COST Action
Progress Report at 24 months
(09/09/2019 to 09/09/2021)

CA18231: Multi3Generation: Multi-task, Multilingual, Multi-modal Language Generation

The Action was approved by the Committee of Senior Officials (CSO) on 4-6-2019 and has the MoU reference COST 048/19.

This report was submitted on 10-11-2021 by the Action Chair on behalf of the Management Committee in fulfilment of the requirements of the rules for COST Action Management, Monitoring and Final Assessment.

Action leadership and participants

Leadership positions

Position	Name	Contact details	Country*
Chair	Dr Anabela Barreiro	anabela.barreiro@inesc-id.pt +351213100351	Portugal

Position	Name	Contact details	Country*
Vice Chair	Dr Mirela Alhasani	malhasani@epoka.edu.al + 355 4 22 32 086	Albania

Working groups

#	WG Title	# of participants	WG Leader	Country*
1	Grounded multi-modal reasoning and generation	20	Prof Mehul Bhatt mehul.bhatt@oru.se	Sweden
2	Efficient Machine Learning algorithms, methods, and applications to language generation	20	Dr Aykut Erdem aerdem@ku.edu.tr	Turkey
3	Dialogue, interaction and conversational language generation applications	20	Dr Helena Moniz helena.moniz@campus.ul.pt	Portugal
4	Exploiting large knowledge bases and graphs	20	Dr Irene Russo irene.russo@ilc.cnr.it	Italy
5	Industry and End-User Liaison	10	Dr José G. C. de Souza jose.camargo.souza@gmail.com	Portugal

Other key leadership positions

Position	Name	Contact details	Country*
Science Communication Coordinator	Dr Marcin Paprzycki	marcin.paprzycki@ibspan.waw.pl	Poland
GH Scientific Representative	Dr Anabela Barreiro	anabela.barreiro@inesc-id.pt	Portugal

* The country displayed is:

- for the Action Chair, the country that nominated that person to the Management Committee before they were elected Action Chair;
- for the Vice Chair the country that nominated the person as a Management Committee Member,
- for all other leadership positions, if the person is a MC Member the country displayed is the country of nomination, otherwise it is the country of the person's primary work affiliation.

Participants

COST members having accepted the MoU

AL	15/08/2019	**AT**	02/11/2021	**BE**	26/08/2019	**BA**	04/07/2019	**BG**	18/02/2020
HR	27/06/2019	**CY**	02/11/2021	**CZ**	02/11/2021	**DK**	12/07/2019	**EE**	04/07/2019
FI	02/11/2021	**FR**	01/07/2019	**GE**	12/04/2022	**DE**	24/10/2019	**EL**	07/08/2019
HU	06/03/2020	**IS**	02/11/2021	**IE**	27/08/2019	**IL**	21/07/2019	**IT**	24/07/2019
LV	18/07/2019	**LT**	24/07/2019	**LU**	20/12/2019	**MT**	27/06/2019	**MD**	02/11/2021
ME	02/11/2021	**NL**	29/07/2019	**MK**	07/05/2020	**NO**	08/10/2019	**PL**	03/07/2019
PT	16/07/2019	**RO**	26/06/2019	**RS**	12/07/2019	**SK**	15/02/2020	**SI**	12/07/2019
ZA	02/11/2021	**ES**	22/07/2019	**SE**	22/08/2019	**CH**	09/09/2019	**TR**	26/06/2019
UA	12/04/2022	**UK**	28/06/2019						

Other participants

Institution Name	Country

Summary

The main aim and objective of the Action is to

foster an interdisciplinary network of research groups working on different aspects of language generation (LG), focussing on 4 themes: grounded multi-modal reasoning and generation; efficient machine learning algorithms, methods, and applications to LG; dialogue, interaction and conversational LG applications; and exploiting large knowledge bases and graphs

During its first two years the Action progressed the achievement of this as described below

Progress Report #2 describes the progress towards the Multi3Generation's MoU objectives, deliverables, and main achievements during the Action's first 2 years.

The main goal of Multi3Generation is to foster an interdisciplinary network of research groups working on different aspects of language generation (LG), in particular the Action focuses on 4 themes: grounded multi-modal reasoning and LG; efficient machine learning algorithms, methods, and applications to LG; dialogue, interaction and conversational LG applications; and exploiting large knowledge bases and graphs to LG tasks/applications. The activities and outcomes derived from the first 2 years are in line with these topics.

