

### 3 fully funded PhD positions in NLP at NUI Galway, Ireland

Three fully funded PhD positions in Natural Language Processing are available at the Unit for Natural Language Processing of the Data Science Institute [1] at the National University of Ireland Galway [2]. The positions are funded by the Insight SFI Research Centre for Data Analytics [3] and will be aligned with the Insight research programme on Multimodal Data Analysis. The scholarship comprises a tax free stipend of EUR 1542 per month, in addition to university fees.

#### 1. PhD position on 'NLP tasks in the context of multimodal and sensor data'

NLP tasks are no longer limited to the analysis of language as a single modality but can access multiple modalities beyond language. The advantage of incorporating multimodal approaches to NLP is the potential complementarity of the data stored across different modalities. The integration of signals coming from text, images, video, audio or sensor data has been shown to be useful for improved natural language understanding and generation. In this context, the PhD position will be concerned with innovative research into the representation and exploitation of multimodal and sensor data for NLP tasks.

#### 2. PhD position on 'Knowledge Graphs for natural language understanding in physical settings'

Knowledge graphs are at the core of modelling reference and inference in natural language understanding and multimodal reasoning. However, the current state of the art in knowledge graphs is incomplete and insufficient for truly effective natural language understanding in physical settings. Conversational agents (chatbots), robotics and other autonomous systems increasingly require an understanding of pragmatic knowledge, such as physical dimensions of objects and events and how this is referred to in language (verbalized) by human users. In this context, the PhD position will be concerned with innovative research into the extraction and use of knowledge graphs for natural language understanding in physical settings.

#### 3. PhD position on 'Leveraging textual, audio and visual modalities within machine translation'

Current approaches to multimodal machine translation leverage additional information coming from different modalities, such as text, speech or video. Exploiting the additional information in these modalities can be used to improve the generated output in a different language. This PhD position will focus primarily on video-guided translation, which exploits audio and visual modalities. In this context, the PhD position will be concerned with developing new models and approaches in video-guided machine translation beyond the state-of-the-art, with emphasis on real-time language processing and translation.

Candidates should:

- have a Masters degree in a relevant field of study with an emphasis on NLP
- have experience in machine learning and deep learning
- have good programming skills in Python
- enjoy working with real-world problems and large data sets
- have excellent proficiency in English and good communication skills

Please send your application (CV and cover letter in a single PDF, please specify your name in the file name) before the closing date of May 9th, 2021 to [paul.buitelaar@nuigalway.ie](mailto:paul.buitelaar@nuigalway.ie) and [mihael.arcan@nuigalway.ie](mailto:mihael.arcan@nuigalway.ie)

[1] <https://dsi.nuigalway.ie/units/unlp>

[2] <https://www.nuigalway.ie>

[3] <https://www.insight-centre.org>