

# Research engineer - Open position

## Inria Sophia Antipolis (France)

### Project title

Natural Language Argumentation on Twitter: Retrieval of Argumentative Structures and Reasoning

### Keywords

Natural Language Processing, Knowledge Representation and Reasoning, Twitter, Argument Mining, Argumentation Theory

### Description

We are looking for a Research Engineer with a background in Natural Language Processing and Knowledge Representation and Reasoning to join the Inria WIMMICS team (<http://wimmics.inria.fr>) and the start-up Vigiglobe (<http://vigiglobe.com>).

Understanding and interpreting the flow of messages exchanged in real time on social platforms, like Twitter, raises several important issues. The big amount of information exchanged on these platforms represents a significant value for who is able to read and enrich this multitude of information. Users directly provide this information, and it is interesting to analyze such data both from the quantitative and from the qualitative point of view, especially for what concerns reputation and marketing issues (regarding brands, institutions or public actors).

Moreover, the automated treatment of this type of data and the constraints it presents (e.g., limited number of characters, tweets with a particular writing style, amount of data, real-time communication) offer a new and rich context for a challenging use of existing tools for natural language processing. In particular, the goal of the project is to address the following points:

- **Automated selection and annotation of tweets**, i.e., retrieval of those tweets that can be considered as arguments (like for instance those tweets whose content expresses an opinion on a given topic).
- **Automated assignment of labels to the type of relation holding between arguments** (positive relation or negative relation).
- **Creation of an argumentation graph** illustrating the relations between the arguments about a certain subject, and the further application of argumentation semantics to **compute the set of “winning” arguments** (i.e., the accepted arguments). This graph-based visualization provides a summary of the ongoing discussion on Twitter.

The **first step** of the project will be the creation and annotation of a data set extracted from Twitter. This data set will be used as a benchmark for training and testing NLP algorithms for

the automated detection of the relations between arguments. The **second step** will consist in the adaptation of the framework presented in [Cabrio&Villata, ECAI2012] to the Twitter scenario, with the aim to make it more robust in terms of processing large volumes of data.

## Profile

Mandatory requirements for applicants:

1. PhD in Computer Science;
2. Experience in NLP and Knowledge Representation and Reasoning, or in a related field (Artificial Intelligence, Machine Learning...);
3. Hands-on experience of at least one programming language (e.g., Java, C++) ensure autonomy in completing the technical tasks of the project;
4. Self-motivated, goal-oriented and willing to work in an international team;
5. Pragmatic and customer oriented;
6. Fluent English is mandatory.

Optional:

1. Good control of scripting tools (bash, Unix/Linux tools) and of web languages;
2. Experience with automation of NLP processing chains;
3. Fluent in French.

## Duration

12 months

## Salary

2 120 € /month

## Deadline

September 15<sup>th</sup>

## Contact

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## References

[Cabrio&Villata, ECAI2012]

Cabrio E., Villata S. *Natural Language Arguments: A Combined Approach*. In Proceedings of the 20th European Conference on Artificial Intelligence (ECAI 2012), p. 205-210, 2012.

NoDE Benchmark of Natural Language Arguments

<http://www-sop.inria.fr/NoDE/>