
LAMBDA - Learning, Applying, Multiplying Big Data Analytics

Project presentation



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 809965.



Project Funding

- ❑ This project has received funding from the European Union's Horizon 2020 research and innovation programme, GA No 809965
- ❑ **Twinning** Coordination and Support Action, [H2020-WIDESPREAD-2016-2017](#)
- ❑ Project Partners
 - [Institute Mihajlo Pupin, Serbia \(Coordinator\)](#)
 - [Fraunhofer Institute for Intelligent Analysis and Information Systems, Germany](#)
 - [Institute for Computer Science - University of Bonn, Germany](#)
 - [Department of Computer Science - University of Oxford, UK](#)

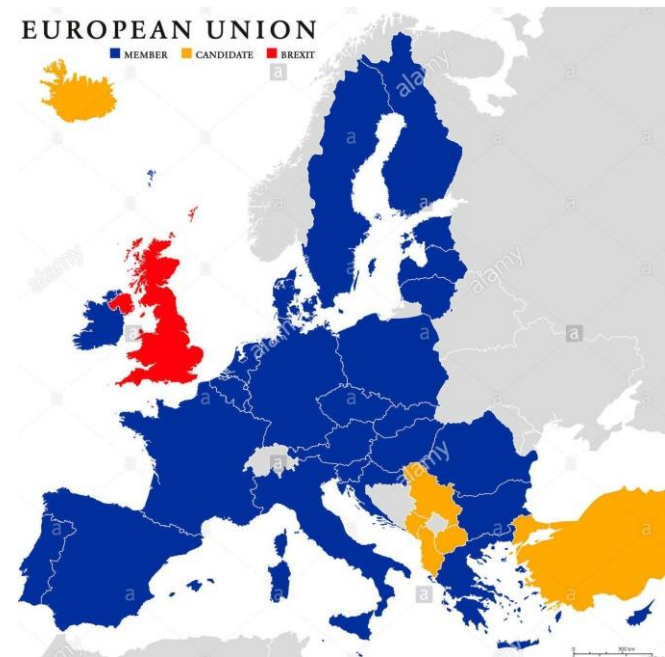


Vision and Primary Objectives



Strengthening the Human capital and Education, Research and Development capacities of “Mihajlo Pupin” Institute the leading Serbian R&D institution in information and communication technologies in order to serve as a **Big Data & Analytics HUB** that connects and integrates scientists and professionals from the West Balkans and the entire region into the European Research Area.

Decreasing the existing European regional R&I disparity by Fostering excellence in the Big Data Ecosystem areas unlocking and raising the scientific profile of academics institutions from Serbia and the region while contributing to European progress beyond the state-of-the-art of related research and technology, as well as establishing productive and fruitful long-term cooperation.



