



TOUCHÉ
2022



Touché @ CLEF 2022

Shared Tasks on Argument Retrieval



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Task 1: Supporting conversations on controversial topics

- ❑ Scenario: Users search for arguments on controversial topics
- ❑ Task: Retrieve and rank pairs of sentences, analyze quality

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Task 2: Answering comparative questions with arguments

- Scenario: Users face personal decisions from everyday life
- Task: Retrieve and rank arguments, analyze quality, detect the stance

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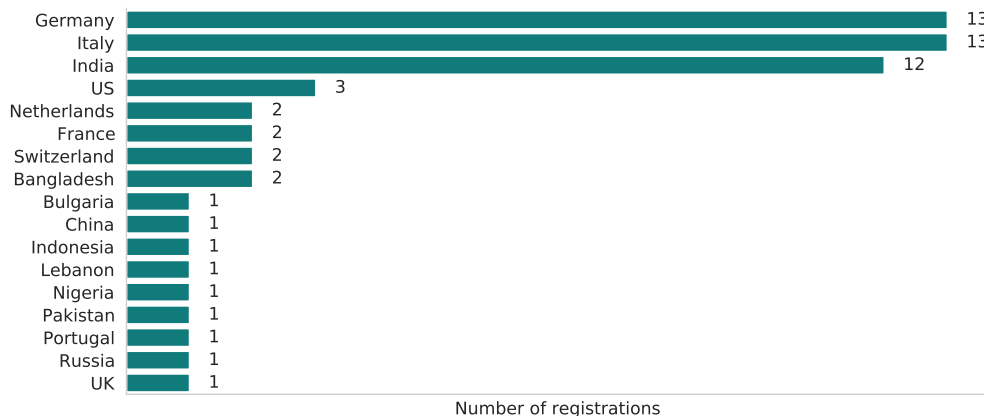
Task 3: Image retrieval for arguments

- ❑ Scenario: Users search for visual support for arguments
- ❑ Task: Retrieve images for each stance (pro/con) that support that stance

Touché: Argument Retrieval

Statistics

- Registrations: 58 teams (vs. 29 teams last year)
- Nicknames: Real or fictional fencers / swordsmen (e.g., Zorro)
- Submissions: 23 participating teams (vs. 27 last year)
- Approaches: 84 valid runs were evaluated (vs. 88 last year)
- Judgments: 15 644 manual judgments(sentences, passages, images)



Touché: Argument Retrieval

Workshop Program



Thursday, September 8.

09:00-09:05 **Welcome**

09:05-09:45 **Session 1: Argument Retrieval for Controversial Questions**

09:05-09:15 Overview of Task 1 on Argument Retrieval for Controversial Questions (Shahbaz Syed) [\[paper\]](#)

09:15-09:25 Team Bruce Banner at Touché 2022: Argument retrieval for controversial questions (Bernardo Moreira) [\[paper\]](#)

09:25-09:35 The Pearl Retriever: Two-Stage Retrieval for Pairs of Argumentative Sentences (Sebastian Schmidt) [\[paper\]](#)

09:35-09:45 Team INTSEG on Argument Retrieval for Controversial Questions (Paria Tahan) [\[paper\]](#)

09:45-10:00 **Best of Touché 2021:** Query Expansion, Argument Mining and Document Scoring for an Efficient Question Answering System (Alaa Alhamzeh)

10:00-10:30 **Keynote:** [Ranking Arguments and Argumentative Documents: Case Studies and Challenges](#) (Andrea Galassi)

10:30-11:00 Coffee break

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Workshop Program



11:00-11:40 **Session 2: Argument Retrieval for Comparative Questions**

11:00-11:10 Overview of Task 2 on Argument Retrieval for Comparative Questions (Alexander Bondarenko) [\[paper\]](#)

11:10-11:20 Grimjack at Touché 2022: Axiomatic re-ranking and query reformulation (Jan Heinrich Reimer) [\[paper\]](#)

