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**PhD Position (M/F) – Thesis offer (M/F)**  
**Reference: DS\_PL\_PhD\_kFLOW\_Nov21**

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<b>Research topics</b>	<b>Knowledge Graphs, Information Extraction</b>
<b>Departement</b>	Data Science
<b>Publication date</b>	November 2021
<b>Start date</b>	January 2022
<b>Duration</b>	Duration of the thesis

### **Description**

History is composed of a continuous flow of events. Each of them can impact subsequent events and contribute to the evolution of human knowledge. Knowledge Graphs (KG) try to encode the information about facts and events, often falling short when representing the temporal evolution of this knowledge and tracking cause-effect flows.

This PhD thesis aims to investigate strategies for extracting, enriching and exploiting event knowledge, applying and developing techniques in the fields of the semantic web, knowledge graphs, information extraction, and deep learning. In particular, the candidate will:

- Study and develop NLP techniques for the detection of events in the text. In particular, the developed techniques will aim to identify not only the events themselves and the connected entities (agents, time, places, etc.) but also the relations between events. The studied approaches may include bi-directional LSTM, attention-based encoders and word embeddings (BERT). In successive iterations, the techniques will be fine-tuned using the extracted information.
- Use the extracted information to populate a Knowledge Graph of interconnected events, according to the Semantic Web principles. The KG will be interconnected to external knowledge bases, such as Wikidata, DBpedia, Geonames, EventKG.
- Applying the knowledge obtained from previous tasks to infer missing relationships and detect invalid ones. The final goal is to expand and correct the KG, taking into account the explainability of the results. The developed techniques will be finally applied in fact-checking scenarios.

This PhD position is fully funded as part of the ANR-JCJC Knowledge Flow (kFLOW) project, which aims to propose strategies for representing, extracting, predicting and using the information about event relationships and knowledge evolution.

### **Requirements**

- M.Sc.(Eng.) in the area of Computer Science / Computer Engineering or equivalent
- Good programming skills (preferred Python)
- Fluency in English (written and spoken)
- Curiosity and ability to work in a team environment
- Nice to have: previous experience with Machine Learning and/or Deep Learning



## Application

The application must include:

- Detailed curriculum
- Transcript of courses taken at graduate and undergraduate levels and their grades
- Motivation letter of two pages
- At least 2 recommendation letters

Applications should be submitted by e-mail to [pasquale.lisena@eurecom.fr](mailto:pasquale.lisena@eurecom.fr) with cc [secretariat@eurecom.fr](mailto:secretariat@eurecom.fr) with the reference : **DS\_PL\_PhD\_kFLOW\_Nov21**

## Important Dates

Deadline to apply: 10 December (screening will start immediately)

## About EURECOM

*EURECOM is a graduate school and a research center in communication systems located in Sophia Antipolis, a vibrant science park on the French Riviera. EURECOM is ranked among the world's top universities in the QS World University Rankings® 2019, considered one of the world's strongest universities in Computer Science & Information Systems and ranked 551/600 worldwide.*

*Organized as an Economic Interest Group (kind of consortium), EURECOM brings together in its consortium prestigious universities such as the schools from the Institut Mines Télécom group (Télécom Paris, IMT Atlantique, Télécom SudParis, etc.), Aalto University (Helsinki), Politecnico di Torino, Technische Universität München (TUM), Norwegian University of Science and Technology (NTNU), Chalmers University of Technology (Sweden), Czech Technical University in Prague (CTU), ITMO University (St Petersburg), University of Liège (ULiège) and EDHEC Business School, as well as industry members such as BMW Group, IABG, Orange, SAP, NortonLifeLock and the Principality of Monaco as an institutional member.*

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EURECOM, as part of its gender equality plan and its positive actions to promote gender diversity, particularly encourages female candidates for its research and engineering positions in digital technologies, positions mostly occupied by men.

All our positions are open to people with disabilities.