Multi3Generation produced curated lists of publicly available resources: (i) neural LG, focusing on multilinguality, multimodality, controllability and learning; (ii) multilingual dialogues, (iii) data-to-text LG training datasets, and (iv) a large scale video captioning dataset for Turkish languages. Other important outputs were: (i) the accomplishment of 9 short term scientific missions (STSM); (ii) 7 joint publications in international conferences and journals between the M3G members + other publications involving individual M3G members, all of them related to M3G topics, and (iii) 1 invited presentation at INLG 2020. All publications/datasets/resources generated within the action are publicly accessible via the Multi3Generation website:

https://multi3generation.eu/

Ongoing activities towards the achievement of outputs are: (i) fostering collaboration in the clinical linguistics field for the creation of LG tools for the generation of tests addressing language disorders; (ii) fostering collaboration on the development of graphs for LG using NooJ; (iii) efforts and initiatives for perceptual information and semantic representations, and (iv) development of dialogue, interaction and conversational LG applications.

During Y2, the Action organised 2 MC meetings: 1 totally online (December 2020), and 1 hybrid (October 2021) with participants in Lisbon and online. The Vice-chair organised a hybrid CG meeting that took place at the University of Alicante, Spain (September 2021), after 6 online CG Meetings organised by the Chair (November 2020-July 2021). The face-to-face (CG and MC) Meetings provided the opportunity to network, brainstorm, organize, promote and develop efforts in a more efficient way than what could have been achieved in purely online meetings, with participants attending asynchronously with busy schedules, in different time zones. These meetings were important after the hiatus due to the Covid-19 Pandemic (2020 and part of 2021). As a result of those meetings, the Action moved towards fostering joint activities for future projects (publications, STSMs or other collaborative activities). The Action's efforts will be boosted in GP3 (November 2021-October 2022). The joint effort and collaboration between CG and research members led to successful outcomes, especially with regards to STSM and Publications. We foresee improvements on the visibility of the Action and involvement of all its members. Y3-Y4 will bring a great opportunity to conduct new networking activities within/for the Action. Y3 plans include (i) to organise 1/2 Training Schools, (ii) create a Youtube channel for videos of tutorials and important dissemination activities, and (iii) organize webinars. Lastly, the Action needs to strengthen its role in facilitating business-academy collaboration for the viability of long-term projects.

Action website

https://multi3generation.eu/

Achievement of MoU objectives, deliverables and additional outputs/ achievements

MoU objectives

The Action reported the following progress in achieving its specific objectives.

MoU objective	Level of progress	Further information (hyperlink or other)
Foster knowledge exchange by sharing of resources including semantic annotation guidelines, benchmarking corpora, machine learning and alignment tools.	76 - 100%	WG2 developed a curated list of resources on Neural Natural Language Generation, focusing on multilinguality, multimodality, controllability and learning. The Repository is available at: https://github.com/Multi3Generation/neural-natural-language-generation WG3 developed a curated list of publicly available resources for multilingual dialogues (in a draft mode right now, but soon integrating everyone's contribution)WG4 developed a curated list of freely available data-to-text NLG training datasets available at: https://multi3generation.eu/outcomes/data/
Create multimodal and multilingual benchmarks for NLG involves experimenting with automatic mapping between existing resources, crawling of Web data, definition of annotation guidelines and launching of crowdsourcing campaigns for bigger datasets (also as games-with-a-purpose).	76 - 100%	WG2 developed MSVD-Turkish -- the first large scale video captioning dataset for Turkish languages, obtained by carefully translating the English descriptions of the videos in the MSVD (Microsoft Research Video Description Corpus) dataset into Turkish. The dataset was developed by Begum Citamak, Ozan Caglayan, Menekse Kuyu, Erkut Erdem, Aykut Erdem, Pranava Madhyastha, and Lucia Specia. The dataset is available at: https://hucvl.github.io/MSVD-Turkish/
Facilitate interactions, collaborations, knowledge building and dissemination between Action participants via online tools, as website, blogs, downloadable publications.	76 - 100%	In order to facilitate the interaction and communication between the members of the Multi3Generation Action, we created a mailing system with different email lists (general to all MC members, as well as CG or WG specific). The Action Chairs (Isabelle and Anabela) set up a Slack workplace communication tool (messaging app) as another channel to report information and contact directly to the members participating in the Action, and allowing them to communicate among themselves. The Action Slack has 170 members and 17 communication channels.
Promote the generation of novel ideas and introduce the new joint Multi3Generation discipline to other researchers.	76 - 100%	WG4 presented an invited talk about clinical linguistics at MC October 2021 Lisbon meeting, with the aim of fostering collaboration with a field that needs NLG tools for the generation of tests addressing language disorders. It also established cooperation with University of Franche-Comtè and NooJ Association https://www.nooj-association.org/ As a result Professor Max Silberztein participated in the COST Multi3Generation meeting in Lisbon, as a keynote speaker (October 6th, 2021) with the