11:20-11:30 LeviRank: Limited query expansion with voting integration for document retrieval and Ranking (Ashish Rana) [\[paper\]](#)

11:30-11:35 Stacked model based argument extraction and stance detection using embedded LSTM model (Pavani Rajula) [\[paper\]](#)

11:35-11:40 Retrieving comparative arguments using deep language models (Viktoriia Chekalina) [\[paper\]](#)

11:40-12:10 **Session 3: Image Retrieval for Arguments**

11:40-11:50 Overview of Task 3 on Image Retrieval for Arguments (Johannes Kiesel) [\[paper\]](#)

11:50-12:00 Aramis at Touché 2022: Argument detection in pictures using machine learning (Jan Braker) [\[paper\]](#)

12:00-12:10 Boromir at Touché 2022: Combining natural language processing and machine learning techniques for image retrieval for arguments (Miriam Louise Carnot) [\[paper\]](#)

12:10-12:30 **Closing:** remarks, plenary discussion, future plans

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Touché: Argument Retrieval

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Spoiler: Touché will run again at CLEF 2023

Submit your extended working notes to ECIR 2023

Session 1: Argument Retrieval for Controversial Questions

Moderator: Timon Gurcke

Argument:

- A conclusion (claim) supported by premises (reasons) [Walton et al. 2008]
- Conveys a stance on a controversial topic [Freeley and Steinberg, 2009]

Conclusion *Argumentation will be a key element of conversational agents.*

Premise 1 *Superficial conversation (“gossip”) is not enough.*

Premise 2 *Users want to know the “Why” to make informed decisions.*

Argumentation:

- Usage of arguments to achieve persuasion, agreement, . . .
- Decision making and opinion formation processes

Example topic for Task 1:

| | |
|--------------------|--|
| Title | <i>Should hate speech be penalized more?</i> |
| Description | <i>Given the increasing amount of online hate speech, a user questions the necessity and legitimacy of taking legislative action to punish or inhibit hate speech.</i> |
| Narrative | <i>Highly relevant arguments include those that take a stance in favor of or opposed to stronger legislation and penalization of hate speech and that offer valid reasons for either stance. Relevant arguments talk about [...]</i> |

Touché: Argument Retrieval

Retrieving the Gist of an Argument



Touché 2020 and 2021

- Given a question on a controversial topic, retrieve relevant arguments from a focused crawl of online debate portals

Touché: Argument Retrieval

Retrieving the Gist of an Argument



Touché 2020 and 2021

- Given a question on a controversial topic, retrieve relevant arguments from a focused crawl of online debate portals

Identified Challenges in Argument Retrieval

- Arguments can have complex and long hierarchies
- Only parts of that hierarchy are relevant
- Traditional snippet generation does not work [Alshomary et al. 2020]
- How can we retrieve the relevant parts?

Touché: Argument Retrieval

Retrieving the Gist of an Argument



Touché 2020 and 2021

- Given a question on a controversial topic, retrieve relevant arguments from a focused crawl of online debate portals

Identified Challenges in Argument Retrieval

- Arguments can have complex and long hierarchies
- Only parts of that hierarchy are relevant
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- How can we retrieve the relevant parts?

Touché 2022

- Given a query about a controversial topic, retrieve and rank relevant pairs of sentences from a collection of arguments

Document Collection

- ❑ Args.me corpus [Ajjour et al. 2019]
- ❑ Argument passages from debate portals: idebate.org, debate.org, ...
- ❑ Download or accessible via the API of args.me search engine [args.me]
- ❑ Newest/largest version of the corpus (approx. 400 000 structured arguments)

Additional Data

- ❑ 50 topics from Touché 2020
- ❑ Relevance judgements from previous years

Touché: Argument Retrieval

Statistics

- Submissions: 10 participating teams
- Nicknames: Real or fictional fencers / swordsmen (e.g., Daario Naharis)



- Approaches: 43 valid runs were evaluated
- Baseline: DirichletLM based argument retrieval + graph based sentence pair extraction [Alshomary et al. 2020]
- Topics: 50 topics from Touché 2020
- Evaluation: 6 930 manual relevance, coherence and quality judgments

Argument retrieval: How good are the results?

