



The Digital Manufacturing and Design

European Training Network (ETN) in Industry 4.0

Newsletter #2

June 2020

 dimanditn.eu

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Summary

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Online Training

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Editorial

Welcome to the second issue of this Newsletter. It has been more than a year now since the publication of our first Newsletter. We have dedicated this second year to consolidation of the Project research topic and start with the basic training. Finally all the ESRs are on-board and the supervisory board has been also defined. Due to the pandemic situation, it is true that we have had extra problems and delays in finishing the recruitment of the researchers and we have had to use our imagination and extra efforts to organize the trainings that we planned when designing the project.

One of the main actions of this year has been the School #1 and School #2 in addition

to other online trainings that initially were planned to be done in the different secondments. Nevertheless, we have changed all these events to an online format and we have tried to reduce the impact of the COVID-19 as much as possible.

This newsletter intends to summarize these efforts and keep partners, associates and interested readers informed about the different activities carried out in connection with DiManD. We hope that you enjoy this issue and we prompt you to provide us feedback and stay in touch through the webpage, social networks and any other means necessary.



Project summary

The Digital Manufacturing and Design (DiManD) Innovative Training Network (ITN) is a European Training Network (ETN) programme that will provide high-quality multidisciplinary, multi-professional and cross-sectorial research and training to high-achieving early stage researchers in the area of Industry 4.0. DiManD comprises a well-balanced consortium that spans six European countries and incorporates academic and industry sectors to promote international, interdisciplinary and inter-sectoral aspects

of ESR skill development.

DiManD aims to develop a high-quality multidisciplinary, multi-professional and cross-sectorial research and training framework for Europe with the purpose of improving Europe's industrial competitiveness by designing and implementing an integrated programme in the area of intelligent informatics driven manufacturing that will form the benchmark for training future Industry 4.0 practitioners.



School #1

The School 1 of the DiManD Project was held from the 27th to the 30th of October (2020). Due to the COVID situation, the event had to be delayed and in the end the training had to be given in an online format. The event was organized by Tecnia and Petronor and the main topic of the event was Big Data and Data Analytics.