LAMBDA Consortium



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

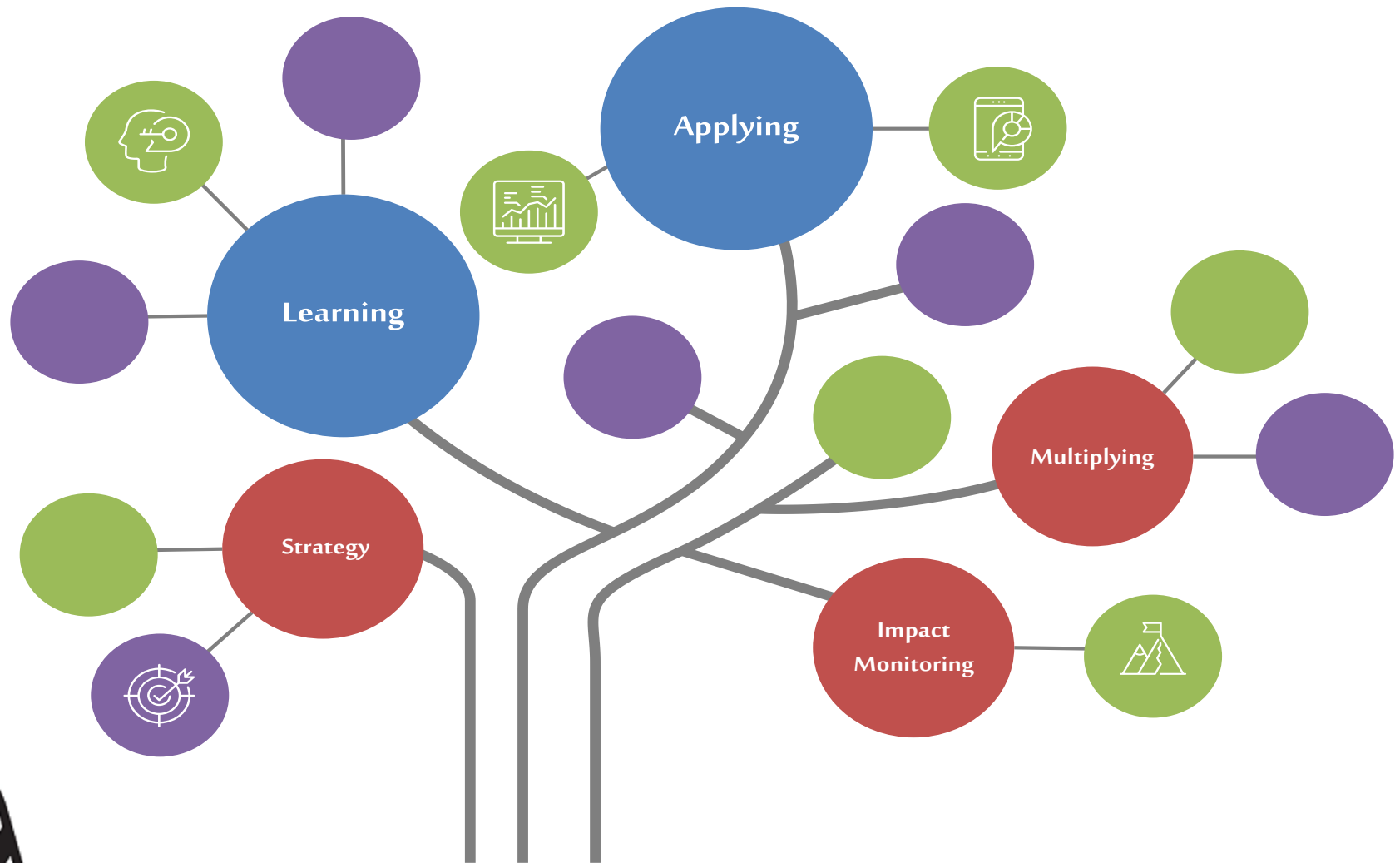


Key Pillars

Component	Description	S	L	I	D	E	WIKI
Learning & Open Education	Knowledge repository as part of the LAMBDA Learning and Consulting Platform will be established to facilitate spreading learning materials, as well as exchange of best practice between research institutions from South-Eastern Europe and leading EU partners: <ul style="list-style-type: none">• https://project-lambda.org/Learning• https://project-lambda.org/Knowledge-repository/Lectures						
Applying Knowledge & Cooperation	LAMBDA Experts Exchange Program for teachers, researchers and developers) will open possibilities for collaborative research on open issues in Big Data related areas: <ul style="list-style-type: none">• Industry 4.0• ICT for Energy						
Multiplying Dissemination and outreach	Raising awareness about future trends in Big Data, Emerging Tools and Technologies , and standards by organization of events at international (e.g. DEXA, ESWC, SEMANTiCS) and regional (e.g. ICIST, ICT Innovations) conferences, organization of the Belgrade Big Data Analytics Summer/Winter School, https://project-lambda.org/Announcement-1 Sustainable Development Plan for PUPIN (2021-2025) Strategy development and monitoring activities; Self-assessment of research accomplishments at PUPIN aimed at increasing the shared awareness about the research capacities, primarily human resources.						



