AVT workflows and the role of automation

Book of abstracts

KEYNOTE SPEECH
Serenella Massidda (University of Roehampton)
"The Symbiotic Match of AVT & Tech Industry: State-Of-The-Art and Way Forward"

Abstract
The Audiovisual Translation (AVT) and Tech industry have always been intertwined, almost inseparable throughout the decades, representing a symbiotic match, a marriage made in heaven.
In the field of AVT, the most significant development that have profoundly influenced the nature of professional practices has been the advent of the DVD back in 1995 which had consequent 'repercussions not only in the way audiovisual programs started to be packaged, marketed and consumed, but also from a quantitative perspective' (Diaz Cintas 2013: 119).
Since then, the first subtitling editors were developed, desktop software programs able to accommodate video features along with text formatting functionalities within the same working environment. Yet, the greatest 'catalyst of changes in audiovisual communication (and translation) has been, and continuous to be, the internet' (ibid.: 120). The Web 2.0, or the new interactive version of the internet in the 2000, has democratized access to advanced technologies allowing for the creation of freeware versions of subtitling equipment, making them accessible to the public. In addition, the shift from desktop-based to cloud-based environments integrating professional functionalities able to process the technical and linguistic dimensions of the subtitling workflow to the highest standards, has been rather smooth as well as well-received by Languages Server Providers (LSPs) and professionals working in the global AVT industry.
The technological implications of the plethora of developments AVT has undergone in time, have also profoundly altered our perception of the audiovisual world and our relationship to it, as simple users, academics, and professionals translators in a world radically altered by Over-the-Top (OTT), and Video Streaming on Demand (SVoD) systems. In the last few years, big players such as *Netflix, Amazon*, and *Disney+* have invested billions of dollars in new productions reaching a volume of content that was unthinkable only a decade ago. The Covid19 pandemic started in 2020 has further increased the demand for internet connectivity, video accessibility, and audiovisual content for entertainment purposes which, in turn, have reinforced the dominant role of OTT platforms currently diversifying their offer in multiple source languages within an AVT market that is striving to meet the needs of a global audience.
To this end, experiments with new technologies applied to AVT have been consistently carried out since the start of the millennium. Cloud-based environments have been the perfect stage for all sorts of tests and trials: Automatic Speech Recognition (ASR) system able to 'understand' the voices in a dialogue and transcribe it with ever-increasing successful rates (Ciobanu and Secară 2019; Diaz Cintas and Massidda 2019); Translation Memories (TMs) once mainly used by the translation industry only (Roturier 2019), have timidly made their way into cloud-based software for subtitlers; Neural Machine (NMT) processes have been applied to the production of subtitled versions of films and TV shows to a large extent (Bywood at al. 2017), generating Machine Translation Post Editing

(MTPE) roles in the AVT industry and creating thought-provoking debates about the ethics of technology and the agency of professional subtitlers in the localization industry.

How is the latest technology effectively supporting the challenges brought about by the SVoD boom? Is the rise of subtitling going to generate fair working conditions for professionals? And, most importantly, are we headed in the right direction in the AVT industry, or we need to make a U-turn instead? During this event, we will attempt to tackle these issues and many more to discuss the state of the art of AVT and shed light on the way forward.

References

Bywood, L., P. Georgakopoulou and T. Etchegoyhen (2017). 'Embracing the Threat: Machine Translation as a Solution for Subtitling', *Perspectives* 25(3): 492– 508.

Diaz-Cintas, J. (2013). The technology Turn in Subtitling. In M. Thelen, B. Lewandowska-Tomaszczyk (Eds.), *Translation and meaning: Part 9*. 119-132. Maastricht: Zuyd University of Applied Sciences.

Diaz-Cintas, J., & Massidda, S. (2019). Technological advances in audiovisual translation. In M. O'Hagan (Ed.), *The Routledge Handbook of Translation and Technology*. Routledge.

Roturier, J. (2019). XML for Translation Technology. In M. O'Hagan (Ed.), *The Routledge Handbook of Translation and Technology*. Routledge.

Biosketch

Dr **Serenella Massidda** is Senior Lecturer in Audiovisual Translation (AVT) at Roehampton University and Honorary Research Associate at University College London, UK. She holds a European Doctorate in Audiovisual Translation and an MSc in Scientific and Medical Translation with Translation Technology (Imperial College London). She has published extensively and is the author of Audiovisual Translation in the Digital Age – The Italian Fansubbing Phenomenon published by Palgrave MacMillan in 2015.