		presentation "Presentation of NooJ's automatic Text Generation engine", and organised and presented a tutorial workshop in the same MC Meeting (October 8th, 2021).
Provide opportunities for joint research projects by Action members on multi-task, multilingual and multi-modal processing during exchange visits of Early Career Investigator, and other activities that encourage young researchers to establish links with industry and more senior academics.	76 - 100%	During the first 2 years of the Action, 9 STSMs took place. All of them are completed. 4 STSM (1-4 below) took place in GP1 and 5 STSM (5-9 below) took place in GP2. 1-- Analysis and Introspection of Multilingual Representations. Wei Zhao (TU Darmstadt) visited Isabelle Augenstein (University of Copenhagen). 3500 EUR. 2-- Image Captioning Using Relational Context from Generated Scene Graphs. Victor Milewski (KU Leuven) visited Iacer Calixto (University of Amsterdam). 1500 EUR. 3-- Structured Multilingual Language Generation. Johannes Bjerva (University of Copenhagen) visited Robert Östling (Stockholm University). 1100 EUR. 4-- Fusion Mechanisms in Claim Verification Models. Liesbeth Allien (KU Leuven) visited Isabelle Augenstein (University of Copenhagen). 2525 EUR. 5-- Natural Language Grounding: François Portet (University of Grenoble) visited Albert Gatt (University of Malta). 960 EUR. 6-- Morphological typology awareness in multilingual NLP evaluation: Felix Arturo Oncevay Marcos (University of Edinburgh) visiting Johannes Bijerva (Aalborg University). 3,500 EUR. 7-- Generating fact-checking explanations in low-resource settings: Shailza Jolly (Technical University of Kaiserslautern) visiting Isabelle Augenstein (University of Copenhagen). 3,500 EUR. 8-- Enhancing Natural Language Generation with Knowledge Acquisition/Integration: Alkiviadis Katsalis (International Hellenic University) visited Elena Lloret (University of Alicante). 3,200 EUR. 9-- Exploring the interplay between grammatical and cultural gender for debiased NLG: Marie Fournier (Stockholm University) visited Johannes Bjerva (Aalborg University). 1,580 EUR.
Disseminate the results of the Action through conferences, scientific and industrial gatherings, which will have substantial impact in the participating countries and beyond.	26 - 50%	Multi3Generation Chair, vice-Chair and WG1 leader (Albert Ghatt) made a presentation of the Multi3Generation COST Action at INLG 2020. Link to the presentation: https://multi3generation.eu/wp-content/uploads/2021/03/M3G-INGL2020.pdf In GP3, dissemination is one of the top priority activities for this COST Action. All the leaders of the Action should put important effort in contact event organisers to coordinate participation as co-organisers of those events, present the COST Action to the participants of those events and, ideally, organise workshops, tutorials or training schools as satellite events of those major meetings (LREC, IEEE, MT Summit (EAMT), EACL, INGL, etc. A Youtube channel will become available for online tutorials, webinars, talks, among others. A LinkedIn account should be created to reach entrepreneurial agents and professionals in general.
Create synergies between participants via joint publications in books, journals and conferences; reports from working group meetings and training materials	76 - 100%	A list of joint publications in conferences and journals can be found in the Multi3Generation's website: https://multi3generation.eu/outcomes/publications/ The presentation of the Multi3Generation COST Action at INLG 2020 can be found here: https://multi3generation.eu/category/media/participations/Datasets have been included as deliverables of the MoU Objective 1 [Foster knowledge exchange by