Key Pillars

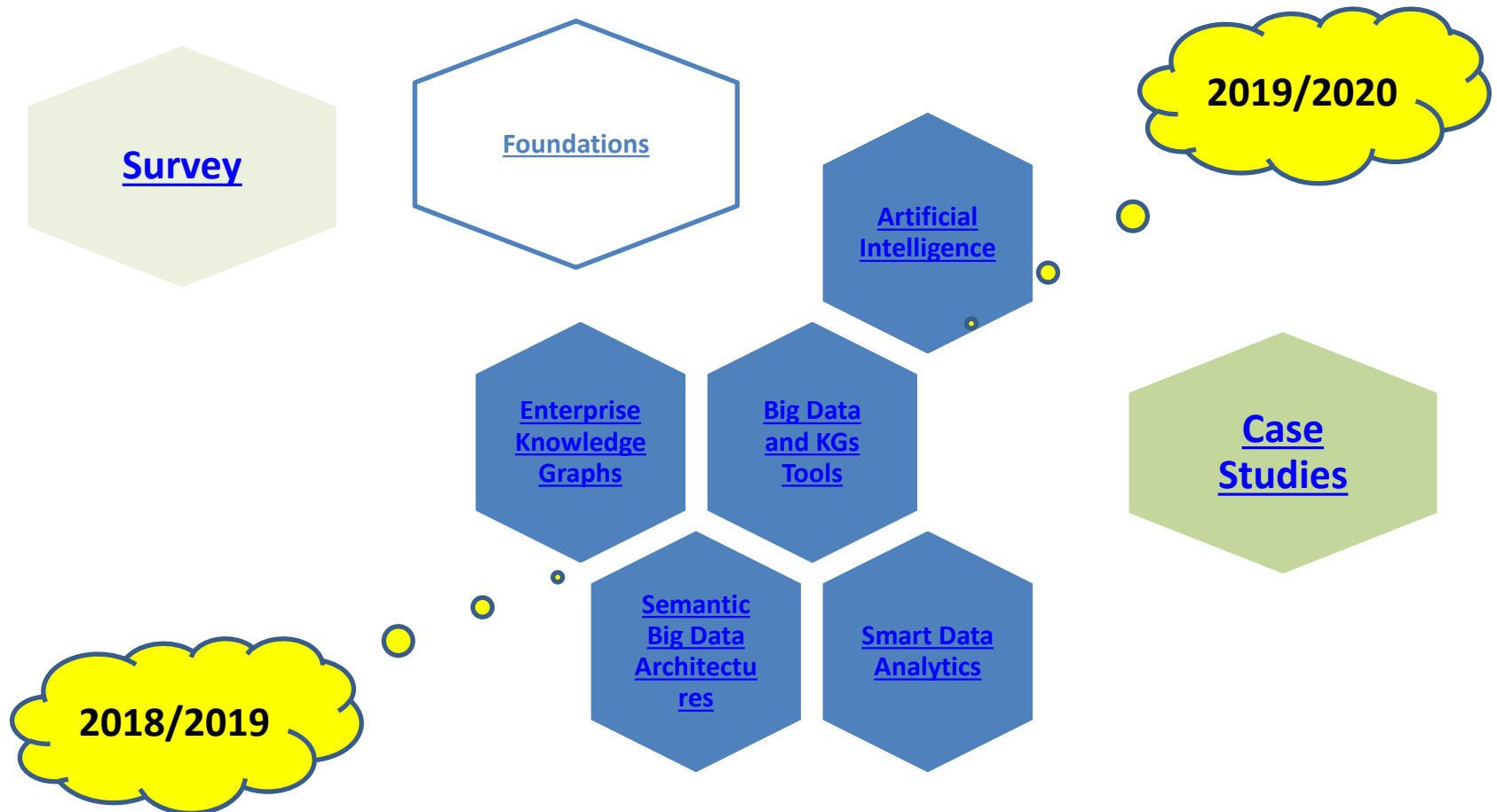


Strategic Cooperation

- Action Plan 2018-2020
 - D2.3 [SWOT Analysis](#) (M6), D2.4 [Strategic Capacity Development Plan](#) (M6)
 - D5.8 [Sustainability Measures and Activities, Innovation and IPR Management \(Plan\)](#)
- Foresight & Recommendations
 - D6.1 [Foresight Exercise](#) (M24)
 - D6.2 [Foresight Exercise and Policy Recommendations](#) (M30)
 - D6.4 Strategic Action Plan for the Period 2021-2025



