AMTA 2018
March 17 - 21, 2018
Boston, MA, USA

The 13th Conference of
The Association for Machine Translation
in the Americas
www.conference.amtaweb.org

WORKSHOP PROCEEDINGS
March 21, 2018

Translation Quality Estimation and Automatic Post-Editing

Organizers: Ramón Astudillo (Unbabel, INESC-ID)
João Graça (Unbabel)
André Martins (Unbabel, University of Lisbon)

Contents

INTRODUCTION

The goal of quality estimation is to evaluate a translation system's quality without access to reference translations (Blatz et al., 2004; Specia et al., 2013). This has many potential usages: informing an end user about the reliability of translated content; deciding if a translation is ready for publishing or if it requires human post-editing; highlighting the words that need to be changed. Quality estimation systems are particularly appealing for crowd-sourced and professional translation services, due to their potential to dramatically reduce post-editing times and to save labor costs (Specia, 2011). The increasing interest in this problem from an industrial angle comes as no surprise (Turchi et al., 2014; de Souza et al., 2015; Martins et al., 2016, 2017; Kozlova et al., 2016). A related task is that of automatic post-editing (Simard et al. (2007), Junczys-Dowmunt and Grundkiewicz (2016)), which aims to automatically correct the output of machine translation. Recent work (Martins, 2017, Kim et al., 2017, Hokamp, 2017) has shown that the tasks of quality estimation and automatic post-editing benefit from being trained or stacked together.

In this workshop, we will bring together researchers and industry practitioners interested in the tasks of quality estimation (word, sentence, or document level) and automatic post-editing, both from a research perspective and with the goal of applying these systems in industrial settings for routing, for improving translation quality, or for making human post-editors more efficient. Special emphasis will be given to the case of neural machine translation and the new open problems that it poses for quality estimation and automatic post-editing.

The workshop will consist of one full day of technical presentations, including a tentative number of 6 invited talks and 1 contributed talk, followed by a 30-minutes panel discussion. There will be a poster session featuring the papers accepted for publication in the workshop proceedings.

The workshop organizers,

André Martins (Unbabel and University of Lisbon)
andre.martins@unbabel.com

Ramon Astudillo (Unbabel and INESC-ID Lisboa)
ramon@unbabel.com

João Graça (Unbabel)
joao@unbabel.com

PROGRAM

9:00 — Welcome

9:15 - 10:00 — Nicola Ueffing: "Automatic Post-Editing and Machine Translation Quality Estimation at eBay"

10:00 - 10:30 — Rebecca Knowles: "Lightweight Word-Level Confidence Estimation for Neural Interactive Translation Prediction"

10:30 - 11:00 — Coffee Break

11:00 - 11:45 — João Graça: "Unbabel: How to combine AI with the crowd to scale professional-quality translation"

11:45 - 12:30 — Maxim Khalilov: "Machine translation at Booking.com: what's next?"

12:30 - 14:00 — Lunch break

14:00 - 14:45 — Marcin Junczys-Dowmunt: "Are we experiencing the Golden Age of Automatic Post-Editing?"

14:45 - 15:30 — Marcello Federico: "Challenges in Adaptive Neural Machine Translation"

15:30 - 16:00 — Coffee Break

16:00 - 16:20 — Eleftherios Avramidis: "Fine-grained evaluation of Quality Estimation for Machine translation based on a linguistically-motivated Test Suite"

16:20 - 16:40 — Rebecca Knowles: "A Comparison of Machine Translation Paradigms for Use in Black-Box Fuzzy-Match Repair"

16:45 - 17:30 — Discussion Panel (Nicola Ueffing, Maxim Khalilov, Marcello Federico, Marcin Junczys-Dowmunt, Alon Lavie)

INVITED SPEAKERS

Nicola Ueffing (eBay)

Title: Automatic Post-Editing and Machine Translation Quality Estimation at eBay

Abstract: This presentation will give an overview of Automatic Post-Editing and Quality Estimation research and development for e-commerce data at eBay. I will highlight two projects: (1) Application of Automatic Post-Editing and Machine Translation for Natural Language Generation for e-commerce browse pages, where the structured data describing the products is automatically "translated" into natural language; and (2) Quality Estimation for Machine Translation of eBay item titles, which compares general models and models which are specifically trained for three different categories in the inventory of eBay's marketplace platform for prediction of post-edition effort.