from training schools.		sharing of resources including semantic annotation guidelines, benchmarking corpora, machine learning and alignment tools].
Strengthen the European research on theory, methodology and real-world technology in language generation, particularly in the four Multi3Generation focus research themes.	51 - 75%	Several or most publications would only be possible without an international collaboration. As a result of a joint collaborative work of the members of WG2 and some of WG1 as well, a joint survey about Neural Natural Language Generation has been accepted to be published in the Journal of Artificial Intelligence Research.
Facilitate international collaboration, networking and interdisciplinary community fostering joint activities.	51 - 75%	International collaboration resulted in joint publications presented in the Section Publications: 16 publications with DOI and 8 publications listed as Other Outputs/Achievements.https://multi3generation.eu/outcomes/publications/ In Y2, two "in situ" meeting were organised: 1-- a Core Group Meeting in 15-16 of September 2021 in Alicante, Spain 2-- an MC Meeting in 6-8 of October 2021 in Lisbon. Both meetings provided an opportunity for networking and fostering of joint activities for future projects (publications, STSMs or other collaborative activities). The Slack channel is also an efficient platform for communication, exchange of ideas, and brainstorming. https://multi3generation.eu/2021/09/17/core-group-hybrid-meeting-september-2021/ https://multi3generation.eu/2021/10/06/lisbon-meeting-october-2021/
Drive scientific progress by liaising extensively with industry and end-users, and by increasing joint collaboration and knowledge transfer by the end of the Action.	0 - 25%	Some progress has been done by means of a compromise between the WG5 leader and the STSM coordinator to invest in involving companies (startups, such as Unbabel) which could receive STSM grant holders to work on industry-related tasks. In GP3, we plan to invest in joint collaborations between the Action members and companies.

Deliverables

The Action reported the following progress with achieving its deliverables

Deliverable	Month deliverable due	Delivery status	Further information (hyperlink or other)
In-depth analysis and review of methods for incorporating structured knowledge bases into language generation models	24	Not delivered, but expected before end of Action	
Literature review and state-of-the-art on linguistic theories combining linguistic and perceptual information in semantic representations	24	Not delivered, but expected before end of Action	
Algorithms and strategies resulting in a standard methodology for the analysis of text-based dialogue models	48	Not delivered, but expected before end of Action	
Joint journal and conference publications by Action members on multitask, multi-lingual and multi-modal language generation	48	Not delivered, but expected before end of Action	
Cross-topic research roadmap identifying where research effort is most needed and the research challenges that need to be addressed	24	Not delivered, but expected before end of Action	
Semantic annotation guidelines and standards for multi-modal data, for the benefit of language processing tasks	36	Not delivered, but expected before end of Action	
Repository of open source software for processing language and visual content, including a directory of sources of materials or components	24	Delivered	https://github.com/Multi3Generation/neural-natural-language-generation
Construction of training and benchmarking datasets for multi-modal MT, multilingual video/image description and dialogue modelling	48	Not delivered, but expected before end of Action	
Curriculum for a graduate-level course on multi-modal natural language processing and language generation	48	Not delivered, but expected within 2 years after the end of the Action	
Courseware of training and summer schools with courseware, including a short course on Topics on ML for LG for Multi3Generation members, and courses for the wider community (Y3-Y4)	48	Not delivered, but expected before end of Action	
Report of an international workshop related to multi-modal, multi-lingual and multi-task language processing, co-located with a larger conference	48	Not delivered, but expected within 2 years after the end of the Action	
Report of Industrial Placements for ECIs, leading to application of research ideas in companies	48	Not delivered, but expected within 2 years after the end of the Action	
Documents related to the Industrial Advisory Board, which will inform on what research	48	Not foreseen	

methods are most impactful in industry settings			
Courseware of training and summer schools with , including a short course on Topics on ML for LG for Multi3Generation members, and courses for the wider community (Y1-Y2)	24	Not delivered, but expected before end of Action	https://drive.google.com/drive/folders/1NiH76POB6WzmpyBdP12B39TF6bubW80U
Reports on requirements surveys from end users as a shared resource for the community	24	Not delivered, but expected before end of Action	
System application demos available via the Action website as education and training resources	24	Not delivered, but expected before end of Action	

Additional outputs/ achievements

The Action reported 7 publications on the topic of the Action, co-authored by at least two Action participants from two countries participating in the Action, and for which the Action networking was necessary.

