

AnnoRank

A Comprehensive Web-Based Framework for Collecting Annotations
and Assessing Rankings

Clara Rus, Gabrielle Poerwawinata, Andrew Yates, Maarten de Rijke



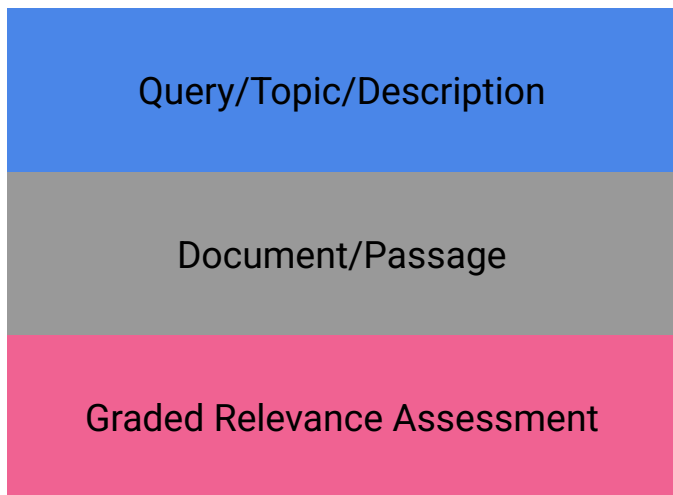
UNIVERSITY
OF AMSTERDAM



findhr


Existing Annotation Tools

- Support collection of explicit feedback for document-query pairs



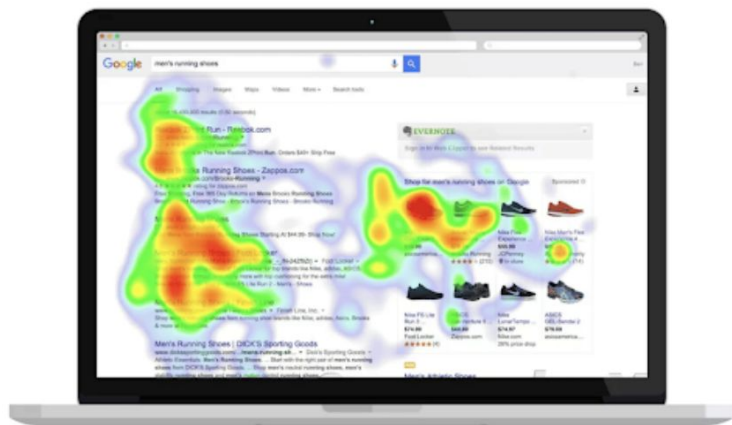
AnnoRank

- The option to collect **graded relevance annotations** for a **multimodal** item given a **multimodal** query

| | |
|------------------------|--|
| Task Description Field | Task Description Verify whether image and caption given are relevant! Annotate the given caption as either relevant or not relevant for the given image. |
| Query Text Field |  |
| Display Field | <div>CAPTION</div> <div>A man on a ladder cleans the window of a tall building</div> <div>Choose the label:</div> <div><input checked="" type="radio"/> Relevant <input type="radio"/> Not Relevant <input type="text" value="Relevance Label"/></div> |

Existing Logging Tools

- Useful for collecting implicit feedback (e.g. clicks) on a web interface



AnnoRank

- The option to collect both **explicit** and **implicit** annotations for a **ranked list** of items given the displayed query

Task Description Field

Query Text Field

Task Description

Query Text

Choose the top 3 items that you would buy given that you are searching for a product that matches the below shopping category. Clicking the 'View' button will provide more detailed information about the product.

Toy Trains & Sets

| PRODUCT_NAME | PRICE | AVERAGE_REVIEW_RATING | |
|--|-------|-----------------------|--|
| Thomas & Friends TALKING Winston Engine | 10.75 | 5.0 | <div>View</div> <div><input checked="" type="checkbox"/></div> |
| <div>This deluxe version of Thomas range brings your favourite trains to life like never before complete with their very own voices. Press the button to hear the engines classic signature phrases. Also features a working headlight and as you roll it along the track you'll hear its choo-choo sound. The faster it moves, the quicker the choo-choo sound.</div> | | | |
| | | | <div>View Button</div> <div>Shortlist Button</div> |
| Garden Scale- Thomas The Tank Engine (moving eyes) | 180.0 | 5.0 | <div>View</div> <div><input type="checkbox"/></div> |

