Marie Skłodowska Curie Action

# WINDMILL

Machine Learning for Wireless Communications

# H2020-MSCA-ITN-ETN

## **Grant Agreement Number: 813999**



### WP8–Dissemination and Outreach

# D8.2– Report on dissemination/outreach of the project and plan for final two years

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### **Executive Summary**

The WindMill Report on dissemination/outreach of the project and plan for final two years provides the information on executed activities on communication and dissemination. It also reviews and plans the following actions to ensure that the project results and activities are properly communicated and disseminated through relevant channels. This document is prepared within the Dissemination and Outreach Work Package (WP8). It includes all the information to define the state of actions performed on dissemination and outreach efforts of the WindMill project beneficiaries and partners.

The general dissemination and outreach strategy are reviewed and updated together with the report on specific activities such as the dissemination toolkit, online communication, scientific dissemination and communication activities.

The updated Dissemination Plan will continuously be monitored to ensure that its objectives are met. It will be followed by a final deliverable:

- D8.3 Final report on dissemination/outreach of the project (in M48)



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### List of Acronyms and Abbreviations

- ESR Early Stage Researcher
- ITN Innovative Training Networks
- **KSP** Knowledge Sharing Platform



### **1** Objectives and planned activities

### **1.1 Dissemination Objectives of the Reporting Period**

WindMill's dissemination and communication mission is to increase awareness of funded research on Machine Learning in Wireless Communications.

As one of the main dissemination objectives identified at the Dissemination plan prepared at the project start is to support the establishment of a full research field on Machine Learning and Wireless Communications, key efforts during the first two years have been allocated in preparing the dissemination tools that will contribute content to fully support the evolution of the research.

The specific objectives to achieve during the first period of the project (M1-M24) were the following:

- Design and launch of the Windmill website
- Creation of the promotional and identity kit of the project (logo, templates, general presentation, social media)
- Offer scientific content available to support knowledge sharing in the specific field

#### **1.2 Foreseen tools and activities**

The identified dissemination and outreach tools and activities for Windmill were initially described as follows.

#### Knowledge Sharing Platform

One of the goals of the KSP will be to reach out to the general public via dedicated section. This will mostly include simplified toy examples as an introductory material that can be used by high-school teachers to introduce young generations to the concept of ML and its applicability potential as showcased through modern ICT technologies (Section 1.2). It will also contain a high level, popular description of WindMill's activities in order to engage the public's attention to the rising importance of ML and how it is shaping modern industries and societies.

#### Dissemination in press and general media

All the partners have well established press offices and communication structures for promotion and dissemination at both local and global scales. The project will exploit these available structures in order to establish effective communication channels at both global and regional levels. This will include quarterly press releases of the project results, targeting local newspapers and TV/Radio stations and explaining how the results of the project become relevant to the ordinary European citizen. Priority will be given to media segments and spaces that are specifically oriented towards science and technology, where awareness of the Marie Curie program can be more effectively promoted.

#### Social Networks and Media Releases

This will be complemented with frequent dissemination of project news and activities in social media, via dedicated Facebook, LinkedIn and Twitter channels, as well as the constant upgrade of the project website with the latest project results. Following the example set in previous ETN projects by some of the partners (e.g. Advantage), multiple video-clips will be released both on the project website and via YouTube. These videos will include talks at training events, practical experiments/demonstrations, as well as less formal recordings where the ESRs will explain their experience and the main achievements expected by their work in the project. This will raise public awareness of the societal implications of the project and will stimulate other young researchers to



become Marie Curie fellows in the future. A rotating system will be established so that two ESRs are always in charge of maintaining and promoting these channels.

#### Project newsletter

A project newsletter will be developed and released bi-annually. The aim of this newsletter will be to promote the scientific activities developed by the project among scientists in other disciplines and the general audience. Some of the partners (CTTC, EURECOM, ETH, EAB, etc.) are already publishing regular electronic newsletters disseminating their most recent research achievements. WindMill can leverage on these distribution lists in order to maximize the distribution of the project newsletter.

#### Organisation and participation in dissemination events targeted to the general audience

In these events, the project research results will be promoted in an unspecialized environment. The results of the WindMill project will be disseminated to the non-expert public at: the Night of Researchers (UNIPD), the Science Week (CTTC), the FXDays (NBLF), the Fête de la Science (EURECOM), the Research Open Days (EAB) and the Research Day (AALTO).