- ❑ Evaluation w.r.t. sentence pair relevance, coherence and quality
- ❑ Top-5 pooling, removing duplicates
- ❑ 6 930 unique sentence pairs (text passages)
- ❑ Annotation by eight graduate and undergraduate student volunteers, computer science background
- ❑ nDCG@5 for relevance, coherence and quality

Relevance: How relevant is the pair of sentences to the topic?



Both sentences in the pair are relevant for the topic



Only one sentence in the pair is relevant to the topic



None of the sentences in the pair is relevant to the topic

Quality: How argumentative is the pair of sentences?



Both sentences in the pair is argumentative.



Only one sentence in the pair is argumentative.



None of the sentences in the pair is argumentative

Coherence: How coherent is the pair of sentences?



The sentences in the pair build upon each other in a meaningful way



The sentences in the pair neither build on nor contradict each other



The sentences in the pair contradict each other

Touché: Argument Retrieval

Results

| Team | nDCG@5 | | | | | |
|------------------|--------|--------------|------|--------------|------|--------------|
| | Rank | Relevance | Rank | Quality | Rank | Coherence |
| Bruce Banner | 3 | 0.651 | 5 | 0.772 | 4 | 0.378 |
| D'Artagnan | 4 | 0.642 | 7 | 0.733 | 5 | 0.378 |
| Daario Naharis | 2 | 0.683 | 1 | 0.913 | 1 | 0.458 |
| Gamora | 5 | 0.616 | 3 | 0.785 | 7 | 0.285 |
| General Greivous | 9 | 0.403 | 10 | 0.517 | 10 | 0.231 |
| Gorgon | 8 | 0.408 | 6 | 0.742 | 8 | 0.282 |
| Hit Girl | 6 | 0.588 | 4 | 0.776 | 6 | 0.377 |
| Korg | 11 | 0.252 | 11 | 0.453 | 11 | 0.168 |
| Pearl | 7 | 0.481 | 8 | 0.678 | 3 | 0.398 |
| Porthos | 1 | 0.742 | 2 | 0.873 | 2 | 0.429 |
| Swordsman | 10 | 0.356 | 9 | 0.608 | 9 | 0.248 |

Baseline ranking is shown **in bold**.

- ❑ Almost all teams outperformed the baseline
- ❑ Relevance and coherence evaluation indicates promising results (improvement over the baseline)
- ❑ The retrieved sentence pairs have a good quality (are argumentative)
- ❑ Finding coherent pairs of sentences is challenging
- ❑ Trends among submissions:
 - Deploying “classical” retrieval models with parameter optimization
 - Usage of double indexing approaches
 - Frequent focus on transformer based ML models to find coherent pairs

Session 1: Participants' paper presentations



Special Session

Moderator: Alexander Bondarenko

- ❑ **Best of Touché 2021:** Query Expansion, Argument Mining and Document Scoring for an Efficient Question Answering System (Alaa Alhamzeh)
- ❑ **Keynote talk:** Ranking Arguments and Argumentative Documents: Case Studies and Challenges (Andrea Galassi)

Keynote:



Ranking Arguments and Argumentative Documents: Case Studies and Challenges

Andrea Galassi, Università di Bologna

[\[webpage\]](#)



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[\[touche.webis.de\]](https://touche.webis.de)

Moderator: Alexander Bondarenko

Task 2: Answering comparative questions with arguments

- ❑ Scenario: Users face personal decisions from everyday life
- ❑ Goal: Help to come to an informed decision on the comparison
- ❑ Task: Retrieve and rank arguments, analyze quality, detect stance
- ❑ Data: Approx. 1 million passages from ClueWeb12