AnnoRank - Interaction Annotation UI

| | | | | | |
|-------------------------------|--|-------|-----------------------|-----------------------------|-------------------------------------|
| Task Description Field | Task Description Choose the top 3 items that you would buy given that you are searching for a product that matches the below shopping category. Clicking the 'View' button will provide more detailed information about the product. | | | | |
| Query Text Field | Toy Trains & Sets | | | | |
| | PRODUCT_NAME | PRICE | AVERAGE_REVIEW_RATING | | |
| Display Field | Thomas & Friends TALKING Winston Engine | 10.75 | 5.0 | View | <input checked="" type="checkbox"/> |
| View Field | | | | View Button | Shortlist Button |
| Display Field | Garden Scale- Thomas The Tank Engine (moving eyes) | 180.0 | 5.0 | View | <input type="checkbox"/> |

AnnoRank - Interaction Annotation UI





For each user, the following interactions can be collected:

- **Clicks:** number of clicks for each document on the View Button
- **Timestamps:** for each click the timestamp of the click to open the expand and the timestamp of closing the expand are collected
- **Top-k Documents:** the list of the selected documents in the order in which the user checked the box
- Integration with BigBrother Logging Tool for collecting **clicks** and **mouse-movements**

AnnoRank - Interaction Annotation UI - in practice

- **Task:** selection of top-3 candidates given a job description
 - collection of click data for recruitment
 - understanding the effect of different ranking strategies
 - understanding the effect of proxies

Role: Store Associate
Required Experience: 3 years in a relevant position for this job.
Required Degree: Diploma
Hard Skills: Style and fashion, Textile care, Inventory, POS systems, Quality check, Procurement and supply, Ecommerce
Soft Skills: Time management, Patience, Attention to detail

| NAME | LAST WORK EXPERIENCE | LAST EDUCATION | SELECT 3 | |
|--|---|--|----------------------|--------------------------|
|  Karin Krause | Store Associate Nov 2021 - Feb 2024: 2.2 years G-fashion, Ingolstadt, Bavaria, Germany | Low secondary education completed | View | <input type="checkbox"/> |
|  Ismail Farah | Store Assistant Apr 2019 - Feb 2024: 4.8 years Farook International Stationary, Mogadishu, Somalia | Low secondary education completed | View | <input type="checkbox"/> |
|  Walter Richter | Store Associate Dec 2021 - Feb 2024: 2.2 years Exchange AG Deutschland, Hamburg, Germany | High School Diploma Goethe-Gymnasium, Frankfurt, Germany | View | <input type="checkbox"/> |
|  Moussa Ba | Retail Store Associate Sep 2023 - Feb 2024: 0.4 years Lili Création Senegal, Dakar, Senegal | National Exam International School of Dakar, Dakar, Senegal | View | <input type="checkbox"/> |

AnnoRank

Additional support:

- the option to **compare** two rankings

| Query Text Field | | Actuary | | | | | Average Views | | | | | Average Views | | | | |
|------------------|---------------|--|--------|-----------------|--------------------------|-------|---|--------|-----------------|--------------------------|-------|---|--------|-----------------|--------------------------|-------|
| | | CANDIDATE ID | GENDER | WORK EXPERIENCE | EDUCATION | VIEWS | CANDIDATE ID | GENDER | WORK EXPERIENCE | EDUCATION | VIEWS | CANDIDATE ID | GENDER | WORK EXPERIENCE | EDUCATION | VIEWS |
| are | Display Field | ranker_1:preprocessing_1:qualification_fair__qualification_fair | | | | | ranker_1:qualification__qualification | | | | | | | | | |
| | | 3caee75a-5f28-44d2-819f-82fa085c5883 | f | 201 months | 48 months | 12.0 | e209730f-e993-4d27-8e9f-730cd3b679d4 | m | 181 months | 126 months | 10.0 | | | | | |
| | | e209730f-e993-4d27-8e9f-730cd3b679d4 | m | 181 months | 126 months | 1.0 | 258aeeecb-6738-4232-a390-24ba9a0bc552 | m | 230 months | 60 months | 1.0 | | | | | |
| | | 258aeeecb-6738-4232-a390-24ba9a0bc552 | m | 230 months | 60 months | 1.0 | 110b0abf-40af-417e-986b-f41c8d274100 | f | 128 months | 109 months | 2.0 | | | | | |
| | | 110b0abf-40af-417e-986b-f41c8d274100 | f | 128 months | 109 months | 1.0 | 7eec57a5-4400-4ea7-82d6-454ae3296fe7 | m | 202 months | 3 months | 0.0 | | | | | |
| | | b818ab21-985d-4079-8094-075e8eb3bf14 | f | 115 months | 55 months | 0.0 | b818ab21-985d-4079-8094-075e8eb3bf14 | f | 115 months | 55 months | 0.0 | | | | | |
| | | ad856ecb-e6db-4411-bc3d-b64c2511067e | m | 85 months | 61 months | 0.0 | ad856ecb-e6db-4411-bc3d-b64c2511067e | m | 85 months | 61 months | 0.0 | | | | | |
| | | 7eec57a5-4400-4ea7-82d6-454ae3296fe7 | m | 202 months | 3 months | 0.0 | 3a155eb4-fd2a-49b6-88d9-12a9522d4eb9 | m | 121 months | 75 months | 0.0 | | | | | |
| | | 460aaf31-9feb-4d5c-afcc-e5d32e31953d | m | 232 months | 3 months | 0.0 | 460aaf31-9feb-4d5c-afcc-e5d32e31953d | m | 232 months | 3 months | 0.0 | | | | | |
| | | 3a155eb4-fd2a-49b6-88d9-12a9522d4eb9 | m | 121 months | 75 months | 0.0 | 3caee75a-5f28-44d2-819f-82fa085c5883 | f | 201 months | 48 months | 0.0 | | | | | |
| | | Fairness Metrics Selection Parity: 0.53 Exposer Parity: 0.21 lgt: F:1, M:0.76 | | | Display Fairness Metrics | | Fairness Metrics Selection Parity: 0.0 Exposer Parity: 0.27 lgt: F:0.11, M:1 | | | Display Fairness Metrics | | Fairness Metrics Selection Parity: 0.0 Exposer Parity: 0.27 lgt: F:0.11, M:1 | | | Display Fairness Metrics | |
| | | Utility Metrics MAP: 0.8 NDCG: 0.91 | | | Display Utility Metrics | | Utility Metrics MAP: 0.8 NDCG: 0.68 | | | Display Utility Metrics | | Utility Metrics MAP: 0.8 NDCG: 0.68 | | | Display Utility Metrics | |

