8cde8> states: “The Pinnability model has been using some pretrained user

embedding to model user’s interest and preference. For example, we use PinnerFormer (PinnerSAGE V3), a static, offline-learned user representation that captures a user’s long term interest by leveraging their past interaction history on Pinterest.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 64 of the FAC.

65. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “With Pinnability launched, the candidate Pins for home feed are scored using the Pinnability models. The scores represent the personalized relevance between a Pinner and the candidate Pins. Pins in home feed are prioritized by the relevance score as illustrated in Figure 2.

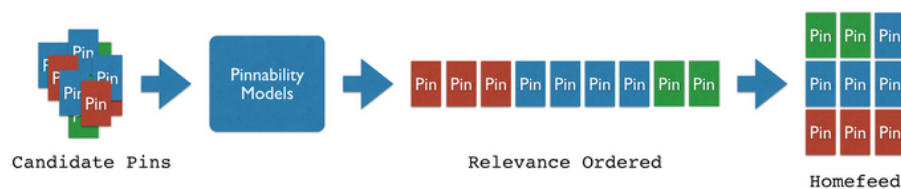


Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score. »

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges

follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 65 of the FAC.

66. Denied.

67. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/representation-online-matters-practical-end-to-end-diversification-in-search-and-recommender-cb60b547f2e0> states: “In this post, we show how we improved diversification on Pinterest for three different surfaces: Search, Related Products, and New User Homefeed.” Pinterest further admits that as of the date of this Answer, <https://help.pinterest.com/en/article/video-on-pinterest> states: “Video Pins play on your desktop when at least 50% of the video Pin is on the screen.” Pinterest states that the article and website speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 67 of the FAC.

D. Pinterest’s Website, Mobile Application, and Advertisement Recommendation Technologies

68. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/redesigning-pinterests-ad-serving-systems-with-zero-downtime-3253d2432a0c> states: “As of 2022, Mohawk: [¶] • Served more than 2 billion ad impressions per day and generated \$2.8 billion in ad revenue[.]” Pinterest states that the article speaks for itself and denies any

conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 68 of the FAC.

69. Denied.

70. Pinterest denies the purported quoted language in Paragraph 70 of the FAC, which appears to be missing an open quote and misleadingly strings together different parts of the cited webpage using ellipses. That said, Pinterest admits that as of the date of the Answer, <https://medium.com/pinterest-engineering/user-action-sequence-modeling-for-pinterest-ads-engagement-modeling-21139cab8f4e> states: “To deliver a personalized and enjoyable ad experience for its users, the [Ads] Engagement Modeling team built deep neural network (DNN) models to continuously learn and adapt to user feedback and behavior, ensuring that the ads shown are highly targeted and valuable to the user.” Pinterest further admits that the webpage states: “To make the ads Click-through rate (CTR) predictions more personalized, our team has adopted users’ real time behavior histories and applied deep learning algorithms to recommend appropriate ads to users.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 70 of the FAC.

71. Pinterest admits that <https://medium.com/pinterest-engineering/redesigning-pinterests-ad-serving-systems-with-zero-downtime-3253d2432a0c> states: “Mohawk, implemented in 2014, was Pinterest’s first ad serving system.” Pinterest further admits that the webpage states: “From late 2021 to mid-2023, the Ads Infra team, along with several key collaborators, redesigned and rewrote this system entirely from scratch to address years of tech debt and lay the foundations for the next 5+ years of audacious business goals.” Pinterest also admits that <https://medium.com/pinterest-engineering/debugging-ad-delivery-at-pinterest-8b7b1f562afc> states: “Our ad delivery system consists of several different systems, each with its own responsibilities (candidate generation, trimming, scoring, bid/budget management, indexing, content safety filtering, etc).” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 71 of the FAC.

72. Pinterest admits that as of the date of this Answer, <https://business.pinterest.com/getting-started-in-ads-manager/> states: “Expand your reach and find new customers using targeting options based on demographics, interests or on-platform behaviors.” Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/redesigning-pinterests-ad->

serving-systems-with-zero-downtime-3253d2432a0c states: “Mohawk, implemented in 2014, was Pinterest’s first ad serving system. During its eight-year lifespan, Mohawk became one of the most complex systems at Pinterest.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 72 of the FAC.

73. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/ad-delivery> states: “Ad delivery [¶] Our ad auction allows us to provide value to both Pinners and advertising partners by serving the highest quality ads at the most relevant moments and optimizing business outcomes for our advertising partners. [¶] For each available ad impression, our auction system selects the best ad for that position, based on the likelihood of a desired action occurring and how much that action is worth to you. The likelihood of the action occurring depends on factors like landing page quality and targeting relevance. Your bid tells us what you'd pay for the action you choose to optimize for. [¶] You pay only what's needed to beat the next best ad in the auction. In some cases, you may pay less than your bid. However, setting bids that are too low may restrict the delivery of your ad. To learn more about setting bids, read this article.” Pinterest states that this webpage speaks for itself and denies any conclusions,

characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 73 of the FAC.

74. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/campaign-structure> states: “Every ad campaign has three levels: Campaign, ad group, and ad. Campaigns house ad groups, and each ad group contains a collection of ads.” Pinterest states that this webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 74 of the FAC.

75. Plaintiff purports to excerpt a webpage, <https://help.pinterest.com/en/business/article/set-up-device-targeting>. Pinterest admits that as of the date of this Answer, the portion excerpted is included in that webpage. Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 75 of the FAC.

76. Denied.

77. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/audience-targeting> states: “Audience

targeting helps you reach a specific group of people by combining information about your customers with information about how people use Pinterest. You can target a group of people based on site visitors, an uploaded customer list of emails or mobile ad IDs (Android ad IDs), an engagement audience that interacted with Pins from your confirmed domain or an actalike audience that behaves similarly to one you already have.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 77 of the FAC.

78. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/automated-campaigns> states: “Automated campaigns automate the ad campaign creation process by combining an advertiser's goals with Pinterest best practice recommendations to help you deliver results with less manual work.” Pinterest further admits that the webpage states: “Bidding and any additional targeting, outside of age and location requirements, are completely automated based on the Pins you select and Pinner behavior.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 78 of the FAC.

79. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/collections-ads-on-pinterest> states: “A collections ad is an ad format that appears as a combination of one large, hero asset followed by three smaller, secondary assets. The main asset is known as the hero creative and the smaller, secondary assets are known as the secondary creatives.” Pinterest further admits that the webpage states: “Once someone taps into a collections ad, they’ll be taken to a fullscreen experience where they can see the hero creative up close and up to 24 secondary creatives.” Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/audience-targeting> states: “As you create an engagement audience, you can select from two types of engagement audiences — People who have performed: [¶] • Any engagement action: create an audience that consists of people who’ve performed any engagement action with your content. Interactions may include Pin clicks, outbound clicks, saves, comments, and video views. [¶] • Optimized engagement actions: create an audience that consists of people selected based on high intent actions (such as saves and outbound clicks) to help you get the best results.” Pinterest states that the webpages speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 79 of the FAC.

80. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/targeting-overview> states: “Ad review process [¶] Once you launch your campaign, we’ll review it to make sure it follows our Advertising Guidelines and Targeting Guidelines . The campaign review process can take up to 24 hours. [¶] If your campaign targeting goes against our advertising guidelines, we’ll send you a notification in Ads Manager letting you know what needs to change so that your ad can be reviewed again for approval. Once approved, we’ll start distributing your ad.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 80 of the FAC.

81. Denied.

82. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/set-up-dynamic-retargeting> states: “Dynamic retargeting helps you reach people on Pinterest who have already visited your site or who have items sitting in their shopping cart. You can retarget exact or similar products to those they engaged with while they browse on Pinterest.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges

follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 82 of the FAC.

83. Denied.

84. Denied.

85. Denied.

86. Denied.

87. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/user-action-sequence-modeling-for-pinterest-ads-engagement-modeling-21139cab8f4e> states: “To deliver a personalized and enjoyable ad experience for its users, the Engagement Modeling team built deep neural network (DNN) models to continuously learn and adapt to user feedback and behavior, ensuring that the ads shown are highly targeted and valuable to the user. [¶] Personalized recommendation is critical in the ads recommendation system because it can better capture users’ interests, connect the users with the compelling products, and keep them engaged with the platform. To make the ads Click-through rate (CTR) predictions more personalized, our team has adopted users’ real time behavior histories and applied deep learning algorithms to recommend appropriate ads to users.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or

speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 87 of the FAC.

ALLEGED NOTICE

88. Denied.

89. Pinterest admits to being in receipt of a presentation dated May 5, 2020, that discusses U.S. Patent No. 7,055, 169. Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies that it infringes U.S. Patent No. 7,055,169. Pinterest denies any remaining allegations in Paragraph 89 of the FAC.

90. Pinterest admits to being in receipt of a presentation dated May 15, 2023, that discusses U.S. Patent No. 7,669,212. Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies that it infringes U.S. Patent No. 7,669,212. Pinterest denies any remaining allegations in Paragraph 90 of the FAC.

91. Pinterest admits to being in receipt of a letter dated July 24, 2024, bearing the subject line “Kudelski Patent Portfolio License and Notice of Infringement.” Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies that it infringes the referenced patents and denies any remaining allegations in Paragraph 91 of the FAC.

92. Pinterest admits that the July 24, 2024 letter states: “Pinterest’s method for recommending user content (including without limitation, Pinterest’s retrieval and ranking diversification through its ‘pin’ functionality and Pinterest further admits that the webpage states technology based on human-curated content) infringes at least Kudelski’s U.S. Patent No. 10,419,817, Claim 1.” Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies that it infringes any claim of U.S. Patent Nos. 10,419,817, 7,669,212, or 7,055,169. Pinterest denies the remaining allegations in Paragraph 92 of the FAC.

93. Denied.

94. Denied.

95. Denied.

THE OPENTV PATENTS

96. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations contained in Paragraph 96 of the FAC and therefore denies them.

The ’503 Patent and ’817 Patent

97. Pinterest admits that Paragraph 97 of the FAC states the title, named inventors, and issue date that appear on the face of the ’503 Patent. Pinterest denies the remaining allegations contained in Paragraph 97 of the FAC.

98. Pinterest admits that Paragraph 98 of the FAC states the title, named inventors, issue date, and claimed priority date that appear on the face of the '817 Patent. Pinterest denies the remaining allegations contained in Paragraph 98 of the FAC.

99. Pinterest admits that the quoted language appears in the '503 and '817 Patents. Pinterest denies the remaining allegations in Paragraph 99 of the FAC.

100. Pinterest admits that the quoted language appears in the '503 and '817 Patents. Pinterest states that the '503 and '817 Patents speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 100 of the FAC.

101. Pinterest admits that the quoted language appears in the '503 and '817 Patents. Pinterest states that the '503 and '817 Patents speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 101 of the FAC.