Bio: Nicola joined eBay's machine translation research team in May 2016. Her focus is on machine translation, both for e-commerce content and for natural language generation, and quality estimation. Prior to working for eBay, Nicola was a language modeling research scientist at Nuance Communications, leading the research and development for dictation products like Dragon NaturallySpeaking. Nicola received a PhD in computer science from RWTH Aachen University, specializing in confidence estimation for machine translation. She then joined the Interactive Language Technologies team at the National Research Council Canada as PostDoc research associate. Her research interests include machine translation as well as most other areas of computational natural language processing.

Maxim Khalilov (Booking)

Title: Machine translation at Booking.com: what's next?

Abstract: For many years, machine translation (MT) was primarily focused on the post-editing scenario, in which MT serves as a productivity increase element of a professional translation pipeline. However, in e-commerce the most desirable application of MT is direct publishing of MTed content that dictates different requirements to MT and the MT quality evaluation model.
In this talk, Maxim Khalilov will discuss the Booking.com approach to MT and its evaluation. He will also cover some scenarios in which e-commerce can benefit from advancements in quality estimation and automatic post-editing.

Bio: Maxim Khalilov is a product owner - data science at Booking.com responsible for business aspects of scaled content product development. Prior to his current role, Maxim was a CTO at bmmt GmbH, an innovative German language service provider, an R&D manager at TAUS and a post-doctoral researcher at the University of Amsterdam. Maxim has a Ph.D. from Polytechnic University of Catalonia (Barcelona, 2009), an MBA from IE Business School (Madrid, 2016) and is the author of more than 30 scientific publications.

Marcello Federico (MMT Srl/FBK Trento, Italy)

Title: Challenges in Adaptive Neural Machine Translation

Abstract: Neural machine translation represents today the state of the art in terms of performance. However, its deployment in a real-life and dynamic scenario, where multiple users work on different tasks, presents some important trade-offs and challenges. In my talk, I will describe the development and deployment of adaptive neural machine translation within the ModernMT EU project, from phrase-based to neural machine translation. Besides discussing the technological solutions adopted in ModernMT, I will connect them to the underlying research efforts conducted at FBK in the recent years, including online-learning, automatic post-editing, and translation quality estimation.

Bio: Founder and CEO of MMT Srl, Trento, Italy. Research director (on leave) and Affiliated Fellow at Fondazione Bruno Kessler, Trento, Italy. Lecturer at the ICT International Doctoral School of the University of Trento. Co-founder and scientific advisor of MateCat Srl. Research interests: machine translation, natural language processing, machine learning and artificial intelligence.

João Graça (Unbabel)

Title: Unbabel: How to combine AI with the crowd to scale professional-quality translation

Abstract: Unbabel is accelerating the shift towards a world without language barriers by enabling trustworthy, seamless and scalable translations between companies and their customers. In this talk we will show how we combine different Machine Learning techniques together with a crowd of non-professional translators and achieve

professional-quality translations in an unprecedented speed and scale. We will also show how quality estimation is used in different steps of the pipeline.

Bio: João Graça is currently the CTO of Unbabel. He was previously the data scientist and natural language processing expert at Dezine and Flashgroup. João did his PhD in Natural Language Processing and Machine Learning at Instituto Superior Técnico together with the University of Pennsylvania with Professors Fernando Pereira, Ben Taskar and Luísa Coheur. He is the author of several papers in the area, his main research topics are machine learning with side information, unsupervised learning and machine translation. João is one of the co-founders of the Lisbon Machine Learning Summer School (LxMLS).

Marcin Junczys-Dowmunt (Microsoft Research)

Title: Are we experiencing the Golden Age of Automatic Post-Editing?

Abstract: In this talk I will describe the rise of neural methods in Automatic Post-Editing and why I believe that we might have reached a "Golden Age" of (neural) post-editing methods. This will be mostly based on the example of the recent WMT shared tasks on Automatic Post-Editing and my own contributions to that task. I will contrast current architectures with historic solution and will argue that only now --- with the on-set of neural sequence-to-sequence methods --- automatic post-editing has matured enough to have the potential for practical applications. However, there is a risk that this Golden Age might be very short lived and future results might be much less encouraging than the last two WMT shared task on APE might imply.

Bio: Marcin has been working in the Machine Translation team at Microsoft AI and Research -- Redmond as a Principal NLP Scientist since January 2018. Before joining Microsoft he was an Assistant Professor at the Adam Mickiewicz University in Poznan, Poland, and a visiting researcher in the MT group at the University of Edinburgh. He also collaborated for many years with the World Intellectual Property Organization and the United Nations, helping with the development of their in-house statistical and neural machine translation systems. His main research interests are neural machine translation, automatic post-editing and grammatical error correction. Most of his open-source activity is being eaten up by his NMT pet-project Marian (http://github.com/marian-nmt/marian).