- ❑ Run submissions similar to “classical” TREC tracks
- ❑ Software submissions via TIRA [\[tira.io\]](https://tira.io)

Touché: Argument Retrieval

Statistics

- ❑ Registrations: 10 teams (46 teams: for task 2 + other tasks)
- ❑ Nicknames: Real or fictional fencers / swordsmen (e.g., Katana)



- ❑ Submissions: 7 participating teams (vs. 6 last year)
- ❑ Approaches: 25 valid runs were evaluated (vs. 19 last year)
- ❑ Baseline: BM25 / always 'no stance'
- ❑ Evaluation: 2 107 manual judgments: relevance, quality, stance (vs. 2 076 last year)

Example topic for Task 2:

| | |
|--------------------|--|
| Title | <i>Should I major in philosophy or psychology?</i> |
| Objects | <i>major in philosophy, psychology</i> |
| Description | <i>A soon-to-be high-school graduate finds themselves at a crossroad in their life. [...] searching for information about the differences and similarities, advantages and disadvantages of majoring in either of them (e.g., with respect to career opportunities).</i> |
| Narrative | <i>Relevant documents will overview one of the two majors in terms of career prospects or developed new skills, or they will provide a list of reasons to major in one or the other. [...] Not relevant are study program and university advertisements or general descriptions of the disciplines that do not mention benefits, advantages, or pros/cons.</i> |

Argument retrieval: How good are web documents with arguments?

Classical (TREC-style) IR relevance judgments



Not relevant



Relevant



Highly relevant

*Who is a better **pet**, a **cat** or a **dog**?*



Comparing cats versus dogs as pets



Information about either cats or dogs as pets



Everything else: often ads

Argument retrieval: How good are text passages with arguments?

Rhetorical quality: How well written?



the best !!! Don't even try to argue with me. Yeah, yeah, yeah (Grrrr) I have always had cats, they are sooo coool, and dogs just suck.

Pro cat

Domestic dogs are hardwired with this pack instinct that generally makes them social, friendly, and all too happy to belong to a family or even a single person who can provide them with food and leadership.

Pro dog

We labeled the quality regardless of relevance



Proper language, good structure, good grammar, easy to follow



Proper language but broken logic / hard to follow, or vice versa



Profanity, hard to follow, hard to read, many grammar issues

(a) Highest **relevance** score per team

| Team | nDCG@5 | |
|----------------------|--------------|--------------|
| | Rele. | Qual. |
| Captain Levi | 0.758 | 0.744 |
| Aldo Nadi* | 0.709 | 0.748 |
| Katana* | 0.618 | 0.643 |
| ⋮ | ⋮ | ⋮ |
| Puss in Boots | 0.469 | 0.476 |
| ⋮ | ⋮ | ⋮ |

(*) different runs (systems) from the same team; baseline **BM25** ranking and stance detector (**always 'no stance'**) are shown **in bold**.

Touché: Argument Retrieval

Results

(a) Highest **relevance** score per team

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(b) Highest **quality** score per team

| Team | nDCG@5 | |
|----------------------|--------------|--------------|
| | Qual. | Rele. |
| Aldo Nadi* | 0.774 | 0.695 |
| Captain Levi | 0.744 | 0.758 |
| Katana* | 0.644 | 0.601 |
| ⋮ | ⋮ | ⋮ |
| Puss in Boots | 0.476 | 0.469 |
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Touché: Argument Retrieval

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(c) **Stance**

| F1 macro | |
|----------|--------------|
| Rank | Score |
| — | — |
| 1 | 0.261 |
| 3 | 0.220 |
| ⋮ | ⋮ |
| 5 | 0.158 |
| ⋮ | ⋮ |

(*) different runs (systems) from the same team; baseline **BM25** ranking and stance detector (**always ‘no stance’**) are shown **in bold**.