#### Project promotion in high schools and to undergraduate students by the project Ambassadors

Most of the WindMill partners regularly organize orientation and dissemination events for high schools, either by visiting student groups (NKBLF, AALTO) or by inviting them to their premises (CTTC, EAB, UNIPD). These actions will be complemented by lectures and demonstrations given by the project ESRs acting as "Ambassadors", which will visit schools, universities, community organisations, etc. to promote their research field to students and public audiences. The objective will be to promote the interest in a scientific career in the young students and to create awareness of the Marie Curie program.

#### WindMill open days

A series of WindMill open days will be organized in order to raise scientific awareness of the usefulness of machine learning in ICT. In these events, students/general public will visit the premises and labs from a partner institution and receive a first-hand experience or lectures from the ESRs. These events will be organised as a continuation of project meeting, so that the responsible Project Officer can attend the event and follow up the different activities and their impact.

#### Industry-oriented congresses

The project activity will be disseminated in relevant industrial-oriented congresses, where the project results and demonstrations can be presented to a business-oriented target. Most of the partners already actively participate in these congresses, where they have already disseminated the results of past European projects, namely: Mobile Wold Congress, CeBit, IoT World, ITS World Congress, NIPS and World Forum Cybersecurity.

#### **1.3 Coronavirus outbreak**

Due to the COVID-19 mobility restrictions several project events have been re-arranged to continue with the defined schedule, whilst some others have been postponed to later dates when face-to-face events are organised again.

The training schools programmed, have been fully re-arranged to take place in a remote set-up. Some other congresses have been also transferred to remote celebration, whilst some industry focused congresses have been generally postponed.



### **2** Communication and dissemination tools and actions

#### **2.1 Communication tools**

#### 2.1.1 Windmill Identity and Brand

#### Logo

As described in the Dissemination plan, a logo was produced during M3. The structure that is visible above the word "windmill" stands for two things: on the one hand, it represents the letters 'W' and 'M' that are contained in the word "windmill", while on the other hand, it also represents two neural networks.



Figure 1. Windmill logo

#### Templates

Several templates for project documents have been produced.



Figure 2. Project document deliverable template



Figure 3. Slide template





Figure 4. Poster template

#### Digital Identity Banner

Digital elements to be used as a branded identity have been also produced. As an example, the image shown below is the header used at the project social media profiles.



Figure 5. Project digital identity header, used in social media profiles and website

#### 2.1.2 Website

The Windmill website (<u>https://windmill-itn.eu</u>) was created during the first two months of the project and was fully available in March 2019 (M3), serving as the major channel of information and communication for the project.

The first period of the website supported the ESR project dissemination and ESR recruitment process. After the onboarding of all ESR, new sections to start explaining the ESR positions and the members recruited were developed.

Also, as a regular procedure the website has been updated with project news, project events, and scientific papers dissemination. This updating procedure has been supported by publications to social media channels to more easily reach the relevant stakeholders.



windmill		Home About <del>-</del> Consortiur	Ωκ m ∙ Training • Disseminatio	nowledge Sharing Platform y in I
	Machi Wirele	ne Learning ss Commun	for lications	1
WindMill is a European Training	Research, Network (ETN) project, within th	<b>Training and Know</b>	ledge Sharing klodowska-Curie Innovative Train	ing Networks (ITNs).
5	•	<	; <b>0</b> ;	盦
Research	Training	Dissemination	ESRs	Knowledge Sharing Platform
Simply saying that the WindMill Project combines machine learning with wrieless communication would be a grave oversimplification. If you click on the button below, you will find a detailed explanation of what WindMill a, what its goals are and why the project exists.	Apart from doing research, the Project's main objective is to help oreste a new generation of experts. We organise training schools where experts from the fields of machine learning and wireless communications share their knowledge with out Early Stage Researchers.	An important part of a PhD student's life is to publish one's findings and share it with the community of researchers. The Windhill Project offers a library of all papers and other documents published by our participants. You can access them through the button below.	The Windhill Project would be nothing without its Early Stage Researchers. Fourteen of them are currently employed across the partner institutions, receiving practical experience and contributing to the scientific community. Meet them by clicking the button below!	Where would science be if it weren't for sharing information? The Windkill Project understands that sharing is carring, so we established the Knowledge Sharing Platform so that our Early Stage Researchers can share their findings and experiences with the world.
Click here	Click here	Click here	Click here	Click here
News from the netw	ork		Tweets by	ettn:Windmill
WindMill delivera December 1, 2020	bles are now uploaded		Windmill @thrWind	ITN 97

Figure 6. WindMill project website homepage

On the subareas of the webpage corresponding to the different categories specific information about the project, the consortium, training and dissemination is available. It is worth mentioning the subpage on Lecture videos, where all training sessions are available on video format.

