DESTINI

SMART DATA PROCESSING AND SYSTEMS OF DEEP INSIGHT

http://www.destini2020.eu

Deliverable D3.4

Summer Schools & Workshop Proceedings 2

Document details:

Editor:	CUT
Contributors:	CUT, JADS, SAPIENZA
Date:	11/01/2023
Version:	V7.0

Document history:

Version	Date	Contributor	Comments
V1.0	17/06/2022	A.S. Andreou S. Mappouras A. Christoforou P. Christodoulou M. Pingos	Initial document structure
V2.0	01/07/2022	A.S. Andreou S. Mappouras	First internal draft
V3.0	10/07/2022	A.S. Andreou Partners	Review, comments for corrections
V4.0	17/07/2022	S. Mappouras	Changes, adjustments
V5.0	25/07/2022	A.S. Andreou	Final review
V6.0	29/07/2022	Partners	Final review and approval
V7.0	11/01/2023	A.S. Andreou S. Mappouras	Document Revision

Contents

1. Introduction

1.1. Purpose

This deliverable presents the material and the presentations given during the 2nd Online School on Smart Data Processing and Systems of Deep Insight which took place on January 24-28, 2022. The target of the school was to bring together students, researchers, SMEs, businesses, public organisations, and the public, to share knowledge and experiences on the research outcomes of the project thus far, mainly focusing on technologies around smart data processing.

This event is the second part of a series of schools and workshops organised by DESTINI on Smart Data and it is aligned with the project's dissemination and communication strategy. The latter has been organised and structured to present different scientific topics within the project's Joint Research Activities (JRAs) and demonstrate their benefits to real cases. The school aimed to share knowledge acquired during the project, create new knowledge through invited speakers and to facilitate discussions and brainstorming, as well as exchange of expertise, between researchers, industrial and business stakeholders, governmental and decision-making bodies and the general public. Although the situation with the COVID-19 restrictions was improved, still there were governmental directives & recommendations to avoid the organization of events with physical presence in Cyprus. Therefore, the consortium of DESTINI decided unanimously to execute the second school via teleconferencing, as in the case of the first school.

The duration of the school was five days. It comprised various talks and presentations that mainly targeted industrial and market stakeholders. During its sessions, the school covered a variety of topics and scientific areas which offer solutions to real-world problems and challenges, and demonstrated how applied research can benefit businesses, researchers, project stakeholders and the public. The talks were delivered by DESTINI's partners and other project collaborators. The school also included a dedicated workshop that lasted for one whole day which included talks and subjects of a more research-oriented scientific nature, involving presentations of work submitted or published in academic journals/conferences, research results from EU-funded projects, and real-world research-oriented case studies.

This deliverable is part of Work-Package 3 (WP3) that describes the actions to support the successful transfer of knowledge, best practises and research skills from the leading institutions to CUT to tackle the research challenges that exist within the JRAs and the key knowledge areas identified in WP2. The actions of WP3 mostly refer to the organisation of summer schools and workshops, the delivery of virtual training sessions, exchanges short-term staff, experts visits and short-term on-site trainings at the leading institutions' labs and infrastructure.

1.2. Definitions, Acronyms, and Abbreviations

CUT: Cyprus University of Technology

BPM: Business Process Mining

IoT: Internet of Things

DT: Digital Twin

JRA: Joint Research Area

WP: Work Package

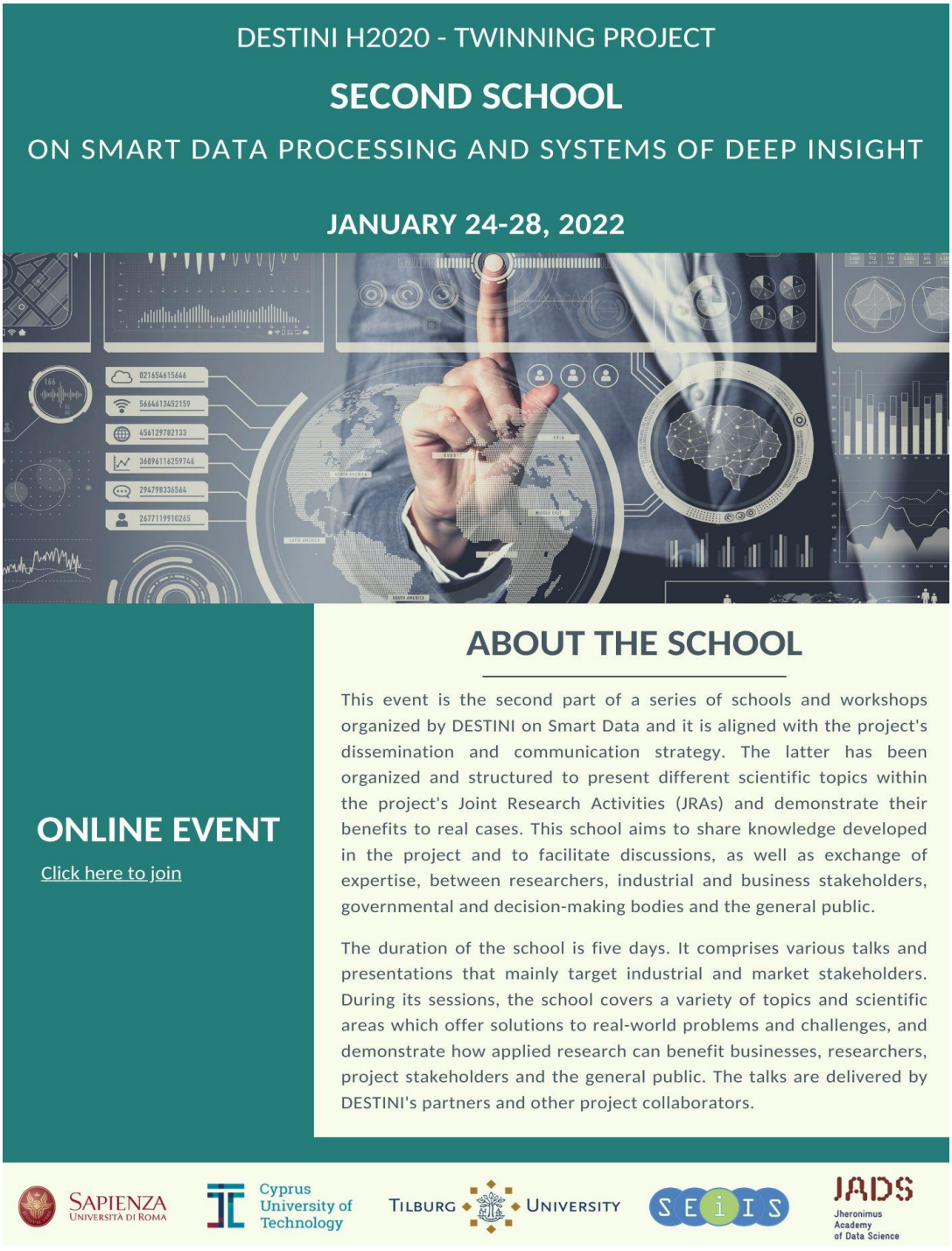
1.3. Overview

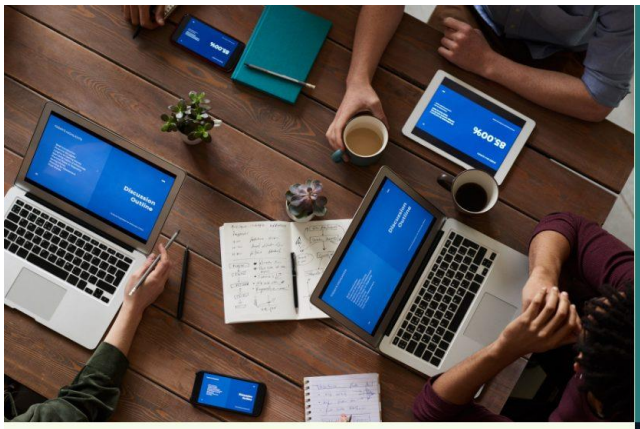
The rest of the document is structured as follows: Section 2 presents the invitation prepared and disseminated to the potential participants for joining the school's activities, as well as the material that was sent to members of the Advisory Board, Stakeholders, Academic staff and Institutions and to the general public (through electronic means and social media) to participate in the DESTINI's second online school. Section 3 describes the material and presentations delivered during the school. Finally, section 4 concludes this deliverable.