102. Pinterest admits that the quoted language appears in the prosecution history of the '817 Patent. Pinterest states that the prosecution history of the '817 Patent speaks for itself and denies any conclusions, characterizations, implications,

insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 102 of the FAC.

103. Pinterest admits that the quoted language appears in the prosecution history of the '817 Patent. Pinterest states that the prosecution history of the '817 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 103 of the FAC.

104. Pinterest admits that the U.S. Patent and Trademark Office issued a Notice of Allowance and Fee(s) Due for U.S. Patent Application No. 15/637,561. Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations contained in Paragraph 104 of the FAC.

105. Pinterest admits that the quoted language appears in the prosecution history of the '503 Patent, which speaks for itself. Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 105 of the FAC.

II. The '212 Patent

106. Pinterest admits that Paragraph 106 of the FAC states the title, named inventors, and issue date that appear on the face of the '212 Patent. Pinterest denies the remaining allegations contained in Paragraph 106 of the FAC.

107. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 107 of the FAC.

108. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 108 of the FAC.

109. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 109 of the FAC.

110. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 110 of the FAC.

111. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 111 of the FAC.

112. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 112 of the FAC.

113. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 113 of the FAC.

114. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 114 of the FAC.

115. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 115 of the FAC.

116. Pinterest admits that the quoted language appears in the '212 Patent prosecution history. Pinterest states that the '212 Patent prosecution history speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 116 of the FAC.

III. The '169 Patent

117. Pinterest admits that Paragraph 117 of the FAC states the title, named inventors, issue date, and claimed priority date that appear on the face of the '169 Patent. Pinterest denies the remaining allegations contained in Paragraph 117 of the FAC.

118. Pinterest admits that the quoted language appears in the '169 Patent. Pinterest states that the '169 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 118 of the FAC.

119. Pinterest admits that the quoted language appears in the '169 Patent. Pinterest states that the '169 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 119 of the FAC.

120. Denied.

121. Pinterest admits that the quoted language appears in the prosecution history of the '169 Patent. Pinterest states that the '169 Patent prosecution history speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 121 of the FAC.

COUNT I: [ALLEGED] INFRINGEMENT OF
U.S. PATENT NO. 9,699,503

122. Pinterest refers to and incorporates its responses in paragraphs 1-121 above.

123. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations contained in Paragraph 123 of the FAC and therefore denies them.

124. Pinterest denies that the '503 Patent is valid and enforceable.

125. Denied.

126. Denied.

127. Pinterest admits that the quoted language appears in the '503 Patent. Pinterest states that claim 1 of the '503 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 127 of the FAC.

128. Denied.

129. Denied.

130. Denied.

131. Denied.

132. Pinterest admits that as of the date of this Answer, <https://policy.pinterest.com/en/privacy-policy> states: "Recommend Pins, boards, or content [a user] might like based on [user] activity on our Services and [user] offsite behavior." Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that

Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 132 of the FAC.

133. Denied.

134. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “**Training instance generation** [¶] The basis of the Pinnability training data is the historical Pinner interaction with home feed Pins. For example, after viewing a Pin in home feed, a Pinner may choose to like, repin, click for a Pin closeup, clickthrough, comment, hide, or do nothing. We record some of the “positive actions” and “negative action” as training instances. Naturally the number of Pins viewed is often much larger than the number of Pins in which the Pinner made a positive action, so we sample the positive and negative instances at different rates. With these defined, we test thousands of informative features to improve Pinnability’s prediction accuracy.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 134 of the FAC.

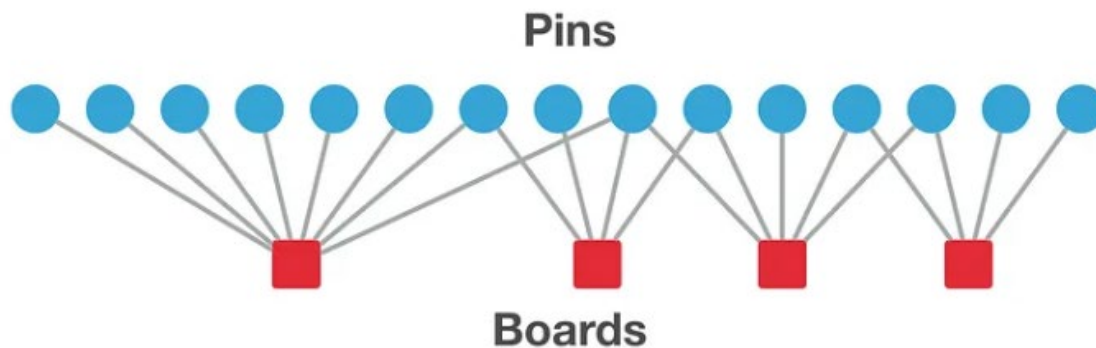
135. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/real-time-user-signal-serving-for-feature-engineering-ead9a01e5b> states: “[t]o help machine learning engineers

capturing user propensity, we've developed a real-time user signal service that acts as a platform for consuming user engagement data, as well as computing and serving user features." Pinterest further admits that the webpage states, "Event Store" and "a user's historical events." Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 135 of the FAC.

136. Denied.

137. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/introducing-pixie-an-advanced-graph-based-recommendation-system-e7b4229b664b> states: "a huge amount of rich data from our users" and "each edge shows that a person saved a Pin to a board." Pinterest further admits that the webpage states "**Pixie** [¶] We started from a bipartite graph where each edge shows that person saved a Pin to a board" and "This graph captures a huge amount of rich data from our users, and is quite large, with more than 100 billion edges and several billion nodes. Thankfully, RAM today is incredibly cheap, and big data like this is small enough to fit on readily available AWS machines. Before terabyte-scale RAM machines were available, complex distributed systems like Hadoop or Spark were needed to compute algorithms for data of this scale. Fortunately, in a way big data is actually getting smaller! Now we can load the entire

graph into a single machine and traverse all of it without making any network calls. This makes real-time algorithms on densely connected graphs much easier to develop and deploy at scale, and allows us to make recommendations in real-time the moment a Pinner opens our app (instead of computing them in batch jobs the night before).” Pinterest further admits that the webpage displays the excerpted diagram below.



Pinterest denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 137 of the FAC.

138. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “recommendations will be personalized”, “it is important that users receive communications ... on the topic of interest.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations,

or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 138 of the FAC.

139. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Training instance generation [¶] The basis of the Pinnability training data is the historical Pinner interaction with home feed Pins. For example, after viewing a Pin in home feed, a Pinner may choose to like, repin, click for a Pin closeup, clickthrough, comment, hide, or do nothing. We record some of the “positive actions” and “negative action” as training instances. Naturally the number of Pins viewed is often much larger than the number of Pins in which the Pinner made a positive action, so we sample the positive and negative instances at different rates. With these defined, we test thousands of informative features to improve Pinnability’s prediction accuracy.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 139 of the FAC.

140. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/how-pinterest-leverages-realtime-user-actions-in-recommendation-to-boost-homefeed-engagement-volume-165ae2e8cde8> states “The Pinnability model has been using some pretrained user

embedding to model user’s interest and preference. For example, we use PinnerFormer (PinnerSAGE V3), a static, offline-learned user representation that captures a user’s long term interest by leveraging their past interaction history on Pinterest.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 140 of the FAC.

141. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “With Pinnability launched, the candidate Pins for home feed are scored using the Pinnability models. The scores represent the personalized relevance between a Pinner and the candidate Pins. Pins in home feed are prioritized by the relevance score.” Pinterest further admits that the webpage displays the following diagram.

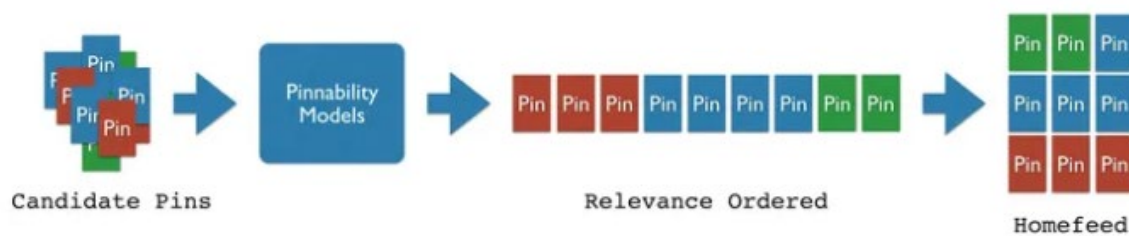


Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score.

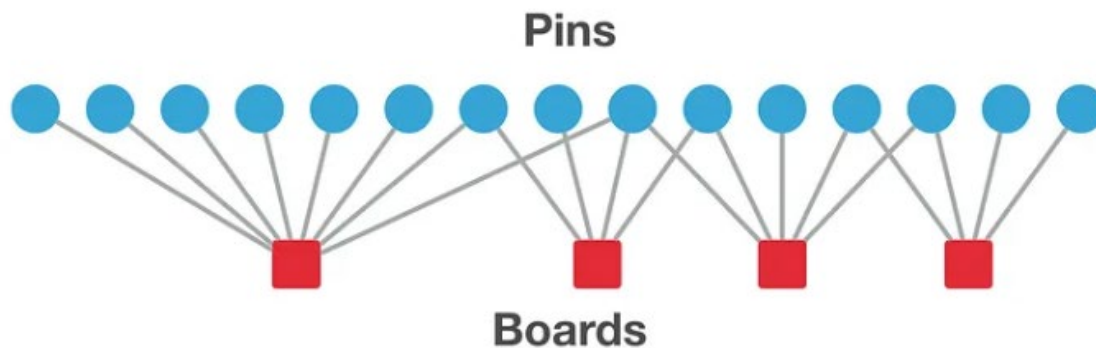
Pinterest states that the article speaks for itself and denies any conclusions,

characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 141 of the FAC.

142. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/real-time-user-signal-serving-for-feature-engineering-ead9a01e5b> states: “real-time user signal service” and “acts as a platform for consuming user engagement data, as well as computing and service user features.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 142 of the FAC.

143. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/introducing-pixie-an-advanced-graph-based-recommendation-system-e7b4229b664b> states: “Pixie [¶] We started from a bipartite graph where each edge shows that person saved a Pin to a board” and “This graph captures a huge amount of rich data from our users, and is quite large, with more than 100 billion edges and several billion nodes. Thankfully, RAM today is incredibly cheap, and big data like this is small enough to fit on readily available AWS machines. Before terabyte-scale RAM machines were available, complex distributed systems like Hadoop or Spark were needed to compute

algorithms for data of this scale. Fortunately, in a way big data is actually getting smaller! Now we can load the entire graph into a single machine and traverse all of it without making any network calls. This makes real-time algorithms on densely connected graphs much easier to develop and deploy at scale, and allows us to make recommendations in real-time the moment a Pinner opens our app (instead of computing them in batch jobs the night before).” Pinterest further admits that the webpage displays the excerpted diagram below.



Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 143 of the FAC.

144. Denied.

145. Pinterest admits that as of the date of this Answer, the below excerpted diagram appears on <https://medium.com/pinterest-engineering/pinterest-home-feed->

unified-lightweight-scoring-a-two-tower-approach-b3143ac70b55.

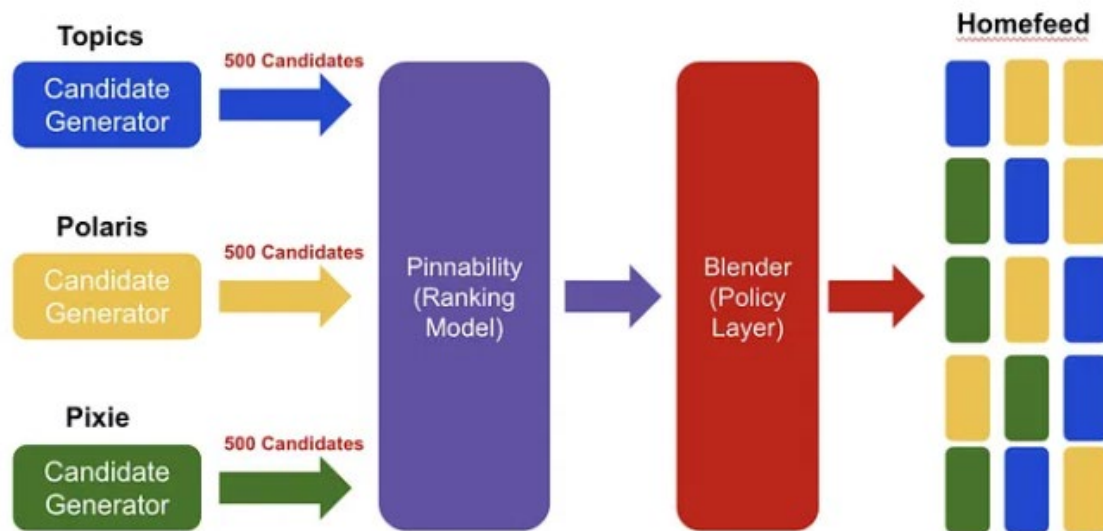


Fig. 1. Overview of current home feed recommendation pipeline. Home feed recommendation is powered by many different candidate generators. Each of them serves a unique role and has its own light-weight ranking layer.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 145 of the FAC.

146. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “aims to efficiently fetch a set of broadly relevant Pins.” Pinterest further admits the webpage states: “are quickly scored based on simple heuristics (in Pixie’s case, this is the visit count score).”

Pinterest further admits that the webpage also: “Pixie’s ‘visit count’ score sorts the generated pins purely on graph structure; it does not take any user preferences into account.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 146 of the FAC.

147. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “such as historical popularity, Pin freshness and likelihood of spam.” Pinterest further admits that the webpage states “[o]ur unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 147 of the FAC.

148. Denied.

149. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “aims to efficiently fetch a set of broadly relevant Pins.” Pinterest further admits the webpage states: “are quickly scored based on simple heuristics (in Pixie’s case, this is the visit count score).” Pinterest further admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “to be biased based on user features.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 149 of the FAC.

150. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> displays the excerpted diagram below.

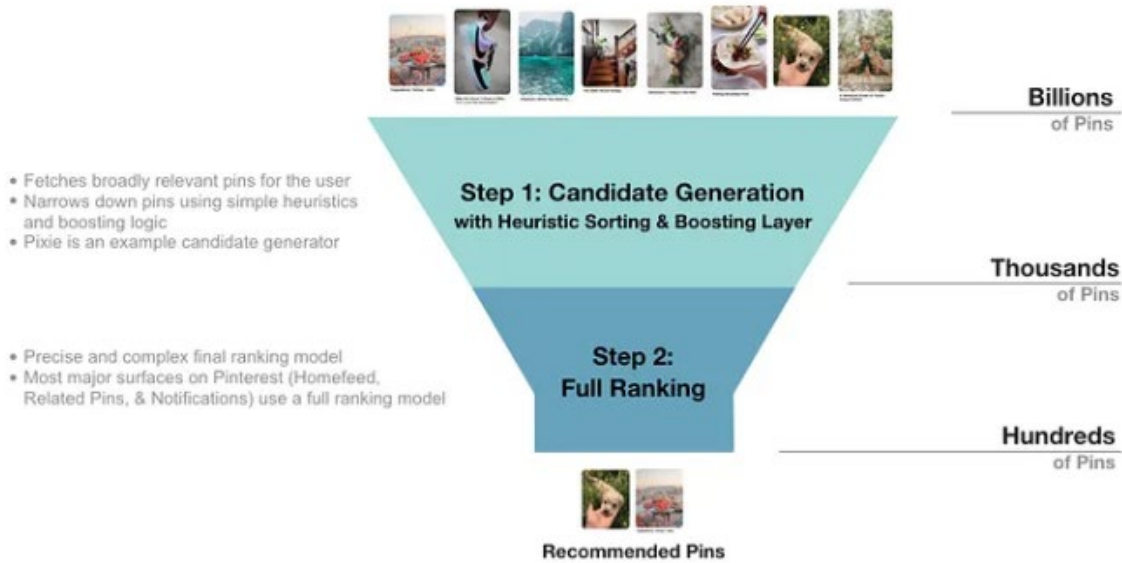


Figure 1. Number of Pins at each stage of the current Recommendation Funnel

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 150 of the FAC.

151. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “such as historical popularity, Pin freshness and likelihood of spam.” Pinterest further admits that the webpage states “[o]ur unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and

interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 151 of the FAC.

152. Denied.

153. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “the candidate Pins for home feed are scored using the Pinnability models. The scores represent the personalized relevance between a Pinner and the candidate Pins. Pins in home feed are prioritized by the relevance score.” Pinterest further admits that the webpage displays the excerpted diagram below.

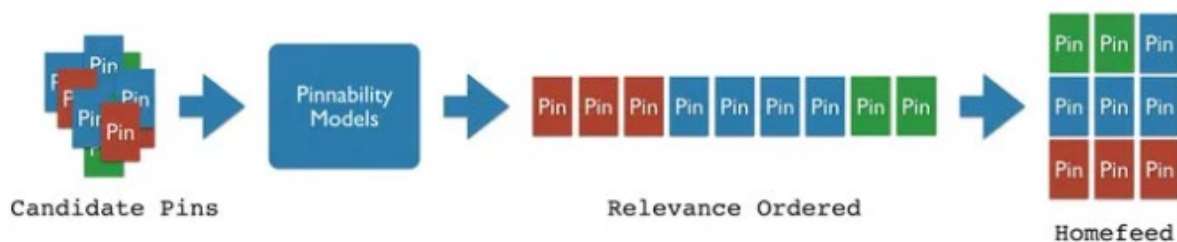


Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges

follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 153 of the FAC.

154. Denied.

155. Denied.

156. Denied.

157. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “[t]he Pins with the highest score are then passed to the next step of the funnel.” Pinterest states that the article speaks denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 157 of the FAC.

158. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “Impact to the user: improved quality of recommendations [¶] On the user side, lightweight ranking allows us to fetch more relevant and personalized recommendations earlier on in the funnel. Below is one such example of this.” Pinterest further admits that the webpage displays the excerpted diagram below.

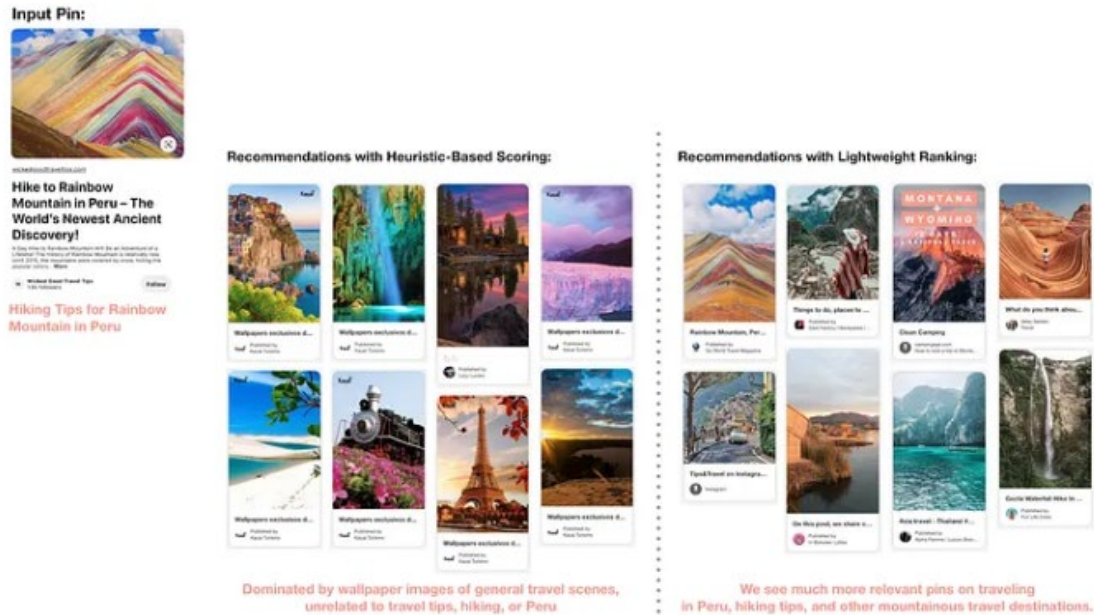


Figure 4. Comparing recommendations from old heuristic-based sorting versus those with lightweight ranking.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 158 of the FAC.

159. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “the personalized relevance between a Pinner and the candidate Pins.” Pinterest further admits that the webpage displays the excerpted diagram below.

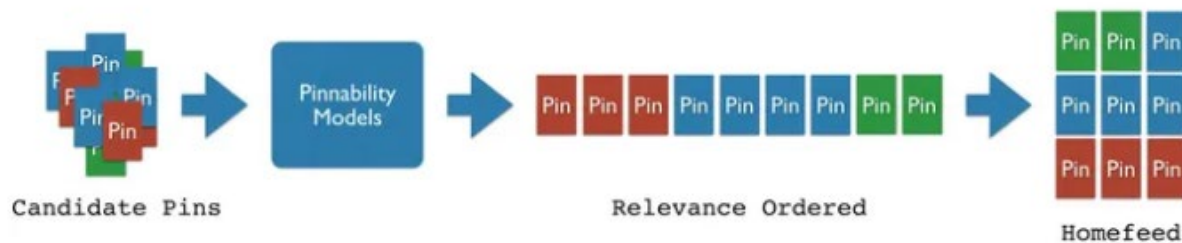


Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 159 of the FAC.

160. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “such as historical popularity, Pin freshness and likelihood of spam.” Pinterest further admits that the webpage states “[o]ur unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications,

insinuations, or speculations that Plaintiff alleges follow from the admitted facts.