#### 2.1.3 Knowledge sharing platform

The Knowledge sharing platform has been established as an independent website (<u>https://ksp-windmill-itn.eu</u>) to support two main objectives. The coordination of the ESR research and study groups, and the exchange of knowledge within them and other public.

KNOWLEDGE SHARING PLATEORM	2
KNOWLEDGE STAKING FLATFORM	1
What is the WindMill Knowledge Sharing Platform?	
The Knowledge Sharing Platform is the heart of the WindMill Project, a training programme for Early Stage Researchers in Machine	
Learning and Wireless Communication. On this platform, the project's participants share their knowledge within and outside of the project's network. To read more about the project, click the button bellow.	
WINDMILL PROJECT	
Latest blog posts	
Latest research posts	
Latest research posts	
Aver 19, 2000         Joint 19, 2000         Joint 19, 2000           Autonomous Vehicle Control us         Rayleigh samples distribution e         Joint 11, 2000	

Figure 7. WindMill's Knowledge Sharing platform frontpage



For this purpose, a website with a private forum for ESRs and supervisors has been set-up, to facilitate the coordination of the ESR's study groups and to communicate research results, relevant content, and to generate discussions about scientific knowledge relevant to their areas of interest.

Furthermore, public content offering scientific dissertation on relevant topics for ESR's and project research area have been presented.

#### 2.1.4 Social media

Social media platforms have been used as the most frequent, flexible and direct tools to communicate about any of the project news. This ensures a high visibility of the project and its results to a broad audience. LinkedIn, Twitter and YouTube profiles for the project have been created and are regularly updated, as they have been considered the most appropriate networks to reach the target stakeholders.

As mentioned, the relevant ones for the communication and dissemination purposes are listed below.

#### LinkedIn

The LinkedIn profile of the Windmill project has been one of the most significant and active channels used to inform about project news and ESR activity. It has been nurtured carefully to distribute both scientific content updates and project updates.

The overall picture of the status of the channel is currently on 76 subscribers and 20 direct posts. In Annex A there is a summary of some extra key relevant figures of the channel.



*Figure 8. Activity feed of the WindMill LinkedIn profile* 



#### Twitter

The Twitter profile has been used as a support channel to the webpage news and LinkedIn posts. The main aim of the Twitter channel is to reach broader audiences and redirect them to project communication channels.

The overall picture of the status of the channel is currently on 52 subscribers and 16 direct posts. In Annex A there is a summary of some extra key relevant figures of the channel.



Figure 9. Activity feed of the WindMill Twitter profile

#### YouTube

The YouTube profile has been used as a video repository of the content generated. It has both communication materials and dissemination materials of the Training Schools. It is worth mentioning that quite a significant amount of resources has been used to record with high quality levels as it has been considered a material that could be helpful for dissemination and communication purposes, and possibly reach broader stakeholders.

The overall picture of the status of the channel is currently on 37 subscribers and 41 videos. In Annex A there is a summary of some extra key relevant figures of the channel.



Ind     MindMill Project     Subscriptions     Mind     More	
Dibloteca         Pujades         REPRODUCIX-HO TOT         Image: Non-State         Image: Non-State <t< th=""><th></th></t<>	
Videos que magaden Multiconnectivity for URLL Instructions to Cource Computing Segretar la video de la cource	
SUBSCRPCIONS Multiconnecting for UBLC Multiconnecting (Th Windhill Project Mundparts for Larvery and Peripher Mundparts f	
Worksterning         While         Mark         Mark         Backers         Mark <th< th=""><th></th></th<>	
MéS DE YOUTUBE Radi team frança Marine San Parasana Carlo Santa Marine Santa Santa Marine Santa Sant	
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📱 Pel Kudes 20 visualizacions - fa 1 meg 37 visualizacions - fa 4 mesos 80 visualizacions - fa 4 mesos 22 visualizacions - fa 4 mesos 80 visualizacions -	
Videopres         Libbot         Libbot <thlibot< th=""> <thlibot< th="">         Libbot<!--</th--><th></th></thlibot<></thlibot<>	
Appendix Interview         Appendi	
Historial d'informes     63 visualizacions - fa 6 mesos     12 visualizacions - fa 6 mesos     12 visualizacions - fa 6 mesos     11 visualizacions - fa 6 mesos     11 visualizacions - fa 6 mesos	
Auds	