- ❑ A few used relevance judgments from previous Touché
- ❑ Many labeled a sample of retrieved documents themselves
- ❑ Or relied on zero-shot approaches like T0++
- ❑ Using the docT5query-expanded document collection
- ❑ Main trend: transformer-based models (ColBERT, monoT5, duoT5)
- ❑ Stance: supervised classifiers (XGBoost, LSTM, RoBERTa, etc.)
- ❑ “Best” so far: retrieval / ranking pipelines that include argument mining methods and argument quality estimation

Session 2: Participants' paper presentations





TOUCHÉ
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12:10-12:30 **Closing:** remarks, plenary discussion, future plans

[\[touche.webis.de\]](http://touche.webis.de)

Moderator: Johannes Kiesel

Task 3: Image retrieval for arguments

- ❑ Scenario: Users search for images to corroborate their argumentation
- ❑ Task: Retrieve and rank images to support or attack a given stance
- ❑ Data: 24 000 web images with respective web documents

- ❑ Run submissions similar to “classical” TREC tracks
- ❑ Software submissions via TIRA [\[tira.io\]](https://tira.io)

- Submissions: 3 participating teams (+ baseline)



- Approaches: 12 valid runs were evaluated (+ baseline)
- Baseline: Google image search with query suffix “good” or “anti”
- Evaluation: 7 000 images-topic pairs judged manually (MTurk, MACE)

-
- Santiago Cabrera as Aramis in “The Musketeers”
 - Sean Bean as Boromir in “The Lord of the Rings”
 - Jester image by @deantna (on Pinterest)
 - Minsc (and Boo) by u/Kazuliski (on Reddit)

| Team | Run | Precision@10 | | |
|---------|---|--------------|-------|--------|
| | | Topic | Arg. | Stance |
| Boromir | BERT, OCR, query-processing | 0.878 | 0.768 | 0.425 |
| Minsc | Baseline (Google) | 0.736 | 0.686 | 0.407 |
| Aramis | Argumentativeness:formula, stance:formula | 0.701 | 0.634 | 0.381 |
| Jester | With emotion detection | 0.696 | 0.647 | 0.350 |

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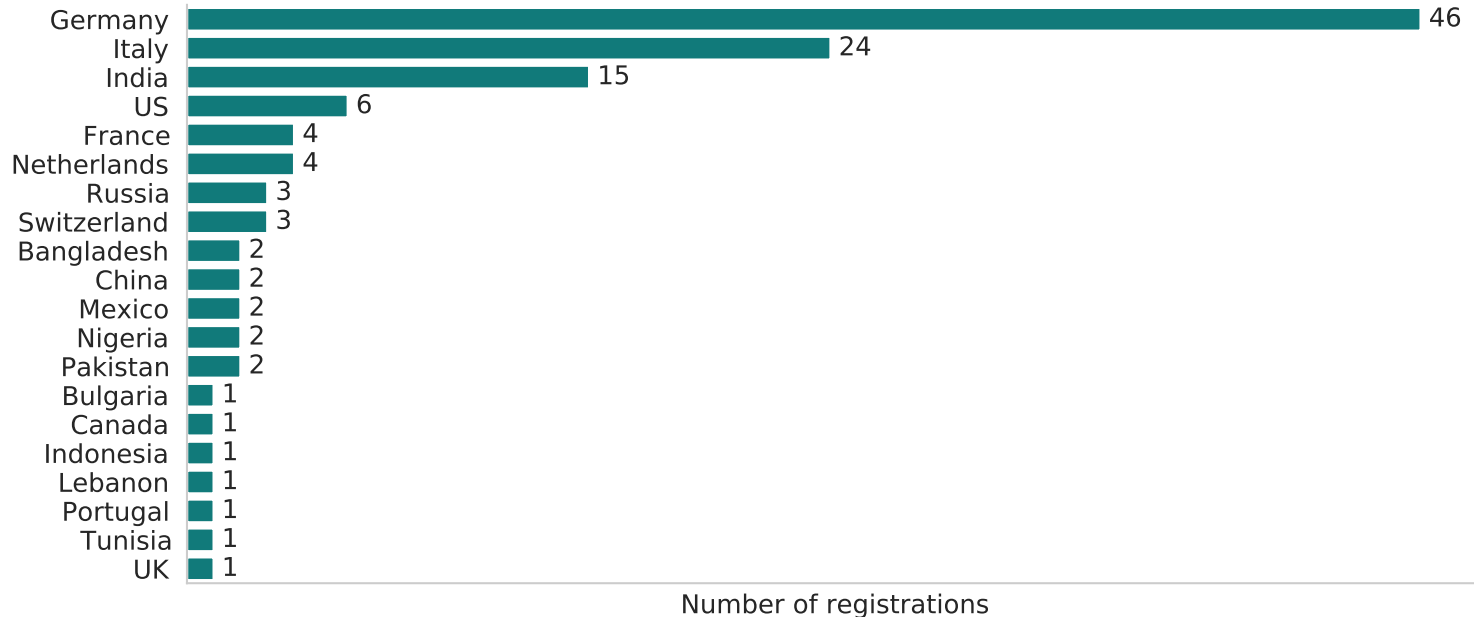
Session 4: Panel discussion and closing remarks