Categorization of Lectures (8)



Learning (status Nov. 2020)

- 2 BDA Schools organized
- LAMBDA Lectures Repository > 30 lectures divided into
 - [Artificial Intelligence](#) (4 lectures),
 - [Survey](#) (3 lectures),
 - [Foundations](#) (3 lectures),
 - [Enterprise Knowledge Graphs](#) (4 lectures),
 - [Semantic Big Data Architectures](#) (7 lectures),
 - [Big Data and Knowledge Graphs Tools](#) (4 lecture),
 - [Smart Data Analytics](#) (5 lectures), and
 - [Case Studies](#) (5 lectures)

Applying Knowledge & Cooperation

- Proof-of-Concepts
 - IAIS & PUPIN (> 5 prototypes),
Framework contract since 2017
- Project Proposal writing
 - ICT calls, SWAFS, SPIRE, FTI
- Projects
 - PLATOON - [PLATOON – Digital PLatform and analytical TOOLS for eNergy](#) (PUPIN, Fraunhofer IAIS, UBO, TIB)
 - REACT - [REACT – Renewable Energy for self-sustainable island CommuniTies](#) (PUPIN, Fraunhofer Institute for Solar Energy Systems)

Categorization of Tools

<u>Cloud Marketplaces</u>	<u>Alibaba Cloud IBM Cloud Google Cloud Platform Oracle Cloud Marketplace CISCO Marketplace Microsoft Azure Marketplace AWS Marketplace</u>
<u>Hadoop as a Web Service / Platform</u>	<u>HDInsight IBM InfoSphere BigInsights MapR Cloudera CDH Amazon EMR</u>
<u>Operational Database Management Systems</u>	<u>IBM (DB2) SAP (SAP HANA) Microsoft (SQL Server) ORACLE (Database)</u>
<u>NoSQL/ Graph databases</u>	<u>Hadoop Distributed File System (HDFS) Amazon Neptune Neo4j TigerGraph MapR Database Ontotext GraphDB</u> <u>AlegroGraph Virtuoso Apache Jena MarkLogic JanusGraph OrientDB Microsoft Azzure Cosmos DB Apache Hbase Apache Cassandra MongoDB</u>
<u>Stream Processing Engines</u>	<u>Apache Flume Apache Apex Amazon Kinesis Streams Apache Flink Apache Samza Apache Storm Apache Spark</u>
<u>Analytics Software / System / Platform</u>	<u>SAS Analytics Software & Solutions MATLAB H2O.ai Accord Framework Apache Hadoop Cloudera Data Platform Vadalog System MATLAB Semantic Analytics Stack (SANSA)</u>
<u>Data Analytics Languages</u>	<u>Scala Julia SPARQL SQL R Python Package Index (PyPI) Python</u>
<u>Optimization Library for Big Data</u>	<u>Facebook Ax HyperOpt IBM ILOG CPLEX Optimization Library</u>
<u>Library / API for Big Data</u>	<u>TensorFlow Serving MLlib BigML Google Prediction API Azure Machine Learning Amazon Machine Learning API IBM Watson Programming with Big Data in R</u>
<u>ML Library / API for Big Data</u>	<u>CAFFE.AI Apache MXNet XGBoost PyTorch Keras TensorFlow</u>
<u>Visualization Software / System</u>	<u>Oracle Visual Analyzer Microsoft Power BI Datawrapper Qlikview Canvas.js Highcharts Fusion chart D3 Tableau Google Chart</u>
<u>Distributed Messaging System</u>	<u>Apache Kafka</u>

Multiplying



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Posted on: Mon, 11/05/2018 - 17:07 **By:** valentina.janev

The following invited experts have confirmed participation at the LAMBDA Advisory Board:

- Prof. Sören Auer, Ph.D., (M), Director of the Technische Informationsbibliothek (TIB) – German National Library of Science and Professor of "Data Science and Digital Libraries" at Leibniz University Hannover
- Atanas Kiryakov, M.Sc., (M) an Executive Director of OntoText AD
- Prof. László Kovács (M), Ph.D., Professor of Computer Science, Hungarian Academy of Sciences
- Mari Carmen Suárez-Figueroa, Ph.D., (F), Teaching assistant at the Departament de Inteligencia Artificial, Universidad Politécnica de Madrid
- Daniel Pop, Ph.D., (M), Senior Researcher at the West University of Timisoara , Timișoara
- Gabriel Iuhász, Ph.D., (M), Researcher at the West University of Timisoara , Timișoara

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[Public Administration & NGO](#)

Do we have your consent to publish your names ?