2. School invitation and promotional material

2.1. School Program

The invitation of the school is depicted below along with the detailed programme and dissemination material.



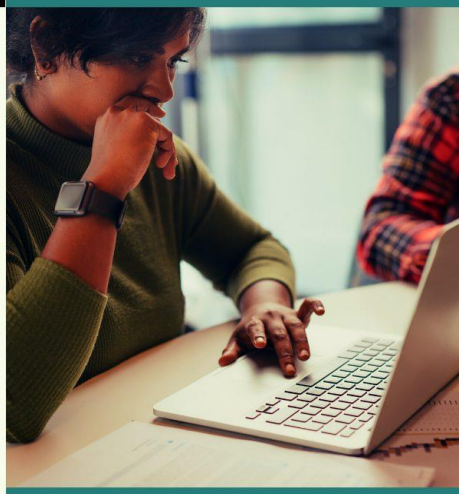


ABOUT DESTINI

DESTINI: SMART DATA PROCESSING AND SYSTEMS OF DEEP INSIGHT

TWINNING PROJECT - HORIZON2020

Smart Data ProcESsing and SysTems of Deep INsIght (DESTINI) is a H2020 Twinning Project that proposes a series of coordination and support actions for promoting research in the area of Smart Data. The Cyprus University of Technology (CUT) joins forces with two internationally recognized scientific groups from the Netherlands (Tilburg University and Jheronimous Academy of Data Science) and Italy (Sapienza Universita di Roma), aiming to strengthen its research and scientific profile in the relevant area. Specifically, DESTINI's activities revolve around exchanging scientific knowledge and transferring best research practices amongst its partners in the field of Smart Data Processing and Systems of Deep Insight.



destini2020.eu

twitter.com/destini2020eu

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linkedin.com/groups/13780883

Cyprus University of Technology

SAPIENZA UNIVERSITÀ DI ROMA

TILBURG UNIVERSITY

SEISIS

JADS Jheronimus Academy of Data Science

School Program

Day 1 – Monday, January 24, 2022 (EET Time)

09:30 - 09:50 **Welcome - Introduction**
Prof. Andreas S. Andreou (DESTINI coordinator, Dept. of Electrical Engineering, Computer Engineering & Informatics, CUT)

09:50 - 10:30 **Big Data: Methods and Technologies - Part A**
Prof. Donatella Firmani (Dept. of Statistical Sciences, Sapienza Università di Roma)

10:30 - 11:10 **Big Data: Methods and Technologies - Part B**
Prof. Donatella Firmani (Dept. of Statistical Sciences, Sapienza Università di Roma)

11:10 - 11:20 **Break**

11:20 - 11:40 **Argumentation-based Framework for Explainable Machine Learning (ARGEML)**
Nicoletta Prentzas (PhD Candidate, University of Cyprus)

11:40 - 12:00 **Preliminary Findings on the Virtual Reality Cognitive Gaming Based on Brain Computer Interfacing**
Marios Hadjiaros (Researcher, CYENS, PhD Candidate, University of Cyprus)

12:00 - 12:40 **Blockchain Applications - Part A**
Prof. Claudio Di Ciccio (Dept. of Computer Science, Sapienza Università di Roma)

12:40 - 13:20 **Blockchain Applications - Part B**
Prof. Claudio Di Ciccio (Dept. of Computer Science, Sapienza Università di Roma)

School Program

Day 2 – Tuesday, January 25, 2022 (EET Time)

09:30 - 10:10 **Virtual Reality and Gamification - Part A**
Prof. Lauren Ferro (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma) &
Dr. *Francesco Sapio (Sapienza Università di Roma)*

10:10 - 10:50 **Virtual Reality and Gamification - Part B**
Prof. Lauren Ferro (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma) &
Dr. *Francesco Sapio (Sapienza Università di Roma)*

10:50 - 11:10 **Rule Extraction in the Assessment of Brain MRI Lesions in Multiple Sclerosis: Preliminary Findings**
Andria Nicolaou (PhD Candidate, University of Cyprus)

11:10 - 11:20 **Break**

11:20 - 12:00 **Privacy preservation - Reports from a Dutch Telecom**
Nemania Borovits (PhD Candidate, Tilburg University)

12:00 - 12:30 **Digital Twin in Electrical Spindles**
Gianluca Drudi (HSD Mechatronics)

12:30 - 13:10 **Query Answering and Query Abstraction Through Ontologies - Part A**
Prof. Maurizio Lenzerini (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma)

13:10 - 13:50 **Query Answering and Query Abstraction Through Ontologies - Part B**
Prof. Maurizio Lenzerini (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma)

School Program

Day 3 – Wednesday, January 26, 2022 (EET Time)

09:00 - 09:40 **Complex Patterns of Biological Information Decoded with Network-based Bioinformatics**
Prof. George Spyrou (Head of Bioinformatics Department, Cyprus Institute of Neurology and Genetics)

09:40 - 10:20 **Enhanced Berth Allocation Using the Cuckoo Search Algorithm**
Sheraz Aslam (PhD Candidate, Research Associate, CUT)

10:20 - 11:00 **skillsChain: A Decentralized Application that Uses Educational Robotics and Blockchain to Disrupt the Educational Process**
Prof. Panayiotis Christodoulou (Neapolis University Pafos / Postdoc-Research Associate, SEIIS Lab, Dept. of Electrical Engineering, Computer Engineering & Informatics, CUT)

11:00 - 11:10 **Break**

11:10 - 11:50 **Unmanned Surface Vehicle for Marine Applications**
Prof. Yiorgos Demetriou (Dept. of Electrical Engineering, Computer Engineering and Informatics, Frederick University Cyprus)

11:50 - 12:30 **Transformation in Traditional Industry: Die Cutter 4.0**
Jerin George Mathew (Sapienza Università di Roma) &
Flavia Monti (PhD Candidate, Sapienza Università di Roma)

12:30 - 13:10 **Data Driven Detection and Biological Control of Food Borne Pathogens: The Case of Mycobacterium Avium Subspecies Paratuberculosis**
Prof. George Botsaris (Dept. of Agricultural Sciences, Biotechnology and Food Science, CUT)

School Program

Day 4 - Thursday, January 27, 2022 (EET Time)

09:00 - 09:40 **Computer Graphics - Animation**
Prof. Stephania Loizidou (Dept. of Electrical Engineering, Computer Engineering and Informatics, Frederick University)

09:40 - 10:20 **The Art of Process Mining**
Elia Kouzari (Assistant Manager, KPMG)

10:20 - 11:00 **The Case Study of OVER Technologies**
Adriano Cerocchi (CEO OVER technologies)

11:00 - 11:10 **Break**

11:10 - 11:50 **Integrating the Internet of Things in Real-life Scenarios**
Prof. Lambros Lambrinos (Dept. of Communication and Internet Studies, CUT)

11:50 - 12:30 **Business Process Management and Process Mining - Part A**
Prof. Massimo Mecella (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma) &
Prof. Francesco Leotta (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma)

12:30 - 13:10 **Business Process Management and Process Mining - Part B**
Prof. Massimo Mecella (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma) &
Prof. Francesco Leotta (Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma)