The Action has also produced the outputs/ achievements described below.

Co-authored Action publications - peer-reviewed

1. doi:10.1016/j.jocs.2020.101101

Title	Optimizing Data-Driven Models for Summarization as Parallel Tasks
Authors	Aleš Zamuda; Elena Lloret
DOI	doi:10.1016/j.jocs.2020.101101
Type	Journal article
Published in	Journal of Computational Science
Published by	Elsevier BV
ISSN	1877-7503
Subjects	Modelling and Simulation; General Computer Science; Theoretical Computer Science
Links	https://api.elsevier.com/content/article/PII:S1877750319302194?httpAccept=text/xml; https://api.elsevier.com/content/article/PII:S1877750319302194?httpAccept=text/plain

2. doi:10.18653/v1/2021.eacl-main.112

Title	Cross-lingual Visual Pre-training for Multimodal Machine Translation
Authors	Ozan Caglayan; Menekse Kuyu; Mustafa Sercan Amac; Pranava Madhyastha; Erkut Erdem; Aykut Erdem; Lucia Specia
DOI	doi:10.18653/v1/2021.eacl-main.112
Type	Proceedings article
Published in	Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics: Main Volume
Published by	Association for Computational Linguistics

3. doi:10.1007/s10590-021-09276-y

Title	MSVD-Turkish: a comprehensive multimodal video dataset for integrated vision and language research in Turkish
Authors	Begum Citamak; Ozan Caglayan; Menekse Kuyu; Erkut Erdem; Aykut Erdem; Pranava Madhyastha; Lucia Specia
DOI	doi:10.1007/s10590-021-09276-y
Type	Journal article
Published in	Machine Translation
Published by	Springer Science and Business Media LLC
ISSNs	0922-6567; 1573-0573
Subjects	Artificial Intelligence; Linguistics and Language; Language and Linguistics; Software
Links	https://link.springer.com/content/pdf/10.1007/s10590-021-09276-y.pdf; https://link.springer.com/article/10.1007/s10590-021-09276-y/fulltext.html

4. doi:10.1016/j.patrec.2021.02.009

Title	Leveraging auxiliary image descriptions for dense video captioning
Authors	Emre Boran; Aykut Erdem; Nazli Ikizler-Cinbis; Erkut Erdem; Pranava Madhyastha; Lucia Specia
DOI	doi:10.1016/j.patrec.2021.02.009
Type	Journal article
Published in	Pattern Recognition Letters
Published by	Elsevier BV
ISSN	0167-8655
Subjects	Artificial Intelligence; Computer Vision and Pattern Recognition; Signal Processing; Software
Links	https://api.elsevier.com/content/article/PII:S01678 65521000647?httpAccept=text/xml; https://api.elsevier.com/content/article/PII:S01678 65521000647?httpAccept=text/plain

5. doi:10.18653/v1/2021.eacl-demos.22

Title	Massive Choice, Ample Tasks (MaChAmp): A Toolkit for Multi-task Learning in NLP
Authors	Rob van der Goot; Ahmet Üstün; Alan Ramponi; Ibrahim Sharaf; Barbara Plank
DOI	doi:10.18653/v1/2021.eacl-demos.22
Type	Proceedings article
Published in	Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics: System Demonstrations
Published by	Association for Computational Linguistics

6. doi:10.18653/v1/2021.naacl-main.286

Title	Wikipedia Entities as Rendezvous across Languages: Grounding Multilingual Language Models by Predicting Wikipedia Hyperlinks
Authors	Iacer Calixto; Alessandro Raganato; Tommaso Pasini
DOI	doi:10.18653/v1/2021.naacl-main.286
Type	Proceedings article
Published in	Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies
Published by	Association for Computational Linguistics

7. doi:10.1016/j.websem.2021.100663

Title	Time-aware evidence ranking for fact-checking
Authors	Liesbeth Allein; Isabelle Augenstein; Marie-Francine Moens
DOI	doi:10.1016/j.websem.2021.100663
Type	Journal article
Published in	Journal of Web Semantics
Published by	Elsevier BV
ISSN	1570-8268
Subjects	Computer Networks and Communications; Human-Computer Interaction; Software
Links	https://api.elsevier.com/content/article/PII:S15708 2682100038X?httpAccept=text/xml; https://api.elsevier.com/content/article/PII:S15708

Proposals/ projects

The Action reported 0 project(s) and 1 proposal(s) resulting from the Action networking.