A professional translator and subtitler, member of the Executive Board of ESIST (European Association for Studies in Screen Translation), I-LanD Research Centre, Women in Localization UK and the Editorial Board of Linguistica Antverpiensia, she is OOONA Academic Partner and member of the Steering Committee of THE POOOL (the-poool.com/team). She has been teaching AVT technology since 2010 in many academic institutions in the UK and Europe. Her research and academic consultancy with the localization industry are in the following areas: AVT technology, Localisation workflows, Subtitling Quality, Software Development and User Experience, Crowdsourcing translation and Fansubbing practices. Impact studies and research projects developed: Subtitling Certification (Netflix Hermes Test 2016-2017), OOONA Educational Platform (Cloud Subtitling Training 2020-2022) and ¡Sub! Localisation workflows that work project (2021-2022 UNINT-Roehampton) on Subtitling Workflows.

Julio de los Reyes Lozano and Laura Mejías-Climent, (University Jaume I)
"The DubTA project: building bridges between MT and AVT"

Abstract

Current globalization has boosted consumer demand for instant access to audiovisual content, regardless of the country and the language, which creates the need for optimized audiovisual translation (AVT) projects. New technologies are essential to satisfy such market expectations. In

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this context, neural machine translation (NMT) has emerged as one of the most promising tools. Research on its application to the professional spheres has developed rapidly in the last decades. AVT, nonetheless, seems to be one of the most complex fields for MT to find the right place due to the challenge of dealing with written text while considering audio and visual content and its semiotic implications.

Since the turn of the century, the first few projects combining MT and AVT have proven the potential that MT has for the industry, yet a careful preparation or pre-editing of the source text and a thorough post-editing process are always essential. Our aim now is to explore the possibilities that NMT has for dubbing. To such an end, this presentation will outline the DubTA project and the main phases it encompasses.

With a view to designing a pre-editing system that considers the characteristics of the audiovisual text, the first step we will discuss is the proposal of a taxonomy especially designed to classify the most prominent and repetitive errors found in a dubbing script translated by NMT. Based on this proposal and the most common errors found in a short animated clip, in future phases we will target the original script to prepare and tag it (pre-edit) for the most frequent potential errors that will need to be corrected during post-editing and final preparation of the dubbing script.

Biosketch

Dr. De los Reyes Lozano received his PhD in Translation Studies in 2015 from the Universities Jaume I of Castellón, Spain, and Reims-Champagne-Ardenne, France. After seven years at the University of Lille, France, he joined the Universitat Jaume I of Castellón as a Postdoctoral Researcher at the research group TRAMA (Translation for the Media and Accessibility) specializing in Audiovisual Translation, and he is now a full-time lecturer and researcher of the Department of Translation and Communication at the same university. He has published articles in prestigious journals in the area of Translation Studies such as *LANS*, *JosTRans* and *InTRAlinea*, and book chapters in well-known publishers (*L'Harmattan*, *Comares*, among others). He is co-author of a monograph on subtitling (*UJI*, 2019) and co-editor of a collection of essays on AVT (*L'Entretemps*, 2021).

Dr. Laura Mejías-Climent holds a PhD in Translation from the Universitat Jaume I (Castellón, Spain) and a bachelor's degree in Translation and Interpreting from the Universidad Pablo de Olavide (Sevilla, Spain), with the award for the best academic record and the Special Doctoral Award. She is a full-time lecturer and researcher in the Department of Translation and Communication of Universitat Jaume I, where she worked on her PhD as a pre- and postdoctoral grantee. She is also a member of the research group TRAMA. She has published several articles on audiovisual translation and localization in prestigious journals in the field of Translation Studies such as *MonTi*, *LANS*, *Trans* and *Sendebar*, among others, as well as chapters of numerous books with leading publishers. She has recently published a book entitled *Enhancing Video Game Localization Through Dubbing* with the prestigious publisher Palgrave Macmillan.

Dr. De los Reyes Lozano and Dr. Mejías-Climent are the main researchers of the project entitled *DubTA: La traducción automática aplicada a los procesos de traducción para doblaje [the application of machine translation to the dubbing process]*, funded by the Universitat Jaume I over the period 2021-2022 (ref. UJI-B2020-56).