School Program

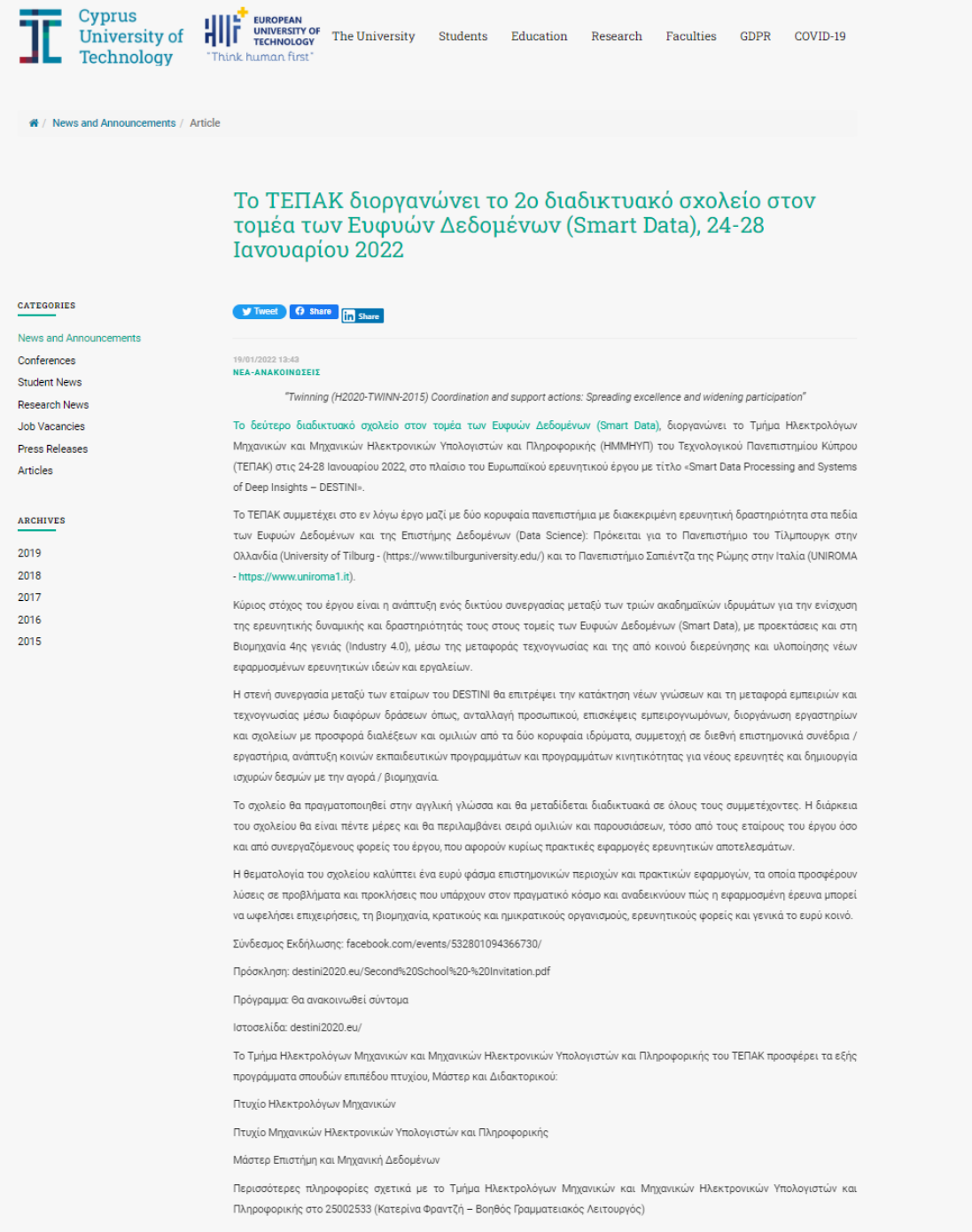
Day 5 - Friday, January 28, 2022 (EET Time)

09:00 - 09:40	**The WaterAnalytics Digital Twin** *George Milis (Director and Innovations Manager, PHOEBE Research & Innovation)*
09:40 - 10:20	**PandoraSEAL: An AI-based Decision Support Tool for the Selection of Non-Pharmaceutical Interventions During Pandemics** *Demetrianos Gavriel (Data Analytics Expert, PHOEBE Research & Innovation)*
10:20 - 10:40	**Ultrasound Carotid Plaque Video Data Analysis for the Estimation of the Risk of Stroke** *Georgia Liapi (PhD Candidate, CUT)*
10:40 - 11:00	**An Adaptive Semi-Automated Integrated System for Multiple Sclerosis Lesion Segmentation in Longitudinal MRI Scans Based on a Convolutional Neural Network** *Andreas Georgiou (MSc, University of Cyprus)*
11:00 - 11:10	**Break**
11:10 - 11:50	**The Service Paradigm Rebound: Data Products, Meshes & Markets** *Prof. Willem-Jan van den Heuvel (Jheronimus Academy of Data Science, Tilburg University) &* *Prof. Geert Monsieur (Dept. of Data Engineering, Tilburg University)*
11:50 - 12:30	**Demystifying Non-Fungible Tokens (NFTs)** *Prof. Klitos Christodoulou (Dept. of Digital Innovation, University of Nicosia)*
12:30 - 13:10	**Web-based Real-time Monitoring and Modeling of Managed Aquifer Recharge Applications** *Dr. Constantinos Panagiotou (Researcher, Excelsior - Eratosthenis CoE, CUT)*

Cyprus University of Technology · Sapienza Università di Roma · Tilburg University · SEiIS · JADS Jheronimus Academy of Data Science

2.2. Dissemination and Outreach Material

The invitation was distributed via email, postings on social networks and announcements in local electronic newspapers and radio stations (in Greek) as shown below.



Cyprus University of Technology

EUROPEAN UNIVERSITY OF TECHNOLOGY "Think human first"

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/ News and Announcements / Article

Το ΤΕΠΑΚ διοργανώνει το 2ο διαδικτυακό σχολείο στον τομέα των Ευφυών Δεδομένων (Smart Data), 24-28 Ιανουαρίου 2022

CATEGORIES

News and Announcements
Conferences
Student News
Research News
Job Vacancies
Press Releases
Articles

ARCHIVES

2019
2018
2017
2016
2015

Tweet Share Share

19/01/2022 13:43
ΝΕΑ-ΑΝΑΚΟΙΝΩΣΕΙΣ

"Twinning (H2020-TWINN-2015) Coordination and support actions: Spreading excellence and widening participation"

Το δεύτερο διαδικτυακό σχολείο στον τομέα των Ευφυών Δεδομένων (Smart Data), διοργανώνει το Τμήμα Ηλεκτρολόγων Μηχανικών και Μηχανικών Ηλεκτρονικών Υπολογιστών και Πληροφορικής (ΗΜΜΗΥΠ) του Τεχνολογικού Πανεπιστημίου Κύπρου (ΤΕΠΑΚ) στις 24-28 Ιανουαρίου 2022, στο πλαίσιο του Ευρωπαϊκού ερευνητικού έργου με τίτλο «Smart Data Processing and Systems of Deep Insights – DESTINI».

Το ΤΕΠΑΚ συμμετέχει στο εν λόγω έργο μαζί με δύο κορυφαία πανεπιστήμια με διακεκριμένη ερευνητική δραστηριότητα στα πεδία των Ευφυών Δεδομένων και της Επιστήμης Δεδομένων (Data Science): Πρόκειται για το Πανεπιστήμιο του Τίλμπουργκ στην Ολλανδία (University of Tilburg - (https://www.tilburguniversity.edu/) και το Πανεπιστήμιο Σαπιέντζα της Ρώμης στην Ιταλία (UNIROMA - https://www.uniroma1.it).

Κύριος στόχος του έργου είναι η ανάπτυξη ενός δικτύου συνεργασίας μεταξύ των τριών ακαδημαϊκών ιδρυμάτων για την ενίσχυση της ερευνητικής δυναμικής και δραστηριότητάς τους στους τομείς των Ευφυών Δεδομένων (Smart Data), με προεκτάσεις και στη Βιομηχανία 4ης γενιάς (Industry 4.0), μέσω της μεταφοράς τεχνογνωσίας και της από κοινού διερεύνησης και υλοποίησης νέων εφαρμοσμένων ερευνητικών ιδεών και εργαλείων.