First Day Topics

- Digitalization at Petronor
- Machine Learning
- Soft Sensors
- Deep Learning

Second Day Topics

- Visiting Industrialist: MTC
- Integrated Project
- Datathon

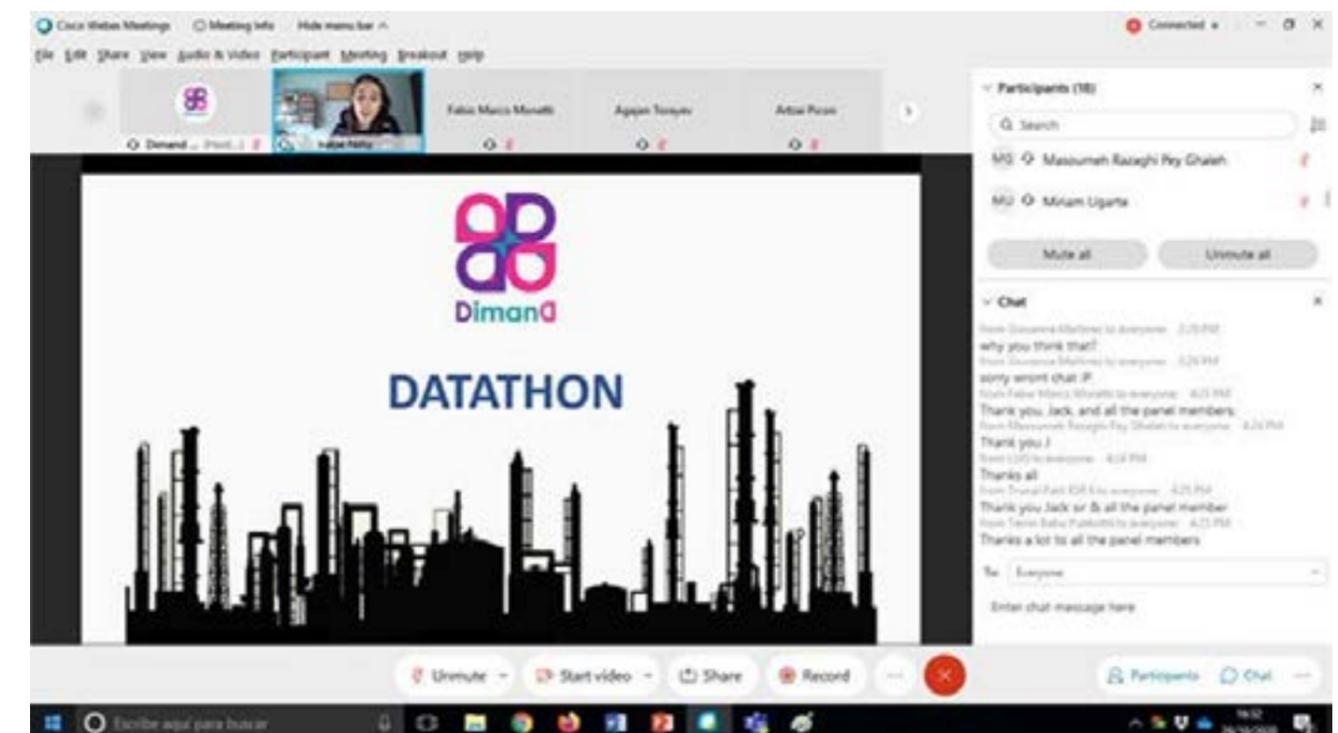
Third Day Topics

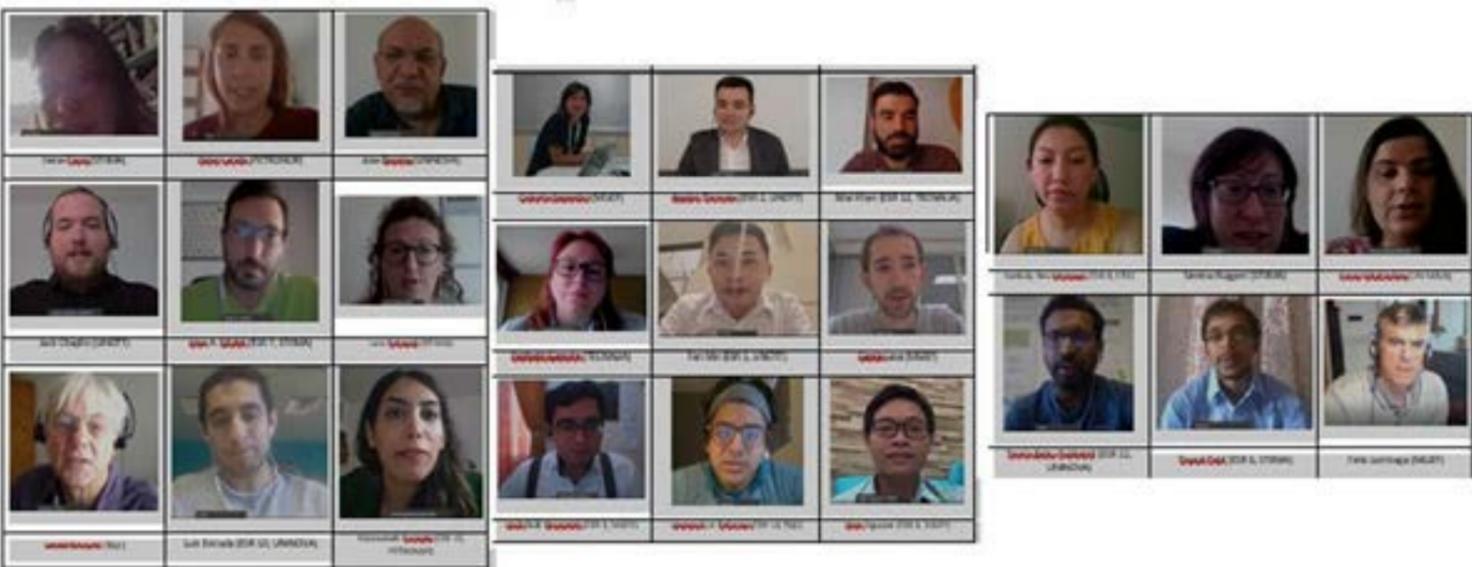
- Visiting Industrialist: Sense Air
- Datathon (cont.)