N/A

Other outputs / achievements

The following other outputs/ achievements contributing to the COST mission resulted from the Action:

1. D. Gosko, A. Znotins, I. Skadina, N. Gruzitis, G. Nespore-Berzkalne. Domain Expert Platform for Goal-Oriented Dialog Collection. Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics (EACL): System Demonstrations, 2021

2. R. P. Ramos, P. Pereira, H. Moniz, J. P. Carvalho and B. Martins, "Retrieval Augmentation for Deep Neural Networks," 2021 International Joint Conference on Neural Networks (IJCNN), 2021, pp. 1-8, DOI: 10.1109/IJCNN52387.2021.9533978.

   Link to paper:
   http://xplorestaging.ieee.org/ielx7/9533266/9533267/09533978.pdf?arnumber=9533978

   Multi3Generation related-paper published where all the authors come from the same country (Portugal).

3. Mustafa Sercan Amac, Semih Yagcioglu, Aykut Erdem, Erkut Erdem: Procedural Reasoning Networks for Understanding Multimodal Procedures. CoNLL 2019: 441-451.

   Link to paper: https://aclanthology.org/K19-1041/ DOI:10.18653/v1/K19-1041

   Multi3Generation related-paper published where all the authors come from the same country (Turkey).

4. Barreiro, A., Mota, C., Baptista, J., Chacoto, L., Carvalho, P. (forthcoming, 2022). Linguistic Resources for Paraphrase Generation in Portuguese - A Lexicon-Grammar Approach. Language Resources and Evaluation.

   Multi3Generation related-paper published where all the authors come from the same country (Portugal).

5. D. Gosko, A. Znotins, I. Skadina, N. Gruzitis, G. Nespore-Berzkalne. Domain Expert Platform for Goal-Oriented Dialog Collection. Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics (EACL): System Demonstrations, 2021

6. Mille, S., Ferreira, T.C., Belz, A. and Davis, B., 2021, August. Another PASS: A Reproduction Study of the Human Evaluation of a Football Report Generation System. In Proceedings of the 14th International Conference on Natural Language Generation (pp. 286-292).

   Link to paper: https://aclanthology.org/2021.inlg-1.30

7. Ferreira, T.C., Vaz, H., Davis, B. and Pagano, A., 2021, August. Enriching the E2E dataset. In Proceedings of the 14th International Conference on Natural Language Generation (pp. 177-183).

   Link to paper: https://aclanthology.org/2021.inlg-1.18

8. Davis, B., Graham, Y., Kelleher, J. and Sripada, Y., 2020, December. Proceedings of the 13th International Conference on Natural Language Generation. In Proceedings of the 13th International Conference on Natural Language Generation.

Link to paper: https://aclanthology.org/2020.inlg-1.0.pdf

Impacts

The Action reported the following impact(s):

Description of the impact, i.e. what will change, and for whom, as a result of what the Action achieved	Type of impact	Timing of impact
Morphological typology awareness in multilingual NLP evaluation. This impact concerns another STMS done by Felix Arturo Oncevay Marcos (University of Edinburgh, UK) and Dr Johannes Bjerva from the Aalborg University in Copenhagen. As outcome of the STMS is is expected to have a publication submitted to one of the top NLP venues (e.g. ACL, TACL, Computational Linguistics journal), or a top interdisciplinary venue (e.g. PLOS One). Additional information and the corresponding report can be seen in this link: https://multi3generation.eu/2021/02/15/morphological-typology-awareness-in-multilingual-nlp-evaluation/	• Scientific / Technological	Achieved
Ms Shailza Jolly from the Technical University of Kaiserslautern (Kaiserslautern, Germany) conduted an STMS at the University of Copenhagen under the supervision of Prof Isabelle Augenstein. The topic was "Generating fact-checking explanations in low-resource settings", and this STMS contributes to the developement of the objectives of WG1 and WG2.	• Scientific / Technological	Achieved
Francois Portet (U. Grenoble) visited University of Malta (Albert Gatt) in October 2020 on a Multi3Generation STSM. This also resulted in the design of an MSc project hosted at U. Grenoble on the theme of Grounded descriptions of video data, co-supervised with the University of Malta. A student, Li Mou, was recruited as a research assistant while working on this project. The thesis was successfully defended in June 2021. A publication on the findings of this work is currently in progress.	• Scientific / Technological	Achieved
WG03 leader, Helena Moniz, has become Chair of the European Association for Machine Translation (EAMT) and Vice-chair of the International Association for Machine Translation (IAMT)	• Scientific / Technological • Societal	Achieved
Alkiviadis Katsalis, a PhD student in Natural Language Generation, studying at the International Hellenic University in Greece, working with Prof. Konstantinos Diamantaras, conducted a STMS at the University of Alicante in Spain under the topic of: "integrating and detecting commonsense knowledge" (https://multi3generation.eu/2021/10/15/report-of-stsm-visit/). The collaboration and joint supervision between Prof. Diamantaras and Prof. Lloret will lead to a PhD in a couple of years, probably one year after the Mutli3Generation has finished.	• Scientific / Technological	Foreseen by the end of the Action