Η στενή συνεργασία μεταξύ των εταίρων του DESTINI θα επιτρέψει την κατάκτηση νέων γνώσεων και τη μεταφορά εμπειριών και τεχνογνωσίας μέσω διαφόρων δράσεων όπως, ανταλλαγή προσωπικού, επισκέψεις εμπειρογνωμόνων, διοργάνωση εργαστηρίων και σχολείων με προσφορά διαλέξεων και ομιλιών από τα δύο κορυφαία ιδρύματα, συμμετοχή σε διεθνή επιστημονικά συνέδρια / εργαστήρια, ανάπτυξη κοινών εκπαιδευτικών προγραμμάτων και προγραμμάτων κινητικότητας για νέους ερευνητές και δημιουργία ισχυρών δεσμών με την αγορά / βιομηχανία.

Το σχολείο θα πραγματοποιηθεί στην αγγλική γλώσσα και θα μεταδίδεται διαδικτυακά σε όλους τους συμμετέχοντες. Η διάρκεια του σχολείου θα είναι πέντε μέρες και θα περιλαμβάνει σειρά ομιλιών και παρουσιάσεων, τόσο από τους εταίρους του έργου όσο και από συνεργαζόμενους φορείς του έργου, που αφορούν κυρίως πρακτικές εφαρμογές ερευνητικών αποτελεσμάτων.

Η θεματολογία του σχολείου καλύπτει ένα ευρύ φάσμα επιστημονικών περιοχών και πρακτικών εφαρμογών, τα οποία προσφέρουν λύσεις σε προβλήματα και προκλήσεις που υπάρχουν στον πραγματικό κόσμο και αναδεικνύουν πώς η εφαρμοσμένη έρευνα μπορεί να ωφελήσει επιχειρήσεις, τη βιομηχανία, κρατικούς και ημικρατικούς οργανισμούς, ερευνητικούς φορείς και γενικά το ευρύ κοινό.

Σύνδεσμος Εκδήλωσης: facebook.com/events/532801094366730/

Πρόσκληση: destini2020.eu/Second%20School%20-%20Invitation.pdf

Πρόγραμμα: Θα ανακοινωθεί σύντομα

Ιστοσελίδα: destini2020.eu/

Το Τμήμα Ηλεκτρολόγων Μηχανικών και Μηχανικών Ηλεκτρονικών Υπολογιστών και Πληροφορικής του ΤΕΠΑΚ προσφέρει τα εξής προγράμματα σπουδών επιπέδου πτυχίου, Μάστερ και Διδακτορικού:

Πτυχίο Ηλεκτρολόγων Μηχανικών

Πτυχίο Μηχανικών Ηλεκτρονικών Υπολογιστών και Πληροφορικής

Μάστερ Επιστήμη και Μηχανική Δεδομένων

Περισσότερες πληροφορίες σχετικά με το Τμήμα Ηλεκτρολόγων Μηχανικών και Μηχανικών Ηλεκτρονικών Υπολογιστών και Πληροφορικής στο 25002533 (Κατερίνα Φραντζή – Βοηθός Γραμματειακός Λειτουργός)

cut_radio952 • Following

cut_radio952 🔴 Οι ραδιοφωνικοί παραγωγοί του CUT Radio, Γιώργος Μιχαήλ και Κωνσταντίνος Καρσεράς, επιστρέφουν δριμύτεροι στην εν ενεργό ραδιοφωνική δράση και αυτό το εξάμηνο, με την εκπομπή τους «ΤΕΠΑΚ Εν Δράσει», η οποία θα μεταδίδεται κάθε Τετάρτη, στις 10 το πρωί.

🎙 Η εκπομπή δίνει βήμα σε ανθρώπους του Πανεπιστημίου μας – και όχι μόνο - που έχουν κάτι σημαντικό να πουν και θέλουν να το μοιραστούν με όλη την πανεπιστημιακή κοινότητα και την κοινωνία ευρύτερα, ενώ ενημερώνει για σημαντικές εκδηλώσεις και δράσεις του Πανεπιστημίου.

Καλεσμένοι στην αυριανή 1η εκπομπή για αυτό το εξάμηνο θα είναι:

🎧 Ο Ερευνητικός Συνεργάτης του ΤΕΠΑΚ Αντρέας Παπαλλάς και η Λειτουργός Νεολαίας του Οργανισμού Νεολαίας Κύπρου Έλενα Καλλή, οι οποίοι θα μας μιλήσουν για τη λειτουργία του προγράμματος Youth Makerspace Larnaka & Mobile Makerspace του Οργανισμού Νεολαίας Κύπρου, το οποίο συντονίζει το ΤΕΠΑΚ, και

🎧 Ο Ερευνητικός Συνεργάτης του εργαστηρίου Τεχνολογίας Λογισμικού και Ευφυών Πληροφοριακών Συστημάτων του τμήματος Ηλεκτρολόγων Μηχανικών, Μηχανικών Η/Υ και Πληροφορικής του ΤΕΠΑΚ (SEIIS Research Lab) και του ευρωπαϊκού έργου DESTINI, Στέλιος Μάππουρας.

📻 Συντονιστείτε στους 95.2 fm για το κέντρο της Λεμεσού ή διαδικτυακά στο cut.ac.cy/cut-radio

21w

DESTINI
Smart Data Processing and Systems of Deep Insight
Twinning | Horizon2020

Ευρωπαϊκό Χρηματοδοτούμενο έργο με τίτλο: Smart Data Processing and Systems of Deep Insights - DESTINI

"Twinning (H2020-TWINN-2015) Coordination and support actions: Spreading excellence and widening participation"

2Ο Σχολείο σε Ευφυή Δεδομένα (Smart Data)

24 -28 Ιανουαρίου 2022

Στα πλαίσια το ερευνητικού έργου DESTINI, το Τεχνολογικό Πανεπιστήμιο Κύπρου (ΤΕΠΑΚ) διοργανώνει στις **24-28 Ιανουαρίου 2022** το δεύτερο διαδικτυακό σχολείο στην περιοχή των Ευφυών Δεδομένων (Smart Data).

Το σχολείο θα πραγματοποιηθεί στην αγγλική γλώσσα και θα μεταδίδεται διαδικτυακά σε όλους τους συμμετέχοντες. Η διάρκεια του σχολείου θα είναι πέντε μέρες και θα περιλαμβάνει σειρά ομιλιών και παρουσιάσεων, τόσο από τους εταίρους του έργου όσο και από συνεργαζόμενους φορείς του έργου, που αφορούν κυρίως πρακτικές εφαρμογές ερευνητικών αποτελεσμάτων. Η θεματολογία του σχολείου καλύπτει ένα ευρύ φάσμα επιστημονικών περιοχών και πρακτικών εφαρμογών, τα οποία προσφέρουν λύσεις σε προβλήματα και προκλήσεις που υπάρχουν στον πραγματικό κόσμο, και αναδεικνύουν πως η εφαρμοσμένη έρευνα μπορεί να ωφελήσει επιχειρήσεις, την βιομηχανία, κρατικούς και ημικρατικούς οργανισμούς, ερευνητικούς φορείς και γενικά το ευρύ κοινό.

Στο δίκτυο συνεργασίας του DESTINI μαζί με το ΤΕΠΑΚ συμμετέχουν και δύο κορυφαία πανεπιστήμια με διακεκριμένη ερευνητική δραστηριότητα στα πεδία της Ευφυών Δεδομένων και της Επιστήμης Δεδομένων (Data Science): το Πανεπιστήμιο του Τίλμπουργκ στην Ολλανδία (University of Tilburg - (https://www.tilburguniversity.edu/) και το Πανεπιστήμιο Σαπιέντζα της Ρώμης στην Ιταλία (UNIROMA - https://www.uniroma1.it).

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Σύνδεσμος Εκδήλωσης: facebook.com/events/532801094366730/
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Πρόγραμμα: Θα ανακοινωθεί σύντομα
Ιστοσελίδα: destini2020.eu/

3. Presentations and Material

A total of twenty-eight (28) of talks/presentations were delivered by speakers from CUT, JADS, UNIROMA, UCY, CYENS, Excelsior CoE, NUP, Frederick University, KPMG, PHOEBE Research & Innovation, and the University of Nicosia.