Moderator: Alexander Bondarenko

Touché: Argument Retrieval

Statistics over 3 years

- ❑ Registrations: 122 teams
- ❑ Submissions: 67 participating teams
- ❑ Approaches: 213 valid runs were evaluated
- ❑ Evaluation: 28 476 manual judgments

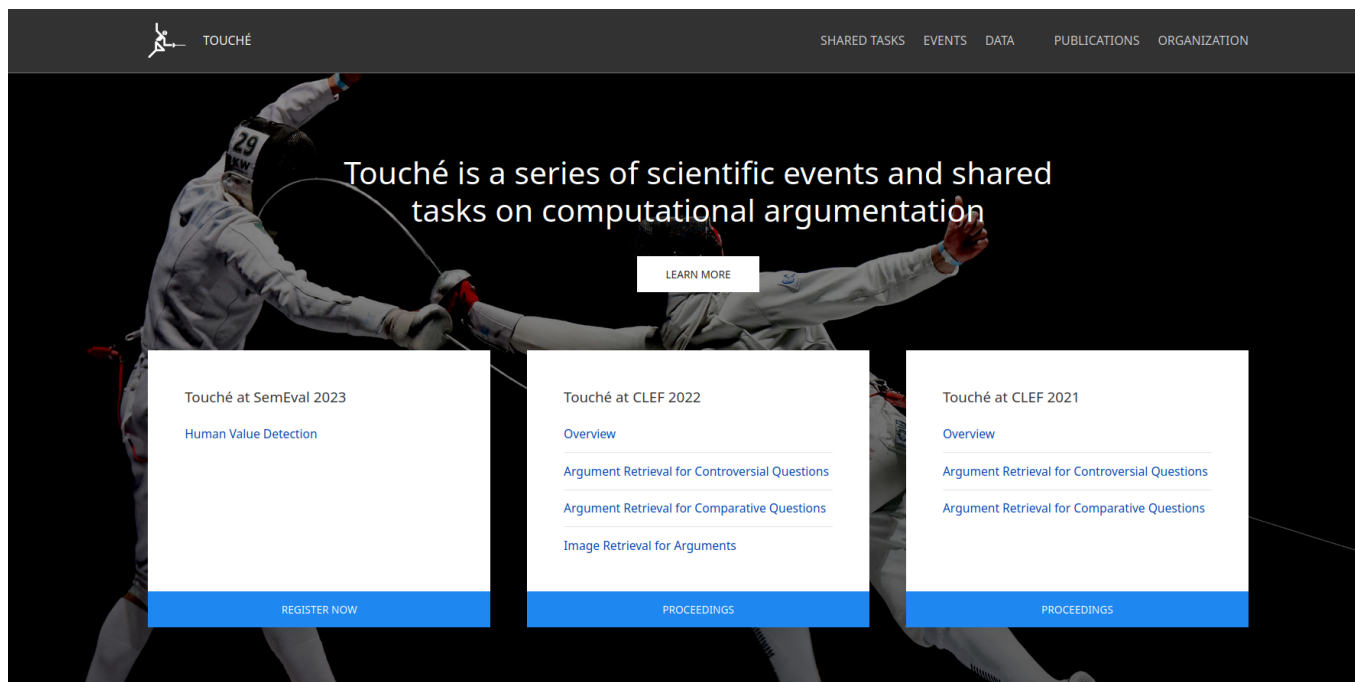


Touché: Argument Retrieval

Summary



- ❑ Platform for argument retrieval and argument analysis research [touche.webis.de]
- ❑ Argument relevance / quality / stance corpora and rankings
- ❑ Tools for submission and evaluation [tira.io]



Task 1: Argument Retrieval for Controversial Questions

- ❑ Scenario: Users search for arguments on controversial topics
- ❑ Task: Retrieve and rank relevant and high-quality documents
identify the document stance
- ❑ Data: ClueWeb22 (10 billion web documents); will be indexed in [\[ChatNoir\]](#)

Title *Should teachers get tenure?*

Claim *Teachers should get tenure*

Description *A user has heard that some countries do give teachers tenure and others don't. Interested in the reasoning for or against tenure, the user searches for positive and negative arguments. [...]*

Narrative *Highly relevant documents clearly focus on tenure for teachers in schools or universities. Relevant documents consider tenure more generally, not specifically for teachers, or [...]*

Task 2: Causal Retrieval

- Scenario: Support users that search for answers to causal questions
- Task: Retrieve and rank causality-related relevant documents and detect if the document supports or refutes the causal statement
- Data: ClueWeb22 (10 billion web documents); will be indexed in [\[ChatNoir\]](#)

Title *Can broccoli cause constipation?*

