Multi-modal Context Modelling for Machine Translation

Fact Sheet

Project information

MultiMT

Grant agreement ID: 678017
Status: Ongoing project
Start date: 1 July 2016
End date: 30 June 2021

Funded under: H2020-EU.1.1.
Overall budget: €1 493 771
EU contribution: €1 493 771

Hosted by: IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE
United Kingdom

Objective

Automatically translating human language has been a long sought-after goal in the field of Natural Language Processing (NLP). Machine Translation (MT) can significantly lower communication barriers, with enormous potential for positive social and economic impact. The dominant paradigm is Statistical Machine Translation (SMT), which learns to translate from human-translated examples.

Human translators have access to a number of contextual cues beyond the actual segment to translate when performing translation, for example images associated with the text and related documents. SMT systems, however, completely disregard any form of non-textual context and make little or no reference to wider surrounding textual content. This results in translations that miss relevant information or convey incorrect meaning. Such issues drastically affect reading comprehension and may make translations useless. This is especially critical for user-generated content such as social media posts -- which are often short and contain non-standard language -- but applies to a wide range of text types.

The novel and ambitious idea in this proposal is to devise methods and algorithms to exploit global multi-modal information for context modelling in SMT. This will require a significantly disruptive approach with new ways to acquire multilingual multi-modal representations, and new machine learning and inference algorithms that can process rich context models. The focus will be on three context types: global textual content from the document and related texts, visual cues from images and metadata including topic, date,
author, source. As test beds, two challenging user-generated datasets will be used: Twitter posts and product reviews.

This highly interdisciplinary research proposal draws expertise from NLP, Computer Vision and Machine Learning and claims that appropriate modelling of multi-modal context is key to achieve a new breakthrough in SMT, regardless of language pair and text type.

**Field of Science**

machine learning

computer vision

natural language processing

learning

languages - general

**Programme(s)**

H2020-EU.1.1. - EXCELLENT SCIENCE - European Research Council (ERC)

**Topic(s)**

ERC-StG-2015 - ERC Starting Grant

**Call for proposal**

ERC-2015-STG

[See other projects for this call](#)

**Funding Scheme**

ERC-STG - Starting Grant

**Host institution**


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EU Contribution
€ 1 010 513,67

Website
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Beneficiaries (2)

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