The whole event was broadcasted live from Facebook: http://facebook.com/destini2020eu

All material of the 2nd Online School on Smart Data Processing and Systems of Deep Insight is uploaded on the shared folder of the project:
https://drive.google.com/drive/folders/1aM-ay9yzqNRLTgIVev64p6F10fOz_emx?usp=sharing

The talks were also uploaded on DESTINI's YouTube channel, as well as the facebook group:

Youtube: https://www.youtube.com/playlist?list=PLfDXA0fb9OEsXi94irAEBIshEwYHFOVN5

Facebook: https://www.facebook.com/destini2020eu/videos/

The presentations and talks delivered during the school were divided into the following categories:

Smart Data Processing

- Big Data: Methods and Technologies
- Query Answering and Query Abstraction Through Ontologies
- Privacy preservation - Reports from a Dutch Telecom
- Complex Patterns of Biological Information Decoded with Network-based Bioinformatics
- Enhanced Berth Allocation Using the Cuckoo Search Algorithm
- Data Driven Detection and Biological Control of Food Borne Pathogens: The Case of Mycobacterium Avium Subspecies Paratuberculosis
- Integrating the Internet of Things in Real-life Scenarios
- The Service Paradigm Rebound: Data Products, Meshes & Markets
- Web-based Real-time Monitoring and Modelling of Managed Aquifer Recharge Applications

Machine Learning / AI

- Argumentation-based Framework for Explainable Machine Learning (ARGEML)
- Rule Extraction in the Assessment of Brain MRI Lesions in Multiple Sclerosis: Preliminary Findings

- PandoraSEAL: An AI-based Decision Support Tool for the Selection of Non-Pharmaceutical Interventions During Pandemics
- Ultrasound Carotid Plaque Video Data Analysis for the Estimation of the Risk of Stroke
- An Adaptive Semi-Automated Integrated System for Multiple Sclerosis Lesion Segmentation in Longitudinal MRI Scans Based on a Convolutional Neural Network

Blockchain

- Blockchain Applications
- skillsChain: A Decentralized Application that Uses Educational Robotics and Blockchain to Disrupt the Educational Process
- Demystifying Non-Fungible Tokens (NFTs)

Data Visualization

- Virtual Reality and Gamification
- Computer Graphics - Animation
- Preliminary Findings on the Virtual Reality Cognitive Gaming Based on Brain Computer Interfacing
- The WaterAnalytics Digital Twin

Case Studies

- Digital Twin in Electrical Spindles
- Transformation in Traditional Industry: Die Cutter 4.0
- The Case Study of OVER Technologies

Business Process Mining

- The Art of Process Mining
- Business Process Management and Process Mining

A short presentation of each day follows, which includes a short description of each talk , the speaker, and his/her affiliation.

Day 1 – Monday, January 24, 2022 (EET Time)

Presentation Title:	Big Data: Methods and Technologies		
Date: (MM/DD/YYYY)	24/01/2022	**Time:**	09:50 - 11:10
Presenter:	Dr. Donatella Firmani	**Organization/ Institution:**	Dept. of Statistical Sciences, Sapienza Università di Roma
Presentation short description:			
The goal of this presentation was to present illustrated methods and technologies for the management of big data. The presentation included the challenges and solutions of the aforesaid methods, through examples and discussion with the audience.			

Presentation Title:	Argumentation-based Framework for Explainable Machine Learning (ARGEML)		
Date: (MM/DD/YYYY)	24/01/2022	**Time:**	11:20 - 11:40
Presenter:	Nicoletta Prentzas (PhD Candidate)	**Organization/ Institution:**	University of Cyprus
Presentation short description:			
This presentation presents ARGEML, a framework built to support and offer a novel approach towards the XAI (Explainable AI), by combining the interpretability of symbolic AI with the high efficiency and accuracy of the Machine Learning models.			

Presentation Title:	Preliminary Findings on the Virtual Reality Cognitive Gaming Based on Brain Computer Interfacing		
Date: (MM/DD/YYYY)	24/01/2022	**Time:**	11:40 - 12:00
Presenter:	Marios Hadjiaros (PhD Candidate)	**Organization/ Institution:**	University of Cyprus
Presentation short description:			
The purpose of this presentation is to present preliminary Findings on the Virtual Reality Cognitive Gaming Based on Brain Computer interfacing. The presentation discusses a way of integrating Brain Computer Interfacing with Virtual Reality, in order to develop interactive applications for cognitive tasks.			

Presentation Title:	Blockchain Applications		
Date: (MM/DD/YYYY)	24/01/2022	Time:	12:00 - 13:20
Presenter:	Prof. Claudio Di Ciccio	**Organization/ Institution:**	Dept. of Computer Science, Sapienza Università di Roma
Presentation short description:			
This presentation describes Blockchain Applications. Throughout the presentation, Prof. Di Ciccio explained the foundations of blockchain, such as how the transactions are happening and how the security is accomplished. Furthermore, the evolution of the web from web 1 to web 3 was discussed, as well as some research-oriented directions of blockchain, with the most relevant topics.			

Day 2 – Tuesday, January 25, 2022 (EET Time)

Presentation Title:	Virtual Reality and Gamification		
Date: (MM/DD/YYYY)	05/01/2022	**Time:**	09:30 - 10:50
Presenter:	Prof. Lauren Ferro	**Organization/ Institution:**	Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma
Presenter:	Dr. Francesco Sapio	**Organization/ Institution:**	Sapienza Università di Roma
Presentation short description:			
The presenters have given a talk on Virtual Reality and Gamification. The purpose of the presentation was to introduce the concept of gamification, and how it can be used to solve real world problems, followed by case studies and examples.			

Presentation Title:	Rule Extraction in the Assessment of Brain MRI Lesions in Multiple Sclerosis: Preliminary Findings		
Date: (MM/DD/YYYY)	05/01/2022	**Time:**	10:50 - 11:10
Presenter:	Andria Nicolaou (PhD Candidate)	**Organization/ Institution:**	University of Cyprus
Presentation short description:			
The presentation included a part of a recent research on Rule Extraction in the Assessment of Brain MRI Lesions in Multiple Sclerosis: Preliminary Findings. Mrs Nicolaou began her presentation by explaining what multiple sclerosis is, followed by some preliminary conclusions from her research about how rule extraction can help identify brain lesions related to multiple sclerosis, from MRI images.			

Presentation Title:	Privacy preservation - Reports from a Dutch Telecom		
Date: (MM/DD/YYYY)	05/01/2022	**Time:**	11:20 - 12:00
Presenter:	Nemania Borovits (PhD Candidate)	**Organization/ Institution:**	Tilburg University
Presentation short description:			
The main purpose of the presentation was to describe Privacy preservation - Reports from a Dutch Telecom. As part of the presentation, some principles about privacy by design were presented, followed by methodologies to enhance privacy, such as Federated Learning (FL). Moreover, advantages and challenges of the methodologies were discussed.			

Presentation Title:	Query Answering and Query Abstraction Through Ontologies		
Date: (MM/DD/YYYY)	05/01/2022	**Time:**	12:30 - 13:50
Presenter:	Prof. Maurizio Lenzerini	**Organization/ Institution:**	(Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma
Presentation short description:			
The purpose of the presentation was the explanation about what ontologies are, and how they can contribute to the interoperability of the data, through mapping the data into an ontology.			

Day 3 – Wednesday, January 26, 2022 (EET Time)

Presentation Title:	Complex Patterns of Biological Information Decoded with Network-based Bioinformatics		
Date: (MM/DD/YYYY)	26/01/2022	**Time:**	09:00 - 09:40
Presenter:	Prof. George Spyrou	**Organization/ Institution:**	Head of Bioinformatics Department, Cyprus Institute of Neurology and Genetics)
Presentation short description:			
The purpose of this presentation was to present Complex Patterns of Biological Information Decoded with Network-based Bioinformatics. A key focus of the presentation was Precision Medicine, which can be accomplished by combining data science with healthcare, by decoding and analyzing the information to produce more accurate and precise medicines.			