Figure 10. Video repository of the WindMill YouTube profile



#### 2.2 Dissemination activities

The following sections describe the dissemination activities performed during the first half of the project (M1-M24).

#### 2.2.1 Organisation of events

During the first half of WindMill project several internal and external events have been organised by the consortium.

Event Name	Organiser	Date	Participants	Description
Project Kick-Off	Project Coordinator AAU	January 2019	All project partners	Face to face meeting to initiate the project.
Training School Aalborg	AAU	November 2019	ESRs, supervisors, guest speakers	A 4-day event to initiate ESR on ITNs and facilitate the meeting among them. Lectures on general ML, scientific writing and relevant tools were also part of the programme.
Training School Paris	EURECOM, NBLF	March 2020	ESRs, supervisors, guest speakers, career counsellor	A 4-day event with lectures on transferable skills, a CommsRL workshop and career counselling.
Training School Stockholm	EAB	October 2020	ESRs, supervisors, guest speakers	A 5-day online event with lectures on Cloud and distributed computing and URLLC. A part of the event was dedicated to the activities of the Project Officer, including restricted sessions with the ESRs.

#### 2.2.2 Participation in scientific events

During the first half of the project, consortium partners and ESR's have participated in the following scientific conferences, workshops and events.

Event Name	Date	Participants	Description
2020 IEEE 30th International Workshop on Machine Learning for Signal Processing (MLSP)	September 2020	AALTO	Present the most recent and exciting advances in machine learning for signal processing.



16th International Conference on Mobility, Sensing and Networking (MSN 2020)	December 2020	AALTO	Exchange new research ideas, present their progress, and identify future directions in the field of mobility, sensing and networking.
2021 IEEE Data Science & Learning Workshop	June 2021	СТТС	Workshop on advances in data science and learning theory and applications. Paper submitted

#### 2.2.3 Scientific publications

The following scientific peer-reviewed publications have been published so far during the first half of the project.

- Paro, U., Chiariotti, F., Deshpande, A. A., Polese, M., Zanella, A., Zorzi, M. (2020). Extending the ns-3 QUIC Module. *Proceedings of the 23rd International ACM Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems*. Association for Computing Machinery, New York, NY, USA, 19–26. DOI: 10.1145/3416010.3423224
- Deshpande, A. A., Chiariotti, F., Zanella, A. (2020). SMURF: Reliable Multipath Routing in Flying Ad-Hoc Networks. 2020 Mediterranean Communication and Computer Networking Conference (MedComNet), Arona, Italy, pp. 1-8, DOI: 10.1109/MedComNet49392.2020.9191526
- Mohebi, S., Lecci, M., Zanella, A., Zorzi, M. (2020). The challenges of Scheduling and Resource Allocation in IEEE 802.11ad/ay. 2020 Mediterranean Communication and Computer Networking Conference (MedComNet), Arona, Italy, pp. 1-4, doi: 10.1109/MedComNet49392.2020.9191491
- Zecchin, M., Gesbert, D., Kountouris, M. (2020). Team Deep Mixture of Experts for Distributed Power Control. 2020 IEEE 21st International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Atlanta, GA, USA, pp. 1-5, doi: 10.1109/SPAWC48557.2020.9154235



### **3** Communication and dissemination plan for the last two years

For the upcoming period of the Windmill project, the plan to continue with the communication and dissemination activities is detailed below. The activities have been reviewed based on the initial proposal and adapted according to their performance, relevance and the social scenario presented by the COVID19 outbreak.

