





# SimpleText 2021

Text Simplification for Scientific Information Access CLEF 2021 Workshop



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- Scientific publications are difficult to read
- Fight against misinformation
- Faster reading
- Accessibility to
  - Non-native
  - Younger readers
  - Citizens with reading disabilities
- Improving the results of NLP applications for pre-editing or translation
- Useful for:
  - Scientific communication
  - Science journalism
  - Political communication
  - Education

# Motivation&Objectives

- Bringing together an interdisciplinary scientific community
- Definition & Methods
- Contribute to the response to challenges:
  - Technical
  - Evaluation
- Open and accessible science







# Format & Call for Contributions

# Half-day workshop:

- Introduction & Welcome (15 min)
- Invited talk (1 h)
- Presentations of the participants (15 min + 5 min questions)
- Open discussion (30 min)
- Closing remarks (10 min)

# Types of contributions:

- ▶ Participation in the pilot tasks!
- Research & survey papers
- ▶ Position, discussion & demo paper
- Extended abstracts of published papers







# Topics of interest (not exhaustive)

- Automated or computer-assisted scientific popularization/simplification
- Contextualization, search for background knowledge
- Terminology extraction
- Methods for assessing language complexity
- Methods for assessing information complexity

- Automatic summarization of scientific texts
- Daily digest generation
- Simplification of technical text, computer-assisted pre-editing
- Alteration and distortion of scientific information
- Automatic methods for scientific/data journalism







#### PILOT TASK 1: Content Selection

## Selecting passages to include in a simplified summary regarding a query

**Queries**: titles of scientific journalism articles + keywords

Data: ElasticSearch index of Citation Network Dataset: DBLP+Citation, ACM Citation network

**Evaluation**: pooling, traditional IR metrics, unresolved anaphora,...

#### Potential problems:

- •The information in a summary designed for an expert is different from those for the general audience
- •Relevance of the source
- Unresolved anaphora
- •...







## PILOT TASK 1 : Example

#### Input:

```
<topic>
<topic_id>1</topic_id>
<topic_text>Digital assistants like Siri
and Alexa entrench gender biases,
says UN</topic_text>
<keywords>
<keyword>Digital assistant
</keyword>
<keyword>Biases</keyword>
</keyword>
</keyword>
</keyword>
</keyword>
</keyword>
</keyword>
</keyword>
</keyword>
</keyword>
```

#### **Expected output:**

```
run id
            manual
                     topic_id doc_id
                                                 passage
                                                           rank
ST 1 1
                           3000234933
                                           People are becoming
increasingly comfortable using Digital Assistants (DAs) to
interact with services or connected objects. 1
ST 1 1
                           3003409254
                                           big data and machine
learning (ML) algorithms can result in discriminatory decisions
against certain protected groups defined upon personal data like
gender, race, sexual orientation etc. 2
ST 1 1
                           3003409254
                                           Such algorithms
designed to discover patterns in big data might not only pick up
any encoded societal biases in the training data, but even worse,
they might reinforce such biases resulting in more severe
discrimination. 3
```







## PILOT TASK 2: Searching for concepts to be explained

Given a passage and a query, rank terms/concepts that are required to be explained for understanding this passage (definitions, context, applications,..)

**Queries**: titles of scientific journalism articles + keywords

Data: DBLP abstracts

Evaluation: NDCG?,...

#### Potential extension in future:

Provide a context

•...







### PILOT TASK 2: Example

#### Input:

```
<topic>
```

<topic\_id>1</topic\_id>

<topic\_text>Digital assistants like Siri and Alexa entrench gender biases, says UN</topic\_text>

<passage\_id>1</passage\_id>

<passage\_text>Automated decision making based on big data and machine learning (ML) algorithms
can result in discriminatory decisions against certain protected groups defined upon personal
data like gender, race, sexual orientation etc. Such algorithms designed to discover patterns in
big data might not only pick up any encoded societal biases in the training data, but even
worse, they might reinforce such biases resulting in more severe discrimination.

</passage\_text>

</topic>

Expected output:					
Run_id	manual	topic_id	passage_id	term	rank
ST_1	1	1	1	machine learning	1
ST_1	1	1	1	societal biases	2
ST_1	1	1	1	ML	3







## PILOT TASK 3: Language Simplification

## Given a query, simplify passages from scientific abstracts

**Queries**: titles of scientific journalism articles + keywords

Data: DBLP abstracts

**Evaluation**: manual? Aggregated metrics?

#### Potential problems:

- •Is it possible to simplify terminology? ⇒ Pilot task 2: background knowledge
- •Out of scope of consideration: puns and idioms







## PILOT TASK 3: Example

#### Input:

```
<topic>
<topic>
<topic_id>1</topic_id>
<topic_text>Digital assistants like Siri and Alexa
entrench gender biases, says UN</topic_text>
<passage_id>1</passage_id>
```

```
</passage_text>
</topic>
```

#### **Expected output:**

Run\_id manual topic\_id passage\_id simplified\_passage ST\_1 1 1 1 Automated decision-making may include sexist and racist biases because their algorithms are based on the most prominent social representation in the dataset they use.





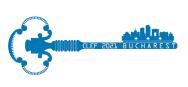


# Organizers

- Liana Ermakova, HCTI EA 4249, Université de Bretagne Occidentale (Brest, France)
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- Patrice Bellot, Aix-Marseille Université CNRS (LIS INS2I) (Marseille, France)
- Irina Ovchinnikova, Institute of Linguistics and Intercultural Communication, Sechenov University (Moscow, Russia)
- Diana Nurbakova, LIRIS, Institut National des Sciences Appliquées de Lyon, (Lyon, France)







## We are open to discuss other ideas

# Thank you!

Questions? Suggestions?

## Participate in SimpleText@CLEF!

Website: <a href="https://www.irit.fr/simpleText/">https://www.irit.fr/simpleText/</a>

E-mail: <a href="mailto:simpletextworkshop@gmail.com">simpletextworkshop@gmail.com</a>

Twitter: <a href="https://twitter.com/SimpletextW">https://twitter.com/SimpletextW</a>

Google group: <a href="https://groups.google.com/g/simpletext">https://groups.google.com/g/simpletext</a>

CLEF website: <a href="http://clef2021.clef-initiative.eu/index.php">http://clef2021.clef-initiative.eu/index.php</a>