Presentation Title:	Enhanced Berth Allocation Using the Cuckoo Search Algorithm		
Date: (MM/DD/YYYY)	26/01/2022	**Time:**	09:40 - 10:20
Presenter:	Sheraz Aslam (PhD Candidate)	**Organization/ Institution:**	Cyprus University of Technology
Presentation short description:			
The goal of the presentation was to showcase an algorithm (Cuckoo) as a part of the EU-funded project STEAM (Sea Traffic Management in the Eastern Mediterranean), which is undertaken by CUT. The algorithm is able to dynamically schedule the vessel's arrival in order to avoid conflicts. The algorithm was based on the well-known berth allocation problem which was included in the presentation.			

Presentation Title:	skillsChain: A Decentralized Application that Uses Educational Robotics and Blockchain to Disrupt the Educational Process		
Date: (MM/DD/YYYY)	26/01/2022	**Time:**	10:20 - 11:00
Presenter:	Prof. Panayiotis Christodoulou	**Organization/ Institution:**	NUP / CUT
Presentation short description:			
The purpose of the presentation was the overview of the scientific article "skillsChain: A Decentralized Application that Uses Educational Robotics and Blockchain to Disrupt the Educational Process". SkillsChain is a case study for a decentralized application published in an academic journal, about combining educational robotics and blockchain, aiming on providing a way to secure the exchange of students' records.			

Presentation Title:	Transformation in Traditional Industry: Die Cutter 4.0		
Date: (MM/DD/YYYY)	26/01/2022	**Time:**	11:50 - 12:30
Presenter:	Jerin George Mathew (PhD Candidate)	**Organization/ Institution:**	Sapienza Università di Roma)
Presenter:	Flavia Monti (PhD Candidate)	**Organization/ Institution:**	Sapienza Università di Roma
Presentation short description:			
The scope of the presentation involved a case study in smart manufacturing, about a Die Cutter. The presenters explained the evolution of the industry, concluding on industry 4.0. Then, a case study followed, on the application of a Smart Die Cutter which contains sensors that are controlled by a miniPC. The worker interacts through a dashboard, where he monitors and manages the production.			

Presentation Title:	Data Driven Detection and Biological Control of Food Borne Pathogens: The Case of Mycobacterium Avium Subspecies Paratuberculosis		
Date: (MM/DD/YYYY)	26/01/2022	**Time:**	12:30 - 13:10
Presenter:	Prof. George Botsaris	**Organization/ Institution:**	Dept. of Agricultural Sciences, Biotechnology and Food Science, CUT
Presentation short description:			
Professor George Botsaris from the department of Agricultural services, biotechnology, and food science of CUT presented the topic: Data Driven Detection and Biological Control of Food Borne Pathogens: The Case of Mycobacterium Avium Subspecies Paratuberculosis. Prof. Botsaris introduces a way of detecting food borne pathogens, using a data driven methodology. In the context of the presentation, the case study of Mycobacterium Avium Subspecies Paratuberculosis was examined.			

Day 4 – Tuesday, January 27, 2022 (EET Time)

Presentation Title:	Computer Graphics - Animation		
Date: (MM/DD/YYYY)	27/01/2022	**Time:**	09:00 - 09:40
Presenter:	Prof. Stephania Loizidou	**Organization/ Institution:**	Dept. of Electrical Engineering, Computer Engineering and Informatics, Frederick University
Presentation short description:			
The main purpose of the presentation was to introduce computer graphics. Prof. Loizidou, introduced to the audience the concepts of computer graphics and animations, followed by some innovative topics and examples, such as Virtual Reality, motion capture, and simulations.			

Presentation Title:	The Art of Process Mining		
Date: (MM/DD/YYYY)	27/01/2022	**Time:**	09:40 - 10:20
Presenter:	Elia Kouzari	**Organization/ Institution:**	KPMG
Presentation short description:			
The presentation contained a detailed introduction on Business Process Mining, including the four main phases of a business process mining lifecycle (Collection, Discovery, Enhancement, Monitoring). Furthermore, the benefits of BPM, reason of existence as well as some BPM tools, were described.			

Presentation Title:	Integrating the Internet of Things in Real-life Scenarios		
Date: (MM/DD/YYYY)	27/01/2022	**Time:**	11:10 - 11:50
Presenter:	Prof. Lambros Lambrinos	**Organization/ Institution:**	Dept. of Communication and Internet Studies, CUT
Presentation short description:			
Prof. Lambrinos from CUT provided a talk on Integrating the Internet of Things in Real-life Scenarios. During the talk, the concept of Internet of Things (IoT) was explained, followed by some real world applications such as smart cities, and smart parking			

Presentation Title:	Business Process Management and Process Mining		
Date: (MM/DD/YYYY)	27/01/2022	**Time:**	11:50 - 13:10
Presenter:	Prof. Massimo Mecella	**Organization/ Institution:**	Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma
Presenter:	Prof. Francesco Leotta	**Organization/ Institution:**	Dept. of Computer, Control and Management Engineering, Sapienza Università di Roma
Presentation short description:			
The presentation focused on the context of business process mining and the larger area of business process management. The concepts of business process and process model were clarified, showcasing some of the multiple different ways of creating a process model. Furthermore, the speakers explained the main goals of BPM, concluding with some examples.			

Day 5 – Tuesday, January 28, 2022 (EET Time)

Presentation Title:	The WaterAnalytics Digital Twin		
Date: (MM/DD/YYYY)	28/01/2022	**Time:**	09:00 - 09:40
Presenter:	Mr. George Milis	**Organization/ Institution:**	Director and Innovations Manager, PHOEBE Research & Innovation
Presentation short description:			
The main focus of the presentation was about the technology of Digital Twins, including the benefits, and how DTs can contribute on improving the quality of life of the general public. Furthermore, a case study of a Digital Twin replicating an intelligent Water System was presented.			

Presentation Title:	PandoraSEAL: An AI-based Decision Support Tool for the Selection of Non-Pharmaceutical Interventions During Pandemics		
Date: (MM/DD/YYYY)	28/01/2022	**Time:**	09:40 - 10:20
Presenter:	Mr. Demetrianos Gavriel	**Organization/ Institution:**	Data Analytics Expert, PHOEBE Research & Innovation
Presentation short description:			
This presentation describes PandoraSEAL. PandoraSEAL, is a Neural Network tool that aims to assist decision makers to select and implement the most efficient responses regarding the pandemics. Aside from the tool, a case study was also showcased, for the methodology followed in order to build the tool, including predictions, historical results, and what-if scenarios.			

Presentation Title:	Ultrasound Carotid Plaque Video Data Analysis for the Estimation of the Risk of Stroke		
Date: (MM/DD/YYYY)	28/01/2022	***Time:***	10:20 - 10:20
Presenter:	Georgia Liapi (PhD Candidate)	***Organization /Institution:***	CUT
Presentation short description:			
Mrs Georgia Liapi (PhD candidate at Cyprus University of Technology) presented the topic: Ultrasound Carotid Plaque Video Data Analysis for the Estimation of the Risk of Stroke. During the presentation, a methodology was presented for the estimation of the risk of stroke, using Ultrasound Carotid Plaque Video analysis.			

Presentation Title:	An Adaptive Semi-Automated Integrated System for Multiple Sclerosis Lesion Segmentation in Longitudinal MRI Scans Based on a Convolutional Neural Network		
Date: (MM/DD/YYYY)	28/01/2022	***Time:***	10:40 - 11:00
Presenter:	Andreas Georgiou (MSc)	***Organization /Institution:***	University of Cyprus
Presentation short description:			
The presenter proposes a simple solution that provides lesion segmentation to MRI scans of Multiple Sclerosis, where the user has the opportunity to correct errors from the model, so the model can be constantly improved.			