Alina Karakanta (FBK)
"Automatic subtitling: Post-editing effort and subtitlers' perspectives"

Abstract
Recent technological developments are opening up more opportunities for the integration of machine translation and speech technologies in computer-assisted translation tools. Audiovisual translation has not been impervious to these changes. More and more subtitling tools are being tailored for post-editing by offering automatically generated subtitles. Automatic subtitling tools incorporate technologies such as automatic speech recognition, machine translation, timestamp prediction (automatic spotting) and automatic segmentation of the translated text into subtitles. These tools bring the promise of 'augmenting' subtitlers to create better subtitles, faster. However, the effect of automatic subtitling on subtitlers' workflows and their views on this new technology has not been yet explored. In this presentation, I will discuss the following questions: How do subtitlers interact with automatically generated subtitles? How do the different incorporated technologies contribute to post-editing effort? What do subtitlers think of automatic subtitling?

Biosketch
Alina Karakanta is a PhD candidate in the Machine Translation group at Fondazione Bruno Kessler and the University of Trento, Italy. She works on developing novel methods for translating audiovisual content, focusing on speech translation for subtitling and dubbing. Her recent research aims at understanding how subtitlers interact with automatic subtitling and devising new evaluation metrics. Alina is also a professional translator and post-editor.

Anke Tardel, TRA&CO Center/Johannes Gutenberg University of Mainz
"Empirically investigating assisted subtitling workflows within COMPASS"

Abstract
As the importance of both intra- and interlingual subtitles grows due to legal regulations and an ever-increasing use of online streaming platforms worldwide, the audiovisual translation industry − especially subtitling − has been faced with challenging changes such as dropping payment rates and tighter deadlines. These are continuously being tackled with the help of assisting AI-based language technology which was among others the focus of the EU-funded COMPASS project (Computer-Assisted Subtitling, 2018-2019). Within COMPASS, several empirical analyses (Hansen-Schirra et al., 2020; Tardel, 2020, 2021; Tardel, Hansen-Schirra, Schaeffer, et al., 2021) were carried out to investigate subtitling processes in general and assisted by state-of-the-art language technology. Finally,
a prototype of the subtitling tool RIZESUB was developed within this rather limited project duration. More and more modern subtitling workflows resort to speech-to-text applications, text simplification, and automatic timing algorithms as well as machine translation systems in combination with human post-editing and practices such as the use of subtitle templates (see .e.g., Georgakopoulou, 2019). While these seem promising, especially for workflows with high resource language combinations and single-speaker or (semi-)live settings, researchers are still trying to catch up on providing the respective reliable data regarding efficiency of these processes and workflows for different use cases. While there is promising evidence from post-editing research in written translation settings, empirical subtitling process research is still relatively new. In this

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presentation, results from the two studies carried out within the COMPASS project managed by Johannes Gutenberg University of Mainz and ZDF Digital will be presented and put into context with other existing process studies. Finally, a resulting model of subtitling workflows will be proposed and discussed together with the evolving role of the subtitle Post-Editor (Georgakopoulou & Bywood, 2014; Tardel, Hansen-Schirra, & Nitzke, 2021).

References

Georgakopoulou, P. (2019). Template Files: The Holy Grail of Subtitling. *Journal of Audiovisual Translation*, 2(2), 137–160.

Georgakopoulou, P., & Bywood, L. (2014). MT in subtitling and the rising profile of the post-editor. *Multilingual*, 25(1), 24–28.

Hansen-Schirra, S., Tardel, A., Gutermuth, S., Schaeffer, M., Denkel, V., & Schlatterbeck, M. H. (2020). Computer-aided subtitling: Split attention and cognitive effort. ' Translatum Nostrum': La Traducción y La Interpretación En El Ámbito Especializado, 207–224.

Tardel, A. (2020). Effort in Semi-Automatized Subtitling Processes: Speech Recognition and Experience during Transcription. *Journal of Audiovisual Translation*, 3(2). https://doi.org/10.47476/jat.v3i2.2020.131

Tardel, A. (2021). Measuring Effort in Subprocesses of Subtitling: The Case of Post-editing via Pivot Language. In M. Carl (Ed.), *Explorations in Empirical Translation Process Research* (Vol. 3, pp. 81–110). Springer International Publishing. https://doi.org/10.1007/978-3-030-69777-8_4

Tardel, A., Hansen-Schirra, S., & Nitzke, J. (2021). Post-Editing Job Profiles for Subtitlers. *Proceedings of the 1st Workshop on Automatic Spoken Language Translation in Real-World Settings (ASLTRW)*, 13–22.