Set-up



Define a configuration file for the dataset and UI



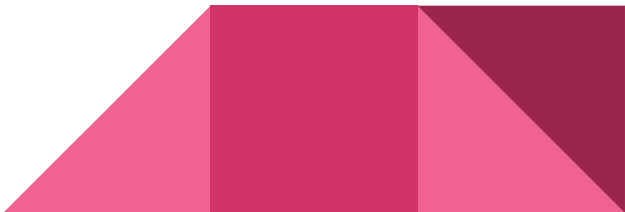
Run the provided start script → AnnoRank docker container



Easy access for crowdsource workers through URLs to the web app



Export collected annotations in CSV or JSON format



Conclusion

- AnnoRank:
 - is a **web-based user interface** (UI) framework for collecting crowdsource annotations
 - enables the collection of **explicit and implicit annotations** for a specified query and a single or multiple documents
 - supports **ranking comparisons**, allowing for the visualization of both ranked lists along with its utility and fairness metrics

Code



SCAN ME

Documentation



SCAN ME

Conclusion

- AnnoRank:
 - is a **web-based user interface** (UI) framework for collecting crowdsource annotations
 - enables the collection of **explicit and implicit annotations** for a specified query and a single or multiple documents
 - supports **ranking comparisons**, allowing for the visualization of both ranked lists along with its utility and fairness metrics

Thank you!

Code



SCAN ME

Documentation



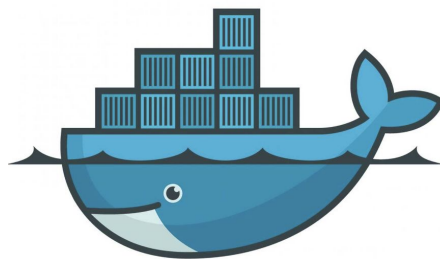
SCAN ME

Set-up

```
1 {
2   "data_loader_class": {
3     "name": "amazon",
4     "score": "average_review_rating",
5     "group": "manufacturer",
6     "query": "amazon_category_and_sub_category",
7     "doc_id": "product_name"
8   },
9   "ui_display_config": {
10    "highlight_watch": true,
11    "view_button": true,
12    "shortlist_button": true,
13    "shortlist_select": [3,3],
14    "display_fields": ["product_name", "price", "average_review_rating"],
15    "view_fields": ["product_description"],
16    "task_description": "Choose the top 3 items that you would buy given",
17    "exit_survey": {
18      {
19        "question": "Gender Identity",
20        "field": "gender",
21        "options": ["Male", "Female", "Other"],
22        "mandatory": true
23      },
24      {
25        "question": "Feedback on the task",
26        "field": "feedback",
27        "options": ["Yes", "No"],
28        "mandatory": false
29      }
30    }
31  }
32 }
```

Configuration File

RUN



AnnoRank

- **Interaction Annotation UI:**
http://localhost:5000/start_ranking/<exp_id>
- **Score Annotation UI:**
http://localhost:5003/start_annotate/<exp_id>
- **Ranking Comparison Visualise UI:**
http://localhost:5001/start_compare/<exp_id>

STORE



mongo DB

ACCESS

Prolific

amazon
mechanical turk