Presentation Title:	The Service Paradigm Rebound: Data Products, Meshes & Markets		
Date: (MM/DD/YYYY)	28/01/2022	***Time:***	11:10 - 11:50
Presenter:	Prof. Willem-Jan van den Heuvel	***Organization /Institution:***	Jheronimus Academy of Data Science
Presenter:	Prof. Geert Monsieur	***Organization /Institution:***	Jheronimus Academy of Data Science
Presentation short description:			
Professor Willem-Jan van den Heuvel & Geert Monsieur from the Jheronymous Academy of Data Science & Tilburg University provided a talk on The Service Paradigm Rebound: Data Products, Meshes & Markets. The speakers initiated with a brief history of distributed data, followed with the mentioning of the latest technologies of handling big data, such as data meshes & data products.			

Presentation Title:	Demystifying Non-Fungible Tokens (NFTs)		
Date: (MM/DD/YYYY)	28/01/2022	***Time:***	11:50 - 12:30
Presenter:	Prof. Klitos Christodoulou	***Organization /Institution:***	Dept. of Digital Innovation, University of Nicosia
Presentation short description:			
The speaker introduced the ideology behind the production and trend of NFTs, their relation with blockchain and the idea of tokenization in blockchain technology. Moreover, the presentation also mentioned the involvement of NFTs in the upcoming virtual technological ecosystem "metaverse".			

Presentation Title:	Web-based Real-time Monitoring and Modeling of Managed Aquifer Recharge Applications		
Date: (MM/DD/YYYY)	28/01/2022	***Time:***	12:30 - 13:10
Presenter:	Dr. Constantinos Panagiotou	***Organization /Institution:***	Eratosthenis CoE, CUT
Presentation short description:			
Dr. Constantinos Panagiotou from Excelsior – Eratosthenis CoE presented the topic Web-based Real-time Monitoring and Modeling of Managed Aquifer Recharge Applications. In the context of the presentation, a Smart Real Time Monitoring Web Application was presented, which gathers data from different locations of the world about groundwater systems. These data are utilized in order to make some assessments, such as the states of the groundwater systems.			

General Information and Analytics

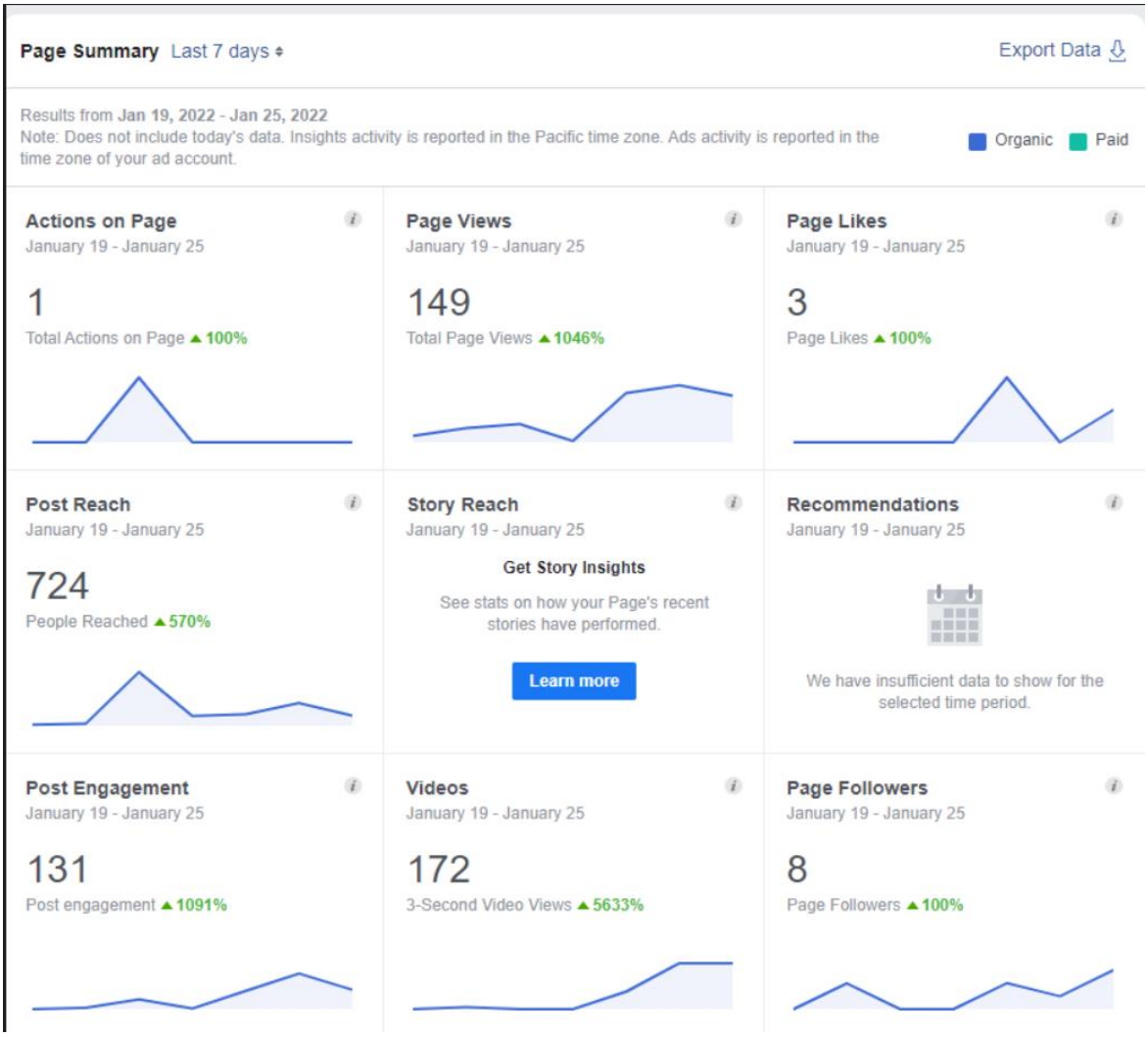
As previously mentioned, the activities of the School were performed using Zoom Cloud meeting application and broadcasted also through DESTINI's social media (Facebook, Youtube).

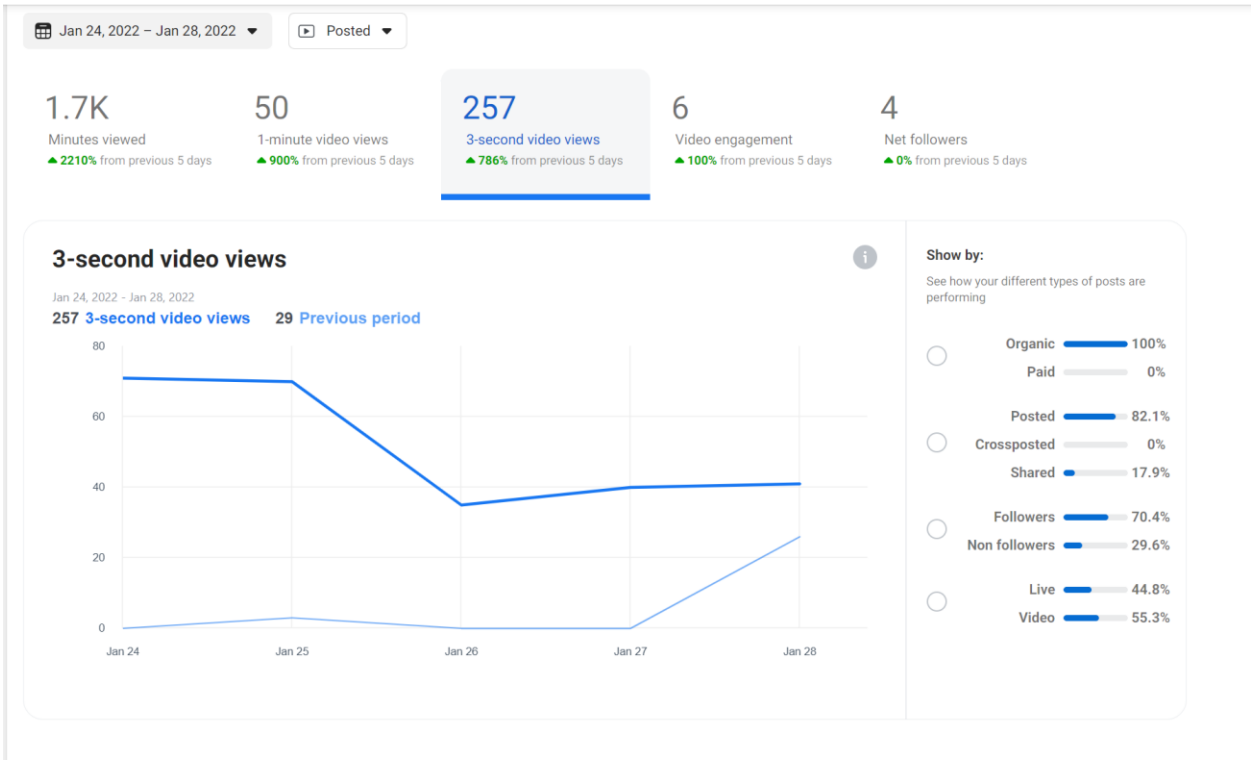
The Participants of the School per day were as follows:

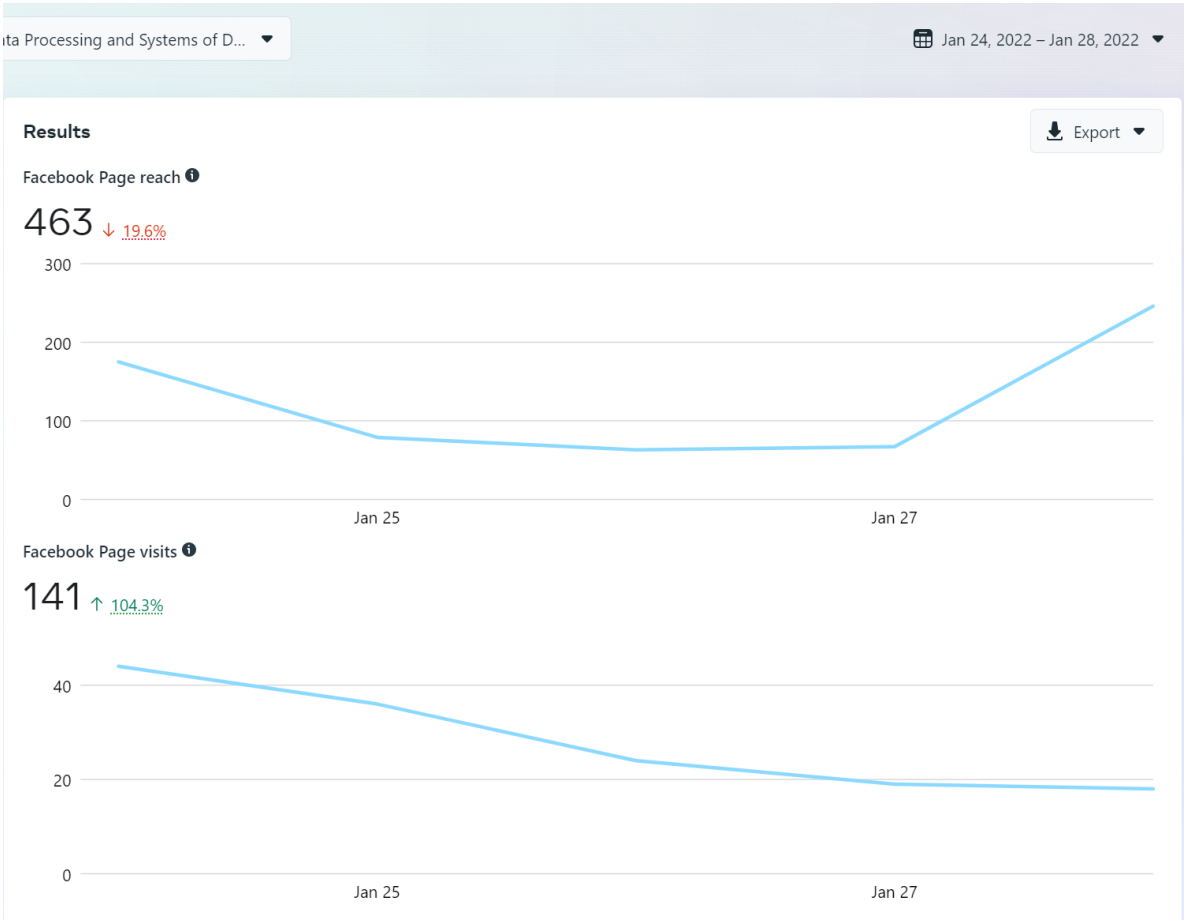
- **Zoom Analytics**

Destini Second School	859 3872 3825	Destini	sm.mappouras@edu.cut.ac.cy	Τμήμα Ηλεκτρολόγων Μηχανικών	Academic	No	01/21/2022 11:19:38 AM	01/24/2022 09:14:37 AM	01/24/2022 01:33:28 PM	259	56	Zoom
Destini Second School	859 3872 3825	Destini	sm.mappouras@edu.cut.ac.cy	Τμήμα Ηλεκτρολόγων Μηχανικών	Academic	No	01/21/2022 11:19:38 AM	01/25/2022 09:20:01 AM	01/25/2022 01:57:22 PM	278	27	Zoom
Destini Second School	859 3872 3825	Destini	sm.mappouras@edu.cut.ac.cy	Τμήμα Ηλεκτρολόγων Μηχανικών	Academic	No	01/21/2022 11:19:38 AM	01/26/2022 08:41:21 AM	01/26/2022 12:20:38 PM	220	25	Zoom
Destini Second School	859 3872 3825	Destini	sm.mappouras@edu.cut.ac.cy	Τμήμα Ηλεκτρολόγων Μηχανικών	Academic	No	01/21/2022 11:19:38 AM	01/27/2022 08:51:04 AM	01/27/2022 01:26:40 PM	276	48	Zoom
Destini Second School	859 3872 3825	Destini	sm.mappouras@edu.cut.ac.cy	Τμήμα Ηλεκτρολόγων Μηχανικών	Academic	No	01/21/2022 11:19:38 AM	01/28/2022 08:47:12 AM	01/28/2022 01:03:17 PM	257	33	Zoom

- **Facebook Analytics**




Jan 24, 2022 – Jan 28, 2022
Posted
1.7K
Minutes viewed
2210% from previous 5 days
50
1-minute video views
900% from previous 5 days
257
3-second video views
786% from previous 5 days
6
Video engagement
100% from previous 5 days
4
Net followers
0% from previous 5 days
3-second video views
Jan 24, 2022 - Jan 28, 2022
257 3-second video views
29 Previous period
80
60
40
20
0
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Show by:
See how your different types of posts are performing
Organic 100%
Paid 0%
Posted 82.1%
Crossposted 0%
Shared 17.9%
Followers 70.4%
Non followers 29.6%
Live 44.8%
Video 55.3%


ta Processing and Systems of D...
Jan 24, 2022 – Jan 28, 2022
Results
Export
Facebook Page reach
463 ↓ 19.6%
300
200
100
0
Jan 25
Jan 27
Facebook Page visits
141 ↑ 104.3%
40
20
0
Jan 25
Jan 27

4. Conclusions

In the context of Work Package 3, a number of actions and activities were organized and performed aiming to transfer scientific knowledge to CUT members in the area Smart Data Processing and Systems of Deep Insights to tackle the research challenges that exist within the JRAs and the key knowledge areas identified during WP2. One of the most significant ones was the organization of scientific schools. This deliverable described briefly the 2nd and last online DESTINI school which was held in January 2022.

The school aimed to share knowledge and project outcomes by facilitating discussions and exchanging ideas between researchers, industrial and business stakeholders, governmental and decision-making bodies and the general public. A total of twenty-eight (28) talks were given in a period of five (5) days. The school may be considered as highly successful, attracting people from a variety of domains and businesses, and of course the academia.