Claim *Broccoli causes constipation*

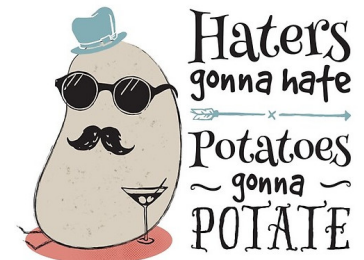
Description *A young parent has a child experiencing constipation after eating some broccoli for dinner and is wondering whether broccoli could cause constipation [...]*

Narrative *Relevant documents will discuss if broccoli and other high fiber foods can cause or ease constipation [...]*

Task 3: Image Retrieval for Arguments

- ❑ Scenario: Users search for images to corroborate their argumentation
- ❑ Task: Retrieve and rank images that can be used to support or attack a given stance
- ❑ Data: > 30 000 web images with respective web documents

Should hate speech be banned?



Task 4: Intra-Multilingual and Multi-target Stance Classification

- ❑ Scenario: Users want to form an opinion on an important societal topic
- ❑ Task: Detect the stance of a comment on a proposal
- ❑ Data: 4 200 proposals and 20 000 comments focused on various topics from Online Participatory Democracy Platform

| Title | Topic | Proposal | Comment | Stance |
|---|-----------|---|---|---------|
| Focus on Anti-Aging and Longevity research | Health | The EU has presented their green paper on aging, and correctly named the aging ... | The idea of prevention being better than a cure is nothing new or revolutionary. Rejuvenation ... | Pro |
| Impose an IQ or arithmetic-logic test to immigrants | Migration | We should impose an IQ test or at least several cognitive tests making sure immigrants have ... | On ne peut pas trier les migrants par un simple score sur les capacités cognitives. Certains fuient la guerre et vous ... | Against |

Open discussion

thank you!