Tardel, A., Hansen-Schirra, S., Schaeffer, M., Gutermuth, S., Denkel, V., & Hagmann-Schlatterbeck, M. (2021). *Attention distribution and monitoring during intralingual subtitling*. In Tra&Co Group (Ed.), Translation, interpreting, cognition: The way out of the box (pp. 145–162). Language Science Press. https://doi.org/10.5281/zenodo.4545043

Biosketch

Anke Tardel is a PhD student, research assistant, and lecturer at the Faculty for Translation Studies, Linguistics, and Cultural Studies (FTSK) in Germersheim, Johannes Gutenberg University of Mainz, Germany where she received her M.A. degree in Translation. Besides her studies, she has been a student research assistant since 2012, supporting various eye tracking studies and research projects. She has been a junior member of the Gutenberg-Akademie for excellent young researchers and is a part of the Center for Translation and Cognition (TRA&CO). Her research interests include translation process research with a focus on audiovisual translation, translation revision, post-editing, and translation technologies. In her PhD project, which she carried out within the EU-funded COMPASS project 2018-2019, she focusses on subtitling and cognitive translation studies looking into traditional and innovative subtitling processes, workflows, and aspects of quality.

Annalisa Sandrelli, Fiorenza Mileto & Claudio Russello (UNINT)
"The ¡Sub! project: an experimental study on cloud subtitling workflows"

Over the last few years, cloud-based subtitling has made it possible for virtual teams of professionals to work together from all corners of the Earth. At the same time, there has been a

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progressive automatisation of translation practices in many sectors, with the integration of various technologies into workflows, such as CAT and MT tools, as well as speech recognition software. However, despite the recent exponential growth in demand for localised audiovisual content, such technologies have only partially been integrated into in AVT workflows. As it is becoming essential to find ways to accelerate translation processes and streamline workflows, it is equally important to ensure quality of the final output. The presentation will illustrate the results of ¡Sub!: Localisation Workflows (th)at Work, an international pilot project carried out in 2021 and funded by the University of International Studies (UNINT) in Italy, in partnership with Roehampton University (UK) and with the support of four industry partners, OOONA, Captionhub, Sub-ti, and Matesub powered by Translated. The project has compared 3 different workflows in the subtitling of documentaries from English into Italian and from Spanish into Italian: traditional, semi-automated (involving the use of an automatic captioning ASR tool) and fully-automated (involving both ASR and MT). The participants (recent translation graduates and current MA students of the two academic project partners, UNINT and Roehampton University) took part in a series of experiments aimed at identifying the most efficient workflow equation, i.e. the best quality output in the tightest turnaround time. The presentation will illustrate the key results emerging from a quantitative and qualitative analysis of our data. The pilot study has proved so interesting that a follow-up project is already taking place in 2022.

References

Georgakopoulou, P. (2018) "Technologization of Audiovisual Translation", in L. Pérez-González (ed.) The Routledge Handbook of Audiovisual Translation, London, Routledge.

Massidda, S. & Bolaños García- Escribano, A. (forthcoming) "Cloud-Subtitling: Training Future Generations of Subtitlers", The Interpreter and Translator Trainer.

Massidda, S. & Díaz-Cintas, J., (2019) "Technology in Audiovisual Translation", in M. O'Hagan (ed.) The Routledge Handbook of Translation and Technology, London, Routledge.

Biosketches

Annalisa Sandrelli is a Researcher in the Faculty of Interpreting and Translation of UNINT-Rome, where she coordinates the Interpreting Studies unit. A professional interpreter and subtitler, she is a member of EST, ESIST and AIA, and a Research Associate at GALMA (*Galician Observatory for Media Accessibility*). She has published widely on Audiovisual Translation (dubbing, subtitling and respeaking), Legal Interpreting and Legal English, Corpus-based Interpreting Studies and Computer Assisted Interpreter Training (CAIT). She has participated in a number of national and international projects on interpreting studies and Legal English, including EPIC (*European Parliament Interpreting Corpus*), 3 EU-funded projects on legal interpreting and translation (*Building Mutual Trust*, *Qualitas*, *Understanding Justice*), and the *Eurolect Observatory*, in which she coordinates the English unit. She has coordinated several AVT-related projects: *DubTalk* (2013-2015), *TVTalk* (2016-2019), *¡Sub! Localisation workflows that work* (2020-2021), and she has provided consultancy to two Erasmus+ projects on respeaking, i.e. *ILSA-Interlingual Live Subtitling for Access* (2017-2021) and *LTA- LiveTextAccess* (2018-2020) She is currently International Co-investigator on the ESRC-funded project *SMART-Shaping Multilingual Access through Respeaking Technology* and Lead Researcher in the *¡Sub!2* project on cloud subtitling.