Dissemination and exploitation of Action results

Dissemination and exploitation approach of the Action

The Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of Action results and the outcomes of these activities are described below.

Within the Multi3Generation Action, we agreed and established a dissemination approach in order to keep track of all dissemination and communication actions within Multi3Generation. This is kept as an internal shared document and it contains a flow diagram with the steps to follow. In particular, the steps can be summarised as described next. A table to be filled in with any information/news related to Multi3Generation (M3G) is provided, where the participants will fill in any information that is worth disseminating for the community (e.g., events held at each research centre/University related to/concerning M3G Cost Action, collaboration, work being conducted in each WG, etc.) Then, the Science Communication Manager (in our case, Marcin Paprzycki, paprzyck@ibspan.waw.pl) can disseminate them through the Action's Social Media Channels and ask the IT person in charge of the Multi3Generation Website (in our case, Bartek (Bartlomiej.Solarz@ibspan.waw.pl)) to update the M3G website. The Science Communication Manager will take care of any updates in this document every month. Moreover, any participant in the Multi3Generation Action can post the information in Slack (#general or #jobs).

Dissemination

Dissemination meetings funded by the Action

The Action funded Dissemination Meetings as shown below:

Title	Dissemination meeting at AAAI		
Date	07-02-2020 to 12-02-2020	Country	United States
Event	A Dissemination meeting was planned to be presented at The Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20) in February 7-12, 2020 at the Hilton New York Midtown, New York, New York, USA. Due to the Covid-19 pandemic and its large impact in NYC, the planned Action dissemination Activity did not take place.		

Title	Dissemination meeting at ECIR		
Date	14-04-2020 to 17-04-2020	Country	Portugal
Event	ECIR 2021, the 42nd edition of The annual European Conference on Information Retrieval, was an online event only. No dissemination activities happened.		

Other dissemination activities

The Action also undertook the following dissemination activities:

Activity	Participation in INLG 2020 The 13th International Conference on Natural Language Generation (INLG 2020) was held online, virtually from Dublin City University, DCU, in Dublin Ireland, 15-18 December, 2020. Dissemination Presentation by Anabela Barreiro, Elena Lloret and Albert Gatt (Speaker: Albert Gatt)
Target	INGL target audience are academic researchers and developers interested or involved in all aspects of Natural Language Generation (NLG), including data-to-text, concept-to-text, text-to-text and vision-to-text approaches.
Outcome	The Dissemination presentation can be downloaded from the Multi3Generation website: https://multi3generation.eu/wp-content/uploads/2021/03/M3G-INGL2020.pdf

Link	https://www.inlg2020.org/

Exploitation activities

The Action undertook the following activities to ensure exploitation (use, in particular in a commercial context) of the Action's achievements:

No input provided by the Action

Action Expenditure

The table below shows the budget allocated to the Action for each Grant Period (funds allocated for the first meeting of the Action and any Final Action Dissemination are not included):

#	Grant Period	Start Date	End Date	Budget allocated to Action (EUR)
1	AGA-CA18231-1	1-10-2019	30-4-2020	83,915.50 (EUR)
2	AGA-CA18231-2	1-5-2020	31-10-2021	134,895.00 (EUR)
3	AGA-CA18231-3	1-11-2021	31-10-2022	174,788.50 (EUR)
4	AGA-CA18231-4	1-11-2022	8-9-2023	11,505.75 (EUR)

Action Expenditure