Pinterest denies the remaining allegations in Paragraph 160 of the FAC.

161. Pinterest admits that of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “estimates the relevance score of how likely a Pinner will interact with a Pin. With accurate predictions, [Pinterest] prioritize[s] those Pins with high relevance scores and show them at the top of home feed.” Pinterest further admits that the webpage states “Pinnability is the collective name of the machine learning models we developed to help Pinner find the best content in their home feed. It’s part of the technology powered by smart feed, which we introduced last August and estimates the relevance score of how likely a Pinner will interact with a Pin. With accurate predictions, we prioritize those Pins with high relevance scores and show them at the top of home feed.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 161 of the FAC.

162. Denied.

163. Denied.

164. Denied.

165. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> displays the excerpted diagram below.

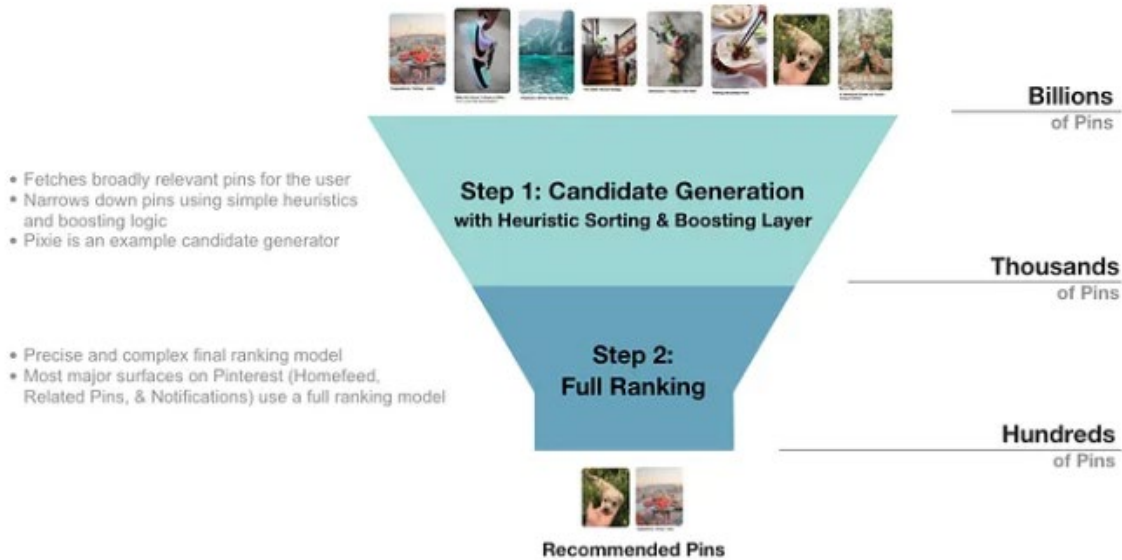


Figure 1. Number of Pins at each stage of the current Recommendation Funnel

Pinterest further admits that the webpage states “The first step, ‘Candidate Generation’, is a recall-driven step that aims to efficiently fetch a set of broadly relevant Pins. Pixie is one such candidate generator. This step uses recent user engagement to formulate an input representative of the Pinner’s interests. The input Pin is used to fetch similar Pins, which are quickly scored based on simple heuristics (in Pixie’s case, this is the visit count score), with additional boosting logic applied for specific business needs. The Pins with the highest score are then passed to the next step of the funnel.” Pinterest states that the article speaks for itself and denies

any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 165 of the FAC.

166. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Our unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 167 of the FAC.

167. Pinterest denies that the webpage cited by Plaintiff in support of Paragraph 167 of the FAC discusses candidate lists generated by Pixie to populate Pins on a user’s Homefeed; however, Pinterest admits that as of the date of this Answer another webpage, <https://medium.com/pinterest-engineering/how-pinterest-leverages-realtime-user-actions-in-recommendation-to-boost-homefeed->

engagement-volume-165ae2e8cde8, discusses “Homefeed candidate pins.” That webpage does not mention Pixie. Pinterest states that the webpages speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 167 of the FAC.

168. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “Impact to the user: improved quality of recommendations [¶] On the user side, lightweight ranking allows us to fetch more relevant and personalized recommendations earlier on in the funnel. Below is one such example of this.” Pinterest further admits that the webpage displays the excerpted diagram below.

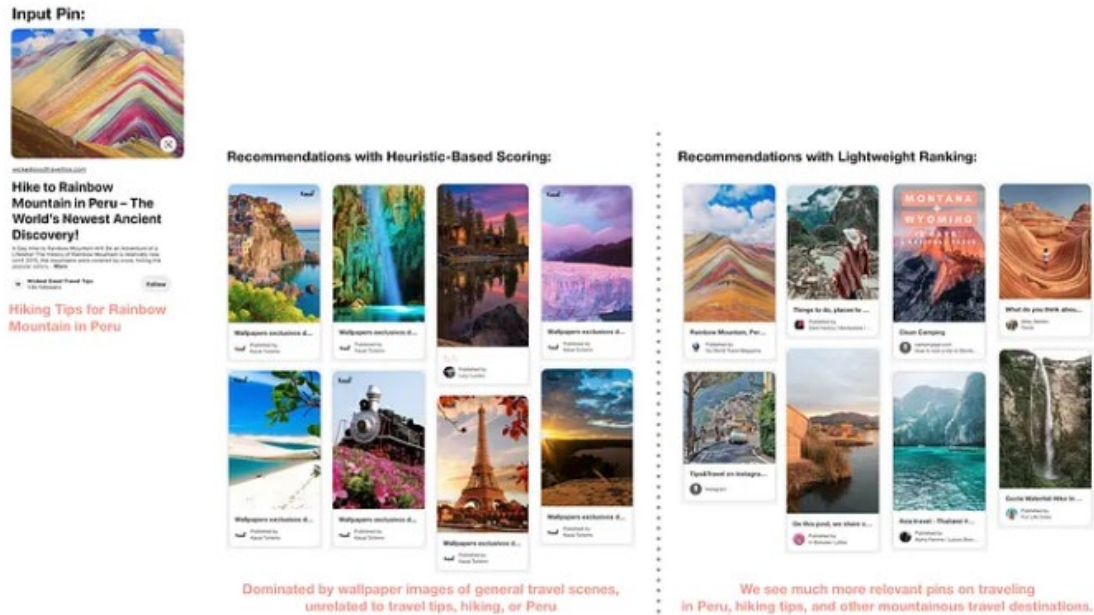


Figure 4. Comparing recommendations from old heuristic-based sorting versus those with lightweight ranking.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 168 of the FAC.

169. Denied.

170. Pinterest denies the purported quoted language in footnote 130 to Paragraph 170 of the FAC, which appears to misleadingly string together separate sentences of the cited webpage using ellipses that suggest a single sentence. That said, Pinterest admits that as of the date of the Answer, <https://help.pinterest.com/en/article/explore-the-home-feed> states:

Home

Your **Home** feed is a feed of Pins that have been picked for you based on the boards you create, Pins you engage with, and things you search for on Pinterest.

Browse your **Home** feed to discover Pins from people and boards you follow. You'll also find recommendations for Pins you might love and new people or brands to follow inspired by your recent activity.

Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 170 of the FAC.

171. Denied.

172. Paragraph 172 of the FAC states Plaintiff's position on providing additional infringement theories, for which no response is required. To the extent a response is required, Pinterest denies of the allegations of Paragraph 172 of the FAC.

173. Denied.

174. Denied.

175. Denied.

176. Denied.

COUNT II: [ALLEGED] INFRINGEMENT OF
U.S. PATENT NO. 10,419,817

177. Pinterest refers to and incorporates its responses in paragraphs 1-176 above.

178. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations contained in Paragraph 178 of the FAC and therefore denies them.

179. Pinterest denies that the '817 Patent is valid and enforceable.

180. Denied.

181. Denied.

182. Denied.

183. Pinterest admits that the quoted language appears in the '817 Patent. Pinterest states that claim 1 of the '817 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 183 of the FAC.

184. Denied.

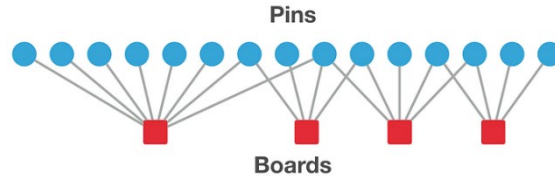
185. Denied.

186. Denied.

187. Denied.

188. Pinterest admits that as of the date of this Answer, <https://policy.pinterest.com/en/privacy-policy> states: “real-time user signal service that acts as a platform for consuming user engagement data, as well as computing and serving user features.” Pinterest further admits that the webpage states “Recommend Pins, boards, or content [a user] might like based on [user] activity on our Services and [user] offsite behavior.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 188 of the FAC.

189. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/representation-online-matters-practical-end-to-end-diversification-in-search-and-recommender-cb60b547f2e0> states: “The retrieval stage consists of one or more candidate generators that narrow down the set of candidates from a large corpus of items (in the range of 10^6 to 10^{10}) to a much narrower set (in the range of 10^2 to 10^4) based on some predicted scores, such as the relevance of the items to the query and the user.” Pinterest further admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/introducing-pixie-an-advanced-graph-based-recommendation-system-e7b4229b664b> states: “Pixie [¶] We started from a bipartite graph where each edge shows that a person saved a Pin to a board.



This graph captures a huge amount of rich data from our users, and is quite large, with more than 100 billion edges and several billion nodes. Thankfully, RAM today is incredibly cheap, and big data like this is small enough to fit on readily available AWS machines. Before terabyte-scale RAM machines were available, complex distributed systems like Hadoop or Spark were needed to compute algorithms for data of this scale. Fortunately, in a way big data is actually getting smaller! Now we can load the entire graph into a single machine and traverse all of it without making any network calls. This makes real-time algorithms on densely connected graphs much easier to develop and deploy at scale, and allows us to make recommendations in real-time the moment a Pinner opens our app (instead of computing them in batch jobs the night before).” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 189 of the FAC.

190. Pinterest denies the purported quoted language “Historical User Behavior” is supported by footnote 136 to Paragraph 170 of the FAC; no such language appears on the cited page. Pinterest admits that as of the date of this

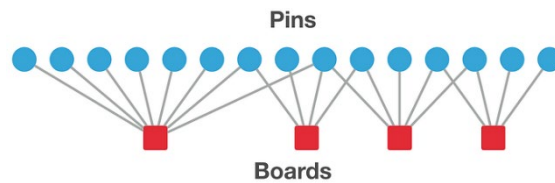
Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Training instance generation [¶] The basis of the Pinnability training data is the historical Pinner interaction with home feed Pins. For example, after viewing a Pin in home feed, a Pinner may choose to like, repin, click for a Pin closeup, clickthrough, comment, hide, or do nothing. We record some of the “positive actions” and “negative action” as training instances. Naturally the number of Pins viewed is often much larger than the number of Pins in which the Pinner made a positive action, so we sample the positive and negative instances at different rates. With these defined, we test thousands of informative features to improve Pinnability’s prediction accuracy.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 190 of the FAC.

191. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/real-time-user-signal-serving-for-feature-engineering-ead9a01e5b> states: “real-time user signal service that acts as a platform for consuming user engagement data, as well as computing and serving user features.” Pinterest further admits that the webpage states “● Event Store has a resource limit for the stored events (usually seven days). With incremental computation, a user’s historical events were persisted in the aggregation state. The

platform is able to serve signals that can capture long-term user propensity.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 191 of the FAC.

192. Denied.

193. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/introducing-pixie-an-advanced-graph-based-recommendation-system-e7b4229b664b> states: “Pixie [¶] We started from a bipartite graph where each edge shows that a person saved a Pin to a board.



This graph captures a huge amount of rich data from our users, and is quite large, with more than 100 billion edges and several billion nodes. Thankfully, RAM today is incredibly cheap, and big data like this is small enough to fit on readily available AWS machines. Before terabyte-scale RAM machines were available, complex distributed systems like Hadoop or Spark were needed to compute algorithms for data of this scale. Fortunately, in a way big data is actually getting smaller! Now we can load the entire graph into a single machine and traverse all of

it without making any network calls. This makes real-time algorithms on densely connected graphs much easier to develop and deploy at scale, and allows us to make recommendations in real-time the moment a Pinner opens our app (instead of computing them in batch jobs the night before).” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 193 of the FAC.

194. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “recommendations will be personalized.” Pinterest further admits that the webpage states “it is important that users receive recommendations ... on the topic of interest.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 194 of the FAC.

195. Pinterest denies that the citation in footnote 142 to Paragraph 195 of the FAC relates to Pinnability ranking models; however, Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Training instance generation [¶] The basis of the Pinnability training data is the historical Pinner

interaction with home feed Pins. For example, after viewing a Pin in home feed, a Pinner may choose to like, repin, click for a Pin closeup, clickthrough, comment, hide, or do nothing. We record some of the “positive actions” and “negative action” as training instances. Naturally the number of Pins viewed is often much larger than the number of Pins in which the Pinner made a positive action, so we sample the positive and negative instances at different rates. With these defined, we test thousands of informative features to improve Pinnability’s prediction accuracy.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 195 of the FAC.

196. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/how-pinterest-leverages-realtime-user-actions-in-recommendation-to-boost-homefeed-engagement-volume-165ae2e8cde8> states: “The Pinnability model has been using some pretrained user embedding to model user’s interest and preference. For example, we use PinnerFormer (PinnerSAGE V3), a static, offline-learned user representation that captures a user’s long term interest by leveraging their past interaction history on Pinterest.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that

Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 196 of the FAC.

197. Pinterest admits that <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “The scores represent the personalized relevance between a Pinner and the candidate Pins.” Pinterest further admits that the webpage states “With Pinnability launched, the candidate Pins for home feed are scored using the Pinnability models. The scores represent the personalized relevance between a Pinner and the candidate Pins. Pins in home feed are prioritized by the relevance score as illustrated in Figure 2.

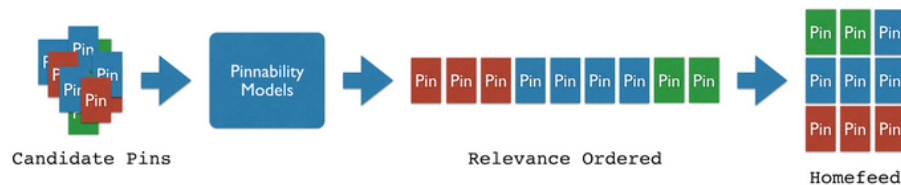


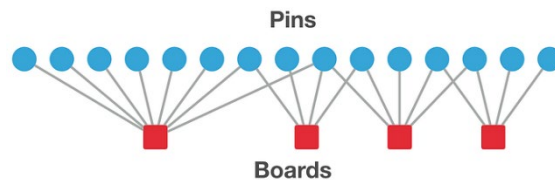
Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score. »

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 197 of the FAC.

198. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/real-time-user-signal-serving-for-feature-engineering-ead9a01e5b> states: “real-time user signal service” and “acts as

a platform for consuming user engagement data, as well as computing and serving user features.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 198 of the FAC.

199. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/introducing-pixie-an-advanced-graph-based-recommendation-system-e7b4229b664b> states: “Pixie [¶] We started from a bipartite graph where each edge shows that a person saved a Pin to a board.



This graph captures a huge amount of rich data from our users, and is quite large, with more than 100 billion edges and several billion nodes. Thankfully, RAM today is incredibly cheap, and big data like this is small enough to fit on readily available AWS machines. Before terabyte-scale RAM machines were available, complex distributed systems like Hadoop or Spark were needed to compute algorithms for data of this scale. Fortunately, in a way big data is actually getting smaller! Now we can load the entire graph into a single machine and traverse all of it without making any network calls. This makes real-time algorithms on densely

connected graphs much easier to develop and deploy at scale, and allows us to make recommendations in real-time the moment a Pinner opens our app (instead of computing them in batch jobs the night before).” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 199 of the FAC.

200. Denied.

201. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> displays the excerpted diagram below.

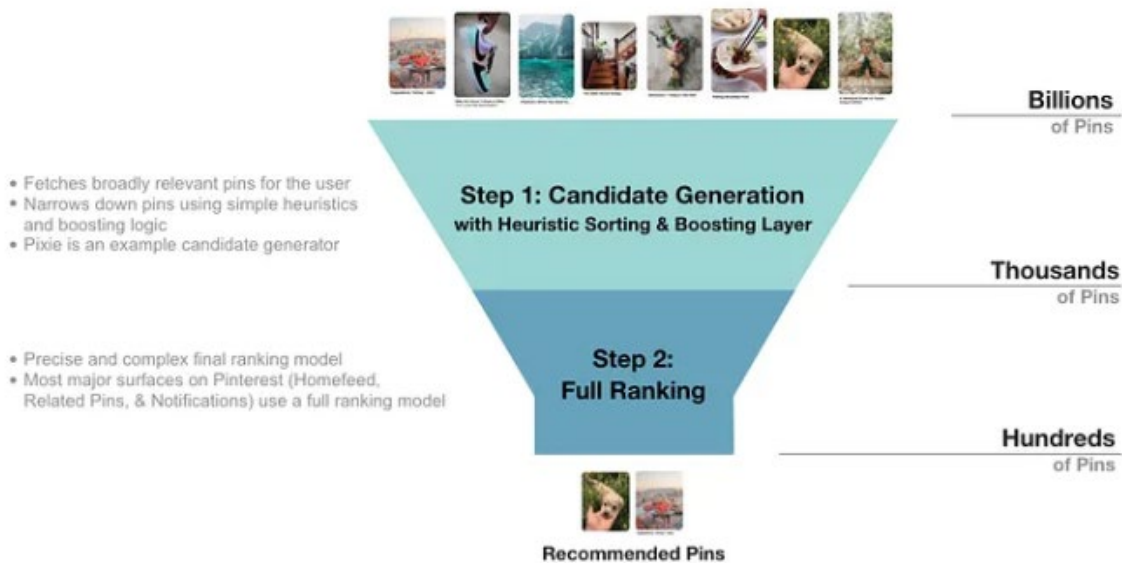


Figure 1. Number of Pins at each stage of the current Recommendation Funnel

Pinterest further admits that the webpage states “[t]he first step, ‘Candidate

Generation’, is a recall-driven step that aims to efficiently fetch a set of broadly relevant Pins. Pixie is one such candidate generator. This step uses recent user engagement to formulate an input representative of the Pinner’s interests. The input Pin is used to fetch similar Pins, which are quickly scored based on simple heuristics (in Pixie’s case, this is the visit count score), with additional boosting logic applied for specific business needs. The Pins with the highest score are then passed to the next step of the funnel.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 201 of the FAC.

202. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “such as historical popularity, Pin freshness and likelihood of spam.” Pinterest further admits that the webpage states “[o]ur unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included.” Pinterest states that the

article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 202 of the FAC.

203. Denied.

204. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> displays the excerpted diagram below.

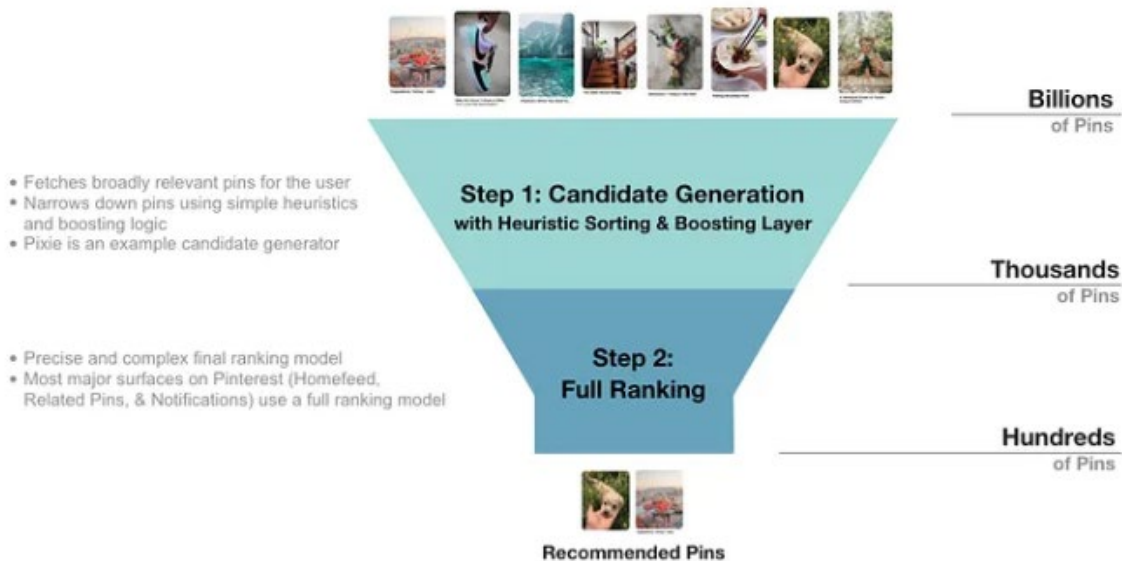


Figure 1. Number of Pins at each stage of the current Recommendation Funnel

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 204 of the FAC.

205. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “to be biased based on user features.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 205 of the FAC.

206. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> displays the excerpted diagram below.