Fourth Day Topics

- Visiting Industrialist: Ideko
- Integrated Project Feedback
- Datathon Feedback

Datathon: online competition where you are challenged to work on a real-world business case from different areas of Machine Learning, AI and Data Science."





Online Training

Due to the COVID situation, secondments and schools have had to be rescheduled. In order to be able to continue or start investigating certain topics that were planned in these secondments or schools, some online training sessions have been organized. Thus the researcher have had the option to learn the techniques they need to do the research.

Evolvable Assembly Systems (KTH)

Context and Background Requirements
 Distributed Control and Evolvable Systems-building blocks, methodology, architectures
 Evolvable Production Systems applications and future developments

Design of Distributed Cyber-Physical Production Systems (UNINOVA)

Cyber-Physical Production Systems
 Modularity and Self-Organization
 Design of agent-based cyber-physical production systems
 Introduction to the JADE framework
 Installation and setup
 Lab assignment with implementation examples

School #2

The School 2 of the DiManD Project was held from the 22nd to the 25th of March (2021). Due to the COVID situation, the event was organized in a an online format. The event was organized by MGEP (Coordinator) and the main topic of the event was CyberSecurity and Safety.

First Day Topics

- Introduction to Cyber-security in Industry 4.0
- Visiting Industrialis: Mondragon
- Case study about fuzzy of Industrial IoT in Mondragon Companies

Second Day Topics

- Safety in industry

Third Day Topics

- Introduction to IP Management
- Open Access and Open Science in the European Context

Fourth Day Topics

- Introduction to Cryptography in Industry 4.0
- Visiting Industrialist: Ikerlan

“Safety and Cybersecurity in Industry 4.0”



Second year results

In the following list we can find the main results we have achieved during the second year of the project:

Publications:

5 Accepted papers:

- Towards a DevOps approach in Cyber Physical Production Systems using Digital Twins. Miriam Ugarte Querejeta, Leire Etxeberria & Goiuria Sagardui. International Conference on Computer Safety, Reliability, and Security SAFECOMP 2020 Lecture Notes in Computer Science. Vol 12235. Pp. 205-216.
- Cyber-Physical Systems for micro-/ nano-assembly operations: A survey. Jose A. Mulet Alberola; Irene Fassi. Current Robotics Reports, 10.1007/s43154-020-00041-2
- Human-Centered Design in Industry 4.0: Case study review and opportunities for future research. Nguyen Ngoc Hien, Ganix Lasa, Ion Iriarte. Journal of Intelligent Manufacturing
- Human-Centred Design in the context of Servitization in Industry 4.0. A Collaborative Approach. Nguyen Ngoc Hien, Ganix Lasa, Ion Iriarte. 30th RESER International Congress. Alcalá de Henares, 21-22 of January
- Cloud Based Decision Making for Multi-Agent Production Systems. Hamood Ur Rehman, Terrin Pulikottil, Luis Alberto Estrada-Jimenez, Fan Mo, Jack C. Chaplin,

Jose Barata and Svetan Ratchev. EPIA2021 - 20th EPIA Conference on Artificial Intelligence

11 submitted papers (under evaluation)

Management:

Bi-weekly management meetings
Monthly meetings with ESRs
Recruitment finished, all ESRs recruited

Trainings:

School 1
Online specific trainings
School 2

Upcoming events

Due to the COVID19, next events' dates have been updated. In June will be held the School #3 of the project. Uninova is the organizer of the event and the consortium has decided to do it virtually because of the travel restrictions due to the COVID. This event will include the participation in the 7th IEEE International Summer School on Industrial Agents: Embedded Intelligence within the Edge and Fog Computing (ISSIA2021) together with other sessions for DiManD researchers.



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