Fiorenza Mileto teaches Translation Technologies and Translation project management for quality assurance on the MA in Interpreting and Translation. Her research interests include CAT and MT

tools. She is currently pursuing a PhD in Translation Studies at Dublin City University, working on a research project on the integration of NMT and CAT tools. She also has extensive professional experience as a project manager, translator and CAT and MT trainer.

Claudio Russello teaches Interpreting Theory, Ethics and Professional Management; Interpreting Technologies and Intralingual Respeaking on the MA in Interpreting and Translation. He has extensive professional experience in AVT, MT post-editing and subtitle proof-reading, working for Netflix, SkyTV, Rai, Mediaset, Disney Channel, and Amazon Prime Video. He was part of the SAVAS project (funded by the EU) on multilingual live subtitling. His research interests include CAT and CAI tools, and the training of respeakers.

Martina Giannarelli/Marcin Feder (European Parliament)
"Live Speech-to-Text and Machine Translation Tool for 24 Languages"

Abstract
The Speech-to-Text Unit is responsible for the integration of speech-to-text technology at the European Parliament. The unit is working on a live speech-to-text and machine translation tool that can automatically transcribe and translate parliamentary multilingual debates in real time, covering the 24 official languages of the EU. The purpose of this project is to increase accessibility for the deaf and hard-of-hearing people, who currently have no access to the plenary debates.
For over a year now, the S2T team have been overseeing the development of three prototypes of the tool, created by three private-sector companies who took part in an 'Innovation Partnership' - a special form of research and development co-operation between the European Parliament and such companies. At the end of the first year of the project (Stage 1), the best-performing prototype was selected, and the respective company will continue being part of the Innovation Partnership until 2023.
In this talk, Marcin Feder (Head of Unit) and Martina Giannarelli (Communications Assistant) will briefly present the Speech-to-Text Unit and the different stages of the LSTT project, focusing on various aspects and challenges of this innovative development.

Biosketches
Marcin Feder has a PhD in linguistics (English/Computer Assisted Translation). He worked for Adam Mickiewicz University in Poznań, Poland, and then (in 2003) joined the EP as an in-house interpreter in the Polish booth. Later he became the Head of the PL Unit in DG LINC, and subsequently Head of the Interpreter Support and Training Unit and acting Head of the Multilingualism and Succession Planning Unit. Since 2019, Marcin is the Head of the Speech-to-text Unit in DG TRAD, which is developing a live speech-to-text and machine translation tool that is able to automatically transcribe and translate parliamentary multilingual debates in real time. The ultimate goal is to provide an automatic transcription and translation service for parliamentary debates covering the 24 official languages used by the European Parliament.

Martina Giannarelli holds a BA in Foreign Languages from the University of Pisa (Italy) and an MA in Conference Interpreting and Translation Studies from the University of Leeds (United Kingdom). For about five years, she worked in two private-sector translation agencies in London, coordinating conference interpreters' teams for international multilingual events. In 2019 she joined

the European Parliament in Brussels as a trainee Career Events Coordinator at the DG for Logistics and Interpretation for Conferences (DG LINC). Following her traineeship, she then moved to the DG for Translation (DG TRAD), in Luxembourg, where she is currently working as Communications Assistant for the Speech-to-text Unit.

Vilmantas Liubinas (European Commission)
Adapting and developing speech recognition systems at the European Commission

Abstract

Considering the successful implementation of the Commission's eTranslation machine translation system, four directorates-general of the European Commission have recently joined forces to implement various aspects of speech recognition systems at the European Commission: DG for Communications Networks, Content and Technology (CNECT) is the project owner and provider of funds, DG for Interpretation (SCIC) offers its media recordings and transcriptions as raw material for a speech-to-text system and deals with live conference transcriptions, DG for Translation (DGT) acts as a provider of expertise in machine learning, based on its previous experience with machine translation systems, DG for Informatics (DIGIT) runs the service which calls the engines.

DGT's computational linguist Vilmantas Liubinas will talk about these live and upload-based speech recognition systems implemented at the European Commission and discuss their future development. He will talk in more detail about his experience in customizing Microsoft Azure speech-to-text engines, challenges creating subtitles from the speech recognition output and issues related to the future development of in-house speech recognition engines.

Biosketch

Vilmantas Liubinas holds a Master's degree in Economics from the Central European University (Budapest). For 13 years he worked as a translator at the European Court of Auditors. Two years ago he joined the European Commission and has worked as a computational linguist at the eTranslation team of the Directorate-General for Translation (DGT) whose main field of activity is the machine translation of texts that are written in a multitude of languages relevant in the EU context. He has been currently involved in adapting and developing Commission's speech recognition systems.