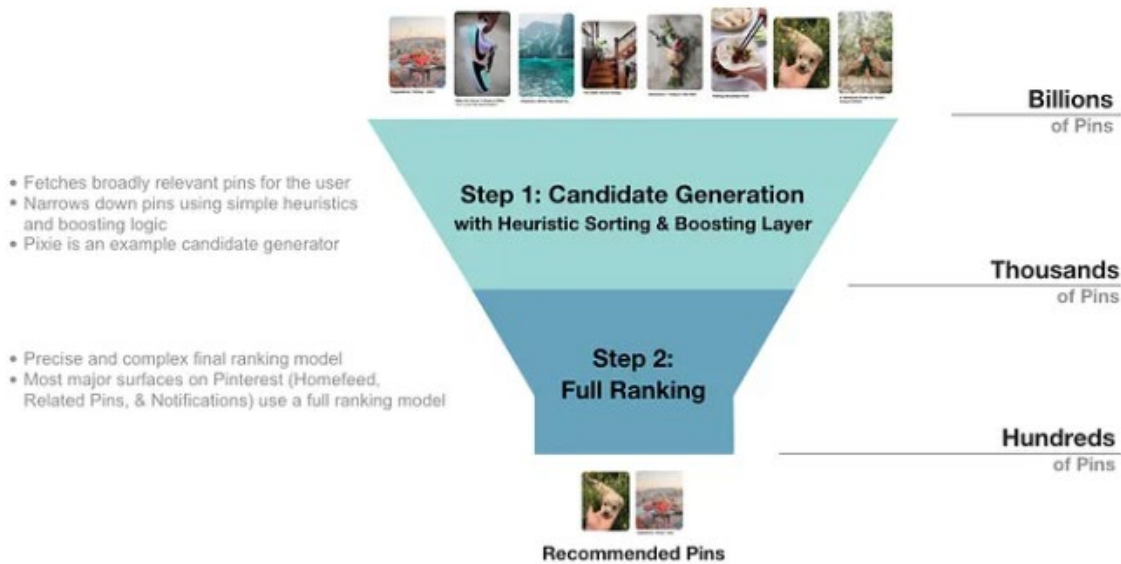


Figure 1. Number of Pins at each stage of the current Recommendation Funnel

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges

follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 206 of the FAC.

207. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “the candidate Pins for home feed are scored using the Pinnability models. The scores represent the personalized relevance between a Pinner and the candidate Pins. Pins in home feed are prioritized by the relevance score.” Pinterest further admits that the webpage displays the excerpted diagram below.

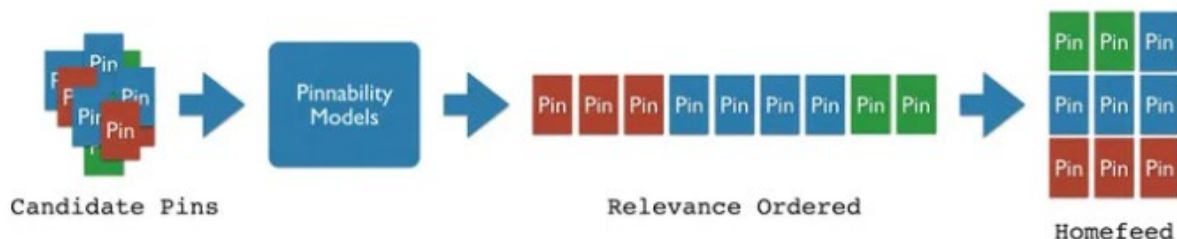


Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 207 of the FAC.

208. Denied.

209. Pinterest admits that as of the date of this Answer, <https://cs.stanford.edu/people/jure/pubs/pixie-www18.pdf> states: “(1) Biasing the

Pixie Random Walk. It is important to bias the random walk in a user-specific way. This way, even for the same query set Q, recommendations will be personalized and will differ from a user to user. For example, Pinterest graph contains pins and boards with different languages and topics and from the user engagement point of view it is important that users receive recommendations in their language and on the topic of interest. [¶] We solve the problem of biasing the random walk by changing the random edge selection to be biased based on user features. The random walk then prefers to traverse edges that are more relevant to that user. One can think of these edges as having higher weight/importance than the rest of the edges in the graph. This way we bias the random walk in a user-specific way towards a particular part of the graph and let it focus on a particular subset of pins. In practice, this modification turns out to be very important as it improves personalization, quality, and topicality of recommendations, which then leads to higher user engagement.” Pinterest further admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “[t]he Pins with the highest score are then passed to the next step of the funnel.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 209 of the FAC.

210. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “lightweight ranking allows us to fetch more relevant and personalized recommendations earlier on in the funnel.” Pinterest further admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “Impact to the user: improved quality of recommendations [¶] On the user side, lightweight ranking allows us to fetch more relevant and personalized recommendations earlier on in the funnel. Below is one such example of this.” Pinterest further admits that the webpage also displays the excerpted diagram below.

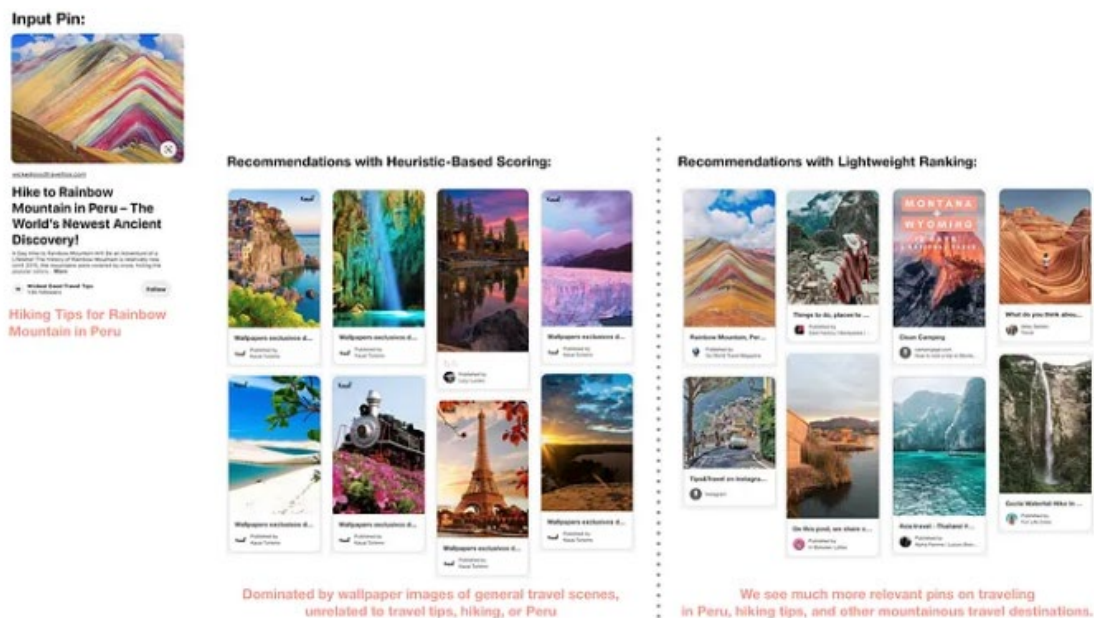


Figure 4. Comparing recommendations from old heuristic-based sorting versus those with lightweight ranking.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 210 of the FAC.

211. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “The scores represent the personalized relevance between a Pinner and the candidate Pins.” Pinterest further admits that the webpage displays the excerpted diagram below.

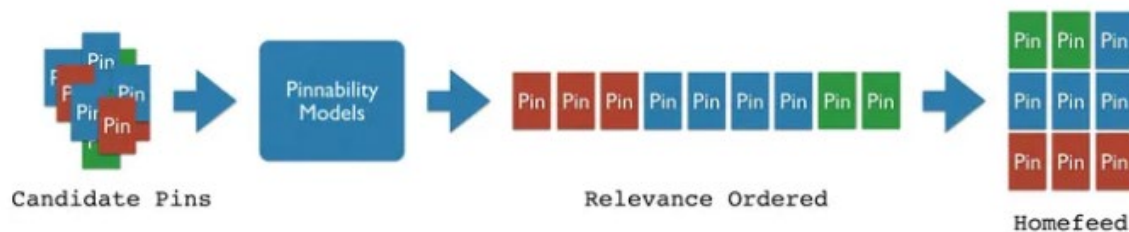


Fig 2: Home feed after Pinnability, where Pins are ordered by personalized relevance score.

Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 211 of the FAC.

212. Denied.

213. Pinterest admits that <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> displays the excerpted diagram below.

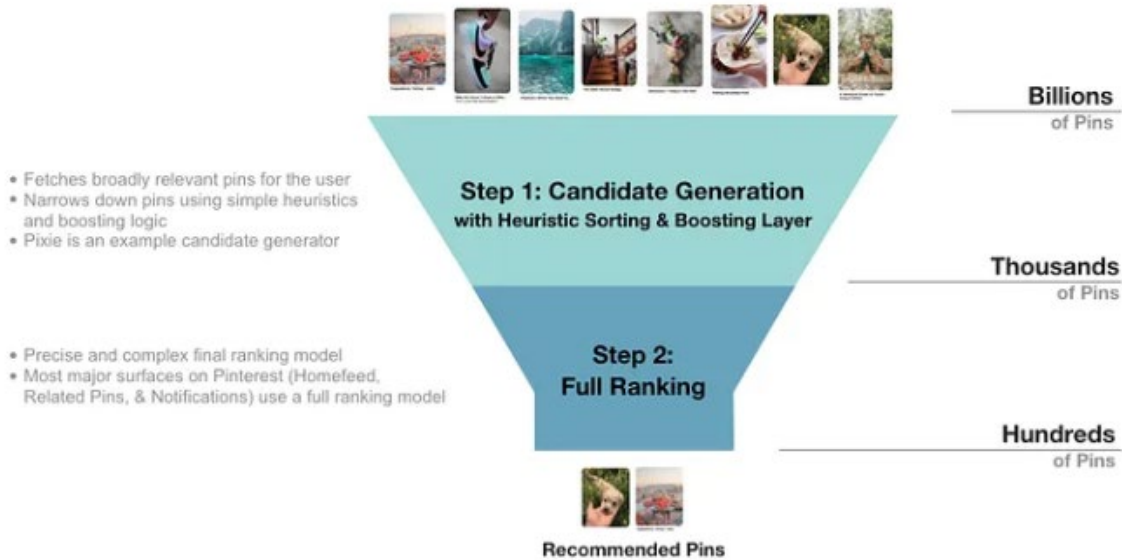


Figure 1. Number of Pins at each stage of the current Recommendation Funnel

Pinterest further admits that the webpage states “[t]he first step, ‘Candidate Generation’, is a recall-driven step that aims to efficiently fetch a set of broadly relevant Pins. Pixie is one such candidate generator. This step uses recent user engagement to formulate an input representative of the Pinner’s interests. The input Pin is used to fetch similar Pins, which are quickly scored based on simple heuristics (in Pixie’s case, this is the visit count score), with additional boosting logic applied for specific business needs. The Pins with the highest score are then passed to the next step of the funnel.” Pinterest states that the article speaks for itself and denies

any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 213 of the FAC.

214. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/pinnability-machine-learning-in-the-home-feed-64be2074bf60> states: “Our unique data set contains abundant human-curated content, so that Pin, board and user dynamics provide informative features for accurate Pinnability prediction. These features fall into three general categories: Pin features, Pinner features and interaction features: [¶] • Pin features capture the intrinsic quality of a Pin, such as historical popularity, Pin freshness and likelihood of spam. Visual features from Convolutional Neural Networks (CNN) are also included.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 214 of the FAC.

215. Pinterest denies that the webpage cited by Plaintiff in support of Paragraph 215 of the FAC discusses candidate lists generated by Pixie to populate Pins on a user’s Homefeed; however, Pinterest admits that as of the date of this Answer another webpage, <https://medium.com/pinterest-engineering/how-pinterest-leverages-realtime-user-actions-in-recommendation-to-boost-homefeed->

engagement-volume-165ae2e8cde8, discusses “Homefeed candidate pins.” That webpage does not mention Pixie. Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 215 of the FAC.

216. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-the-quality-of-recommended-pins-with-lightweight-ranking-8ff5477b20e3> states: “Impact to the user: improved quality of recommendations [¶] On the user side, lightweight ranking allows us to fetch more relevant and personalized recommendations earlier on in the funnel. Below is one such example of this.” Pinterest further admits that the webpage displays the excerpted diagram below.

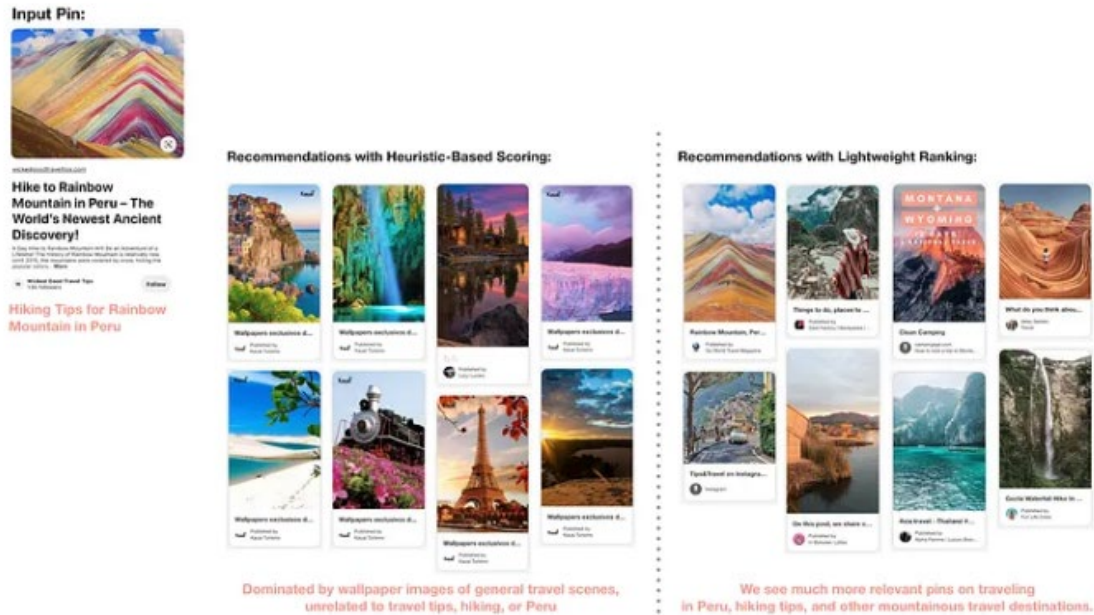


Figure 4. Comparing recommendations from old heuristic-based sorting versus those with lightweight ranking.

Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 216 of the FAC.

217. Denied.

218. Pinterest denies the purported quoted language in footnote 165 to Paragraph 218 of the FAC, which appears to misleadingly strings together separate sentences of the cited webpage using ellipses that suggest a single sentence. That said, Pinterest admits that as of the date of the Answer, <https://help.pinterest.com/en/article/explore-the-home-feed> states:

Home

Your **Home** feed is a feed of Pins that have been picked for you based on the boards you create, Pins you engage with, and things you search for on Pinterest.

Browse your **Home** feed to discover Pins from people and boards you follow. You'll also find recommendations for Pins you might love and new people or brands to follow inspired by your recent activity.

Pinterest further denies that the diagram following Paragraph 218 of the FAC is supported by the citations in footnote 165. Pinterest states that the cited webpages speak for themselves and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 218 of the FAC.

219. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/article/video-on-pinterest> states: “Video Pins play on your desktop when at least 50% of the video Pin is on the screen.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 219 of the FAC.

220. Denied.

221. Denied.

222. Paragraph 222 of the FAC states Plaintiff's position on providing additional infringement theories, for which no response is required. To the extent a response is required, Pinterest denies of the allegations of Paragraph 221 of the FAC.

223. Denied.

224. Denied.

225. Denied.

226. Denied.

227. Denied.

228. Denied.

229. Denied.

COUNT III: [ALLEGED] INFRINGEMENT OF
U.S. PATENT NO. 7,669,212

230. Pinterest refers to and incorporates its responses in paragraphs 1-229 above.

231. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations contained in Paragraph 231 of the FAC and therefore denies them.

232. Pinterest denies that the '212 Patent is valid and enforceable.

233. Denied.

234. Pinterest admits that materials were sent on March 15, 2023. Pinterest denies the remaining allegations in Paragraph 234 of the FAC.

235. Denied.

236. Denied.

237. Pinterest admits that the quoted language appears in the '212 Patent. Pinterest states that claim 44 of the '212 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 237 of the FAC.

238. Denied.

239. Denied.

240. Pinterest admits that as of the date of this Answer, <https://business.pinterest.com/getting-started-in-ads-manager/> states: "How to set up campaigns in Pinterest Ads Manager." Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 240 of the FAC.

241. Denied.

242. Denied.

243. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/ad-delivery> states: “Ad delivery [¶] Our ad auction allows us to provide value to both Pinners and advertising partners by serving the highest quality ads at the most relevant moments and optimizing business outcomes for our advertising partners. [¶] For each available ad impression, our auction system selects the best ad for that position, based on the likelihood of a desired action occurring and how much that action is worth to you. The likelihood of the action occurring depends on factors like landing page quality and targeting relevance. Your bid tells us what you'd pay for the action you choose to optimize for. [¶] You pay only what's needed to beat the next best ad in the auction. In some cases, you may pay less than your bid. However, setting bids that are too low may restrict the delivery of your ad. To learn more about setting bids, read this article.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 243 of the FAC.

244. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/debugging-ad-delivery-at-pinterest-8b7b1f562afc> states: “Our ad delivery system consists of several different systems, each with its own responsibilities (candidate generation, trimming, scoring,

bid/budget management, indexing, content safety filtering, etc).” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 244 of the FAC.

245. Denied.

246. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/campaign-structure> states: “Every ad campaign has three levels: Campaign, ad group, and ad. Campaigns house ad groups, and each ad group contains a collection of ads. [¶] Campaigns [¶] Campaigns are the highest level of the campaign hierarchy. At the campaign level, you can select a campaign objective and set an optional campaign spend limit. If you’re running a campaign with the consideration objective, you can also set your budget at the campaign level. Each campaign can contain more than one ad group.” Pinterest further admits that the webpage includes the instructions for “Add device targeting in Ads Manager.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 246 of the FAC.

247. Denied.

248. Denied.

249. Denied.

250. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/campaign-structure> states: “At the ad group level, you can choose where your ads will show on Pinterest and set the budget, bid, run dates, and targeting for all the ads housed within them. Ad groups let you address the different regions, product lines, and target audiences that may be a part of a single campaign. They also allow you to test the performance of various targeting and objective strategies without creating multiple campaigns.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 250 of the FAC.

251. Pinterest admits that as of the date of this Answer, <https://business.pinterest.com/getting-started-in-ads-manager/> states: “A collections ad is an ad format that appears as a combination of one large, hero asset followed by three smaller, secondary assets. The main asset is known as the hero creative and the smaller, secondary assets are known as the secondary creatives.” Pinterest further admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/audience-targeting> states “As you

create an engagement audience, you can select from two types of engagement audiences — People who have performed: [¶] • Any engagement action: create an audience that consists of people who’ve performed any engagement action with your content. Interactions may include Pin clicks, outbound clicks, saves, comments, and video views. [¶] • Optimized engagement actions: create an audience that consists of people selected based on high intent actions (such as saves and outbound clicks) to help you get the best results.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 251 of the FAC.

252. Denied.

253. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/set-up-device-targeting> states: “Devices available for targeting [¶] • Android Mobile: People browsing Pinterest using the app on an Android mobile device. [¶] • Android Tablet: People browsing Pinterest using the app on an Android tablet device. [¶] • iPad: People browsing Pinterest using the app on an iPad tablet device. [¶] • iPhone: People browsing Pinterest using the app on an iPhone mobile device. [¶] • Web: People browsing the internet using a desktop or laptop device. [¶] • Mobile Web: People browsing the internet using a mobile device, but not using the Pinterest app.” Pinterest further

admits that the webpage states “ad to people on one or multiple different devices.” Pinterest further admits that the webpage also states “Device targeting helps you get your ad in front of people using specific devices to browse Pinterest. You can choose to target your ad to people on one or multiple different devices.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 25 of the FAC.

254. Denied.

255. Denied.

256. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/ad-delivery> states: “[O]ur auction system selects the best ad for that position, based on the likelihood of a desired action occurring and how much that action is worth to you. The likelihood of the action occurring depends on factors like landing page quality and targeting relevance. Your bid tells us what you'd pay for the action you choose to optimize for.” Pinterest states that this webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 263 of the FAC.

257. Denied.

258. Denied.

259. Pinterest denies that the non-existent link cited by Plaintiff (<https://help.pinterest.com/en/business/article/devicetargeting>) supports the allegations in Paragraph 259 of the FAC; however, Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/targeting-overview> states: “Ad review process [¶] Once you launch your campaign, we’ll review it to make sure it follows our Advertising Guidelines and Targeting Guidelines . The campaign review process can take up to 24 hours. [¶] If your campaign targeting goes against our advertising guidelines, we’ll send you a notification in Ads Manager letting you know what needs to change so that your ad can be reviewed again for approval. Once approved, we’ll start distributing your ad.” Pinterest states that this webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 259 of the FAC.

260. Denied.

261. Denied.

262. Pinterest admits that as of the date of this Answer, the quoted language appears on <https://medium.com/pinterest-engineering/user-action-sequence->

modeling-for-pinterest-ads-engagement-modeling-21139cab8f4e. Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 262 of the FAC.

263. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/collections-ads-on-pinterest> states: “[o]nce someone taps into a collections ad, they’ll be taken to a fullscreen experience where they can see the hero creative up close and up to 24 secondary creatives.” Pinterest further admits that the webpage states “[w]hen using the collections ad format under the catalog sales objective, secondary creatives are selected and organized based on relevance to the person viewing the collections ad.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 263 of the FAC.