#### Knowledge sharing platform

The Knowledge sharing platform has been built as a key dissemination element to facilitate the accessibility of content generated by the project. The major tasks to be performed during the next two years are:

- Increase the platform content to consolidate the channel as one of the main dissemination elements of the project. And improve the outreach to other PhD students who might be interested in the field of expertise being developed by the project.
- Perform a review of the platform as an outsider, identifying what could be expected from their position evaluating the possibility to include the most relevant elements.

#### Dissemination to general media

As project content starts to become more available after the first year of ESR research work, preparation of content to be shared and disseminated will be prepared. The major tasks to be performed during the next two years are:

- Exchange the scientific yet more divulgative content to some specific newsletters that report on key information about the thematic area of the WindMill project to reach relevant stakeholders.
- Request partners to name the newsletters and organisations they receive the information, to request the possibility to publish on them.

#### Social media

Social media channels have been positively valued and the continuous update and publication of content through them will be continued. The major tasks to be performed during the next two years are:

- Publish relevant project content through LinkedIn and Twitter accounts to maintain outreach on project activities and redirect audience to specific project channels like the website and the KSP.
- Continue with the effort made to share high quality recorded content, like full courses (lectures) on areas of interest through the YouTube channel

#### Project newsletter

The project newsletter has not been considered the most appropriate channel to reach the objective stakeholders. But all the effort has been redirected to generate a proper LinkedIn feed, webpage and KSP update.



#### Organisation and participation in dissemination events targeted to the general audience

The initial forecast was to generate several presential events and due to the situation presented by the COVID19 outbreak, such events might not happen.

The strategy to follow is to assess which events could be suitable to be transferred to an online set-up, to ensure reaching the target audiences.

#### Project promotion in high schools and to undergraduate students by the project Ambassadors

The promotion to undergraduate students is completely relevant and will continue to be focused towards the more personal perspective of the ESR's involved in WindMill. The major tasks to be performed during the next two years are:

- Generate interviews with ESR's, focusing towards how it feels to be an ITN ESR, in order to reach nonscientific audiences as it does not contain technical information.
- Prepare videos which are technical to create interest on non-academic public towards the scientific opportunities ITN ESR provide and define a strategy to share them with high schools and undergraduates.

#### WindMill open days

The WindMill open days is a type of activity which will be reviewed, as it was initially oriented towards offering on-premises visits of partners installations. The most viable proposal is oriented towards providing online training events offering open-public lectures.

#### Industry-oriented congresses

Again due to the COVID19 outbreak most of the industry events have been cancelled or postponed. The participation on such events is currently on hold and will not be reviewed until it is safe to travel to industry events.

Possible workarounds to cover industry dissemination to be performed during the next two years include:

- Generation of a video to cover the most industry relevant outputs of ESR research.
- Organisation of a side workshop related to an industry event, using the same platform (online or presential) as the event being attended.



### 4 Conclusions

In summary, the report provides an overview of the activities performed on dissemination and outreach for the WindMill project. It can be stated that the planned communication activities to share project initiatives on ESR recruitment and initial project dissemination were performed as scheduled and worked well.

Social media channels have performed quite well and are one of the cornerstones to continue with communication activities for the project. They are also extremely good supporting channels to generate more visibility of the content available on the website and the KSP.

It is worth mentioning that the COVID19 outbreak has caused uncertainty, but activities have been reoriented to adapt to the new social scenario. And planning for the next two years is taking into account the new scenario and proposing activities which could be performed even though possible limitations on mobility.



### **Appendix A**

### A.1 Website Statistics (Google Web Tools)



### A.2 KSP Statistics (Google Analytics)





### A.3 Twitter Statistics







### A.4 YouTube Statistics





=	Studio	Q. Search a		⑦ CREATE			
	ndr	Channel analytics	ADVANCED MODE 20 Feb 2020 - 9 Jan 2021 Lifetime				
	Your channel WindMill Project	Your cha	Realtime  Updating live				
55	Dashboard				39		
D	Content	Views 1.7K	Watch time (hours)	Subscribers +39	Subscribers		
=	Playlists				5 Views - Last 48 hours		
	Analytics				and the second sec		
	Comments			42	-48 h Now		
	Subtitles	Top tideos Views					
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\$	Settings	20 Feb 2 14 Apr 2020 7 Jun 2020 31 Jul 2020 23 Sept 2020 16 Nov 2020 9 Jun 2021					
	Send feedback	SEE MORE			SEE MORE		



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