264. Denied.

265. Denied.

266. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/set-up-dynamic-retargeting> states:

“Dynamic retargeting helps you reach people on Pinterest who have already visited your site or who have items sitting in their shopping cart. You can retarget exact or similar products to those they engaged with while they browse on Pinterest.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 266 of the FAC.

267. Pinterest admits that as of the date of this Answer, <https://help.pinterest.com/en/business/article/automated-campaigns> states: “automate the ad campaign creation process by combining an advertiser's goals with Pinterest best practice recommendations to help you deliver results with less manual work.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 267 of the FAC.

268. Denied.

269. Paragraph 269 of the FAC states Plaintiff’s position on providing additional infringement theories, for which no response is required. To the extent a response is required, Pinterest denies of the allegations of Paragraph 269 of the FAC.

270. Denied.

271. Pinterest admits that <https://help.pinterest.com/en/business/article/targeting-overview> states: “For each ad group you create on Pinterest, you can target your ads to reach people who are interested in your products and ideas. You can combine targeting criteria to create an audience as narrow or as broad as you like. To see the predicted number of people you may be able to reach with your selected targeting, look at the “Potential audience size” bar at the right-side of your screen.” Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 271 of the FAC.

272. Denied.

273. Denied.

274. Denied.

275. Denied.

276. Denied.

277. Denied.

278. Denied.

COUNT IV: [ALLEGED] INFRINGEMENT OF
U.S. PATENT NO. 7,055,169

279. Pinterest refers to and incorporates its responses in paragraphs 1-278 above.

280. Pinterest lacks knowledge or information sufficient to form a belief about the truth of the allegations contained in Paragraph 280 of the FAC and therefore denies them.

281. Pinterest denies that the '169 Patent is valid and enforceable.

282. Pinterest admits to receiving a slide deck on May 6, 2021, with a claim chart of the '169 Patent.

283. Pinterest admits that in May 2021 an email including a slide deck and claim chart for the '169 Patent was sent. Pinterest denies the remaining allegations in Paragraph 283 of the FAC.

284. Denied.

285. Denied.

286. Pinterest admits that the quoted language appears in the '169 Patent. Pinterest states that claim 1 of the '169 Patent speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 286 of the FAC.

287. Denied.

288. Denied.

289. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/building-pinterests-video-platform->

2338dd1d213#id_token=eyJhbGciOiJSUzI1NiIsImtpZCI6IjMzZmY1YWYx%E2%80%A6 states: “We optimize video streams for multiple scenarios by using Adaptive Bitrate Streaming.” Pinterest further admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/optimizing-video-playback-performance-caf55ce310d1> states: “To enable efficient streaming and mitigate some of the problems listed above we use adaptive bitrate streaming, which is currently the industry standard for video delivery. Two of the most popular implementations of ABR streaming are Apple’s HLS and MPEG-DASH.” Pinterest further admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/improving-abr-video-performance-at-pinterest-f0ea47a6d4fc> states: “HLS is supported through iOS’s AVPlayer, while DASH is supported by Android’s ExoPlayer.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 289 of the FAC.

290. Denied.

291. Denied.

292. Denied.

293. Denied.

294. Denied.

295. Denied.

296. Denied.

297. Denied.

298. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/optimizing-video-playback-performance-caf55ce310d1> states: “[t]o minimize PWT we use a medium-quality stream for the first four seconds of playback instead of going with a high-quality one.” Pinterest states that the article speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted language. Pinterest denies the remaining allegations in Paragraph 298 of the FAC.

299. Denied.

300. Pinterest admits that as of the date of this Answer, <https://medium.com/pinterest-engineering/optimizing-video-playback-performance-caf55ce310d1> states: “into multiple streams with different bitrate. Then those streams split into smaller segments with similar duration times (e.g. few seconds). The video player then seamlessly switches between the streams depending on the available bandwidth and other factors. This allows the video to still play (at a lower quality) when the signal is poor and jump to the higher quality stream when the signal strengthens.” Pinterest states that the article speaks for itself and denies

any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 300 of the FAC.

301. Denied.

302. Paragraph 302 of the FAC states Plaintiff's position on providing additional infringement theories, for which no response is required. To the extent a response is required, Pinterest denies of the allegations of Paragraph 302 of the FAC.

303. Pinterest admits that as of the date of this Answer, that the quoted language appears on <https://help.pinterest.com/en/article/create-a-pin-from-an-image-or-video>. Pinterest states that the webpage speaks for itself and denies any conclusions, characterizations, implications, insinuations, or speculations that Plaintiff alleges to follow from the admitted facts. Pinterest denies the remaining allegations in Paragraph 303 of the FAC.

304. Denied.

305. Denied.

306. Denied.

307. Denied.

308. Denied.

DEFENSES

Pinterest's Defenses are listed below. Pinterest reserves the right to amend its Answer to add additional Defenses, including allegations of inequitable conduct, consistent with the facts discovered in this case.

FIRST DEFENSE

Plaintiff's Complaint fails to state a claim upon which relief can be granted at least because the Asserted Patents do not claim patentable subject matter under 35 U.S.C. § 101.

SECOND DEFENSE

Pinterest has not infringed and does not infringe, under any theory of infringement (including directly (whether individually or jointly) or indirectly (whether contributorily or by inducement)), any valid, enforceable claim of U.S. Patent Nos. 10,419,817; 9,699,503; 7,669,212; and 7,055,169 (collectively, the "Asserted Patents").

THIRD DEFENSE

Each asserted claim of the Asserted Patents is invalid for failure to comply with one or more of the requirements of the United States Code, Title 35, including without limitation, 35 U.S.C. §§ 101, 102, 103, and 112, and the rules, regulations, and laws pertaining thereto.

FOURTH DEFENSE

To the extent that Plaintiff and any predecessors in interest to the Asserted Patents failed to properly mark any of their relevant products or materials as required by 35 U.S.C. § 287, or otherwise give proper notice that Pinterest's actions allegedly infringe the Asserted Patents, Pinterest is not liable to Plaintiff for the acts alleged to have been performed before it received actual notice that it was allegedly infringing the Asserted Patents.

FIFTH DEFENSE

To the extent that Plaintiff asserts that Pinterest indirectly infringes, either by contributory infringement or inducement of infringement, Pinterest is not liable to Plaintiff for the acts alleged to have been performed before Pinterest knew that its actions would cause indirect infringement.

SIXTH DEFENSE

Plaintiff's attempted enforcement of the Asserted Patents against Pinterest is barred by one or more of the equitable doctrines of laches, estoppel, acquiescence, waiver, and unclean hands.

SEVENTH DEFENSE

The claims of the Asserted Patents are not entitled to a scope sufficient to encompass any system employed or process practiced by Pinterest.

EIGHTH DEFENSE

Plaintiff's claims for damage are statutorily limited or barred by 35 U.S.C. § 286.

NINTH DEFENSE

By reason of proceedings in the United States Patent and Trademark Office, and by reasons of amendments, disclaimers, disavowals, admissions, representations, arguments, and/or statements made by the applicants or on their behalf, Plaintiff is estopped from construing the claims of the asserted patents to cover and/or include any acts of Pinterest.

TENTH DEFENSE

To the extent that Plaintiff alleges that Pinterest infringes the asserted patents by equivalents, Plaintiff's claims for relief are barred, in whole or in part, by ensnaring the prior art.

ELEVENTH DEFENSE

Plaintiff's Amended Complaint fails to state a claim upon which relief may be granted.

TWELFTH DEFENSE

Plaintiff has failed to state facts and/or a legal basis sufficient to permit the Court to grant equitable or injunctive relief against Pinterest.

PRAYER FOR RELIEF

Pinterest denies the Plaintiff is entitled to any relief from Pinterest and denies all the allegations contained in Paragraphs A-K of Plaintiff's Prayer for Relief.

WHEREFORE, Pinterest prays for judgment as follows:

- a) A judgment dismissing Plaintiff's Amended Complaint against Pinterest with prejudice;
- b) A declaration that Pinterest has not infringed any valid and enforceable claim of the Asserted Patents;
- c) A declaration that the Asserted Patents are invalid and unenforceable;
- d) A declaration that this case is exceptional and an award to Pinterest of its reasonable costs and expenses of litigation, including attorneys' fees and expert witness fees;
- e) Ordering that Plaintiff, its agents, and all persons acting in concert or participation with Plaintiff be enjoined from charging infringement or instituting any further action for infringement of the Asserted Patents against Pinterest;
- f) Such other and further relief as this Court may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure and D. Del. LR 38.1, Pinterest hereby demands a trial by jury for all issues so triable.

MORRIS, NICHOLS, ARSHT & TUNNELL LLP

OF COUNSEL:

/s/ Karen Jacobs

Matthias Kamber
PAUL HASTINGS LLP
101 California Street, 48th Floor
San Francisco, CA 94111
(415) 856-7050

Karen Jacobs (#2881)
E. Paul Steingraber (#7459)
1201 North Market Street
P.O. Box 1347
Wilmington, DE 19899
(302) 658-9200
kjacobs@morrisnichols.com
esteingraber@morrisnichols.com

David Tennant
Jacob Rothenberg
Charles Ziscovici
PAUL HASTINGS LLP
2050 M Street NW
Washington, DC 20036
(202) 551-1700

Attorneys for Defendant Pinterest, Inc.

Grace Wang
PAUL HASTINGS LLP
200 Park Avenue
New York, NY 10166
(212) 318-6000

Robert W. Unikel
PAUL HASTINGS LLP
71 S. Wacker Drive
Forty-Fifth Floor
Chicago, IL 60606
(312) 499-6000

Joshua Yin
PAUL HASTINGS LLP
1117 S. California Avenue
Palo Alto, CA 94304
(650) 320-1800

August 6, 2025

CERTIFICATE OF SERVICE

I hereby certify that on August 6, 2025, I caused the foregoing to be electronically filed with the Clerk of the Court using CM/ECF, which will send notification of such filing to all registered participants.

I further certify that I caused copies of the foregoing document to be served on August 6, 2025, upon the following in the manner indicated:

Anne Shea Gaza, Esquire
Robert M. Vrana, Esquire
YOUNG CONAWAY STARGATT &
TAYLOR LLP
Rodney Square
1000 North King Street
Wilmington, DE 19801
Attorneys for Plaintiff

VIA ELECTRONIC MAIL

Benjamin C. Linden, Esquire
Brandon A. Carmack, Esquire
Cyrus A. Morton, Esquire
ROBINS KAPLAN, LLP
800 Lasalle Avenue, Suite 2800
Minneapolis, Minnesota, 55402
Attorneys for Plaintiff

VIA ELECTRONIC MAIL

/s/ Karen Jacobs

Karen Jacobs (#2881)