Funded by "Spreading Excellence and Widening Participation" Work Programme 2016-2017, GA No. 809965



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

Dissemination Channels

- Webinars
- Network of Experts - LinkedIn
- Twitter
- Facebook
- Network of Teachers
- International Conferences
 - ICIST 2019, ICIST 2020, ?



Big Data Analytics School (2019)



Research-Industry Forum:
...OntoText, DeepReason, Meltwater, SAS, CISCO, ...

Big Data Analytics School (2020)

The most
attended
session

View Who's Talking

ES

Emanuel Sallinger (p)

Lead Team - University of Oxford

UNIVERSITY OF OXFORD DEPARTMENT OF COMPUTER SCIENCE

Key partners: TU WIEN BANCA D'ITALIA MANCHESTER 1824

Sahar Vahdati is presenting

Mic Camera Screen Leave

PEOPLE 42/151

Mute All Unmute All

Branslav Dobrosavljevic

Damien Graux - Trinity Colle...

Dea Pujic (IMP)

Dejan Paunovic (IMP)

Dusan Popadic (IMP)

Emanuel Sallinger (p)

Emanuel Sallinger (v)

Felix Wagner

Gloria Bordogna CNR IREA

Heba (UBO) (Web)

Ivanka

Jana

Katarina Stankovic (Pupin)

Lazar Berbakov

Lazar Milosavljevic

Luigi Bellomarini

MEETING ID: 715-760-389

Copy Meeting Link

Invite

Meeting is unlocked

14:51 16/06/2020

Big Data Analytics School (2020)

The screenshot shows a video conference interface. On the left, a vertical stack of five participant windows is visible, each showing a different man. The main window displays a presentation slide with the following content:

LAMBDA Foresight Panel Discussion on Big Data

Moderated and Organized by Oxford Team
Sahar Vahdati, Emanuel Sallinger

Below the text are two logos: the LAMBDA logo (a stylized lambda symbol with a colorful dot) and the University of Oxford Department of Computer Science logo (a blue square with the university crest and the text 'UNIVERSITY OF OXFORD' and 'DEPARTMENT OF COMPUTER SCIENCE').

At the bottom of the video player, a progress bar shows the video is at 01:16. The Windows taskbar is visible at the very bottom, showing various application icons and the system clock indicating 15:55 on 19/11/2020.

LAMBDA Book Promoted

» Computer Science » Database Management & Information Retrieval

Information Systems and Applications, incl. Internet/Web, and HCI

Lect.Notes ComputerState-of-the-Art Surveys



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Open Access

Knowledge Graphs and Big Data Processing

Editors: **Janev, V., Graux, D., Jabeen, H., Sallinger, E.** (Eds.)

Open AccessStudies the potentials, prospects, and challenges of Big Data Analytics in real-world applicationsAddresses pertinent aspect of the data processing chain



Participants - Universities



SVEUČILIŠTE U ZAGREBU
FAKULTET ORGANIZACIJE I INFORMATIKE
VARAŽDIN



University of Tuzla
Bosnia and Herzegovina

FACULTY OF SCIENCE AND MATHEMATICS



"Ss. Cyril and Methodius" University - Skopje
**FACULTY OF COMPUTER
SCIENCE AND ENGINEERING**



University of Niš
Faculty of Mechanical Engineering



UNIVERZITET U NOVOM SADU
UNIVERSITY OF NOVI SAD



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS

International Conferences - 2020












- Telecommunications Forum TELFOR November 2020
- eLearning-2020 Conference, September 2020, Serbia
- Knowledge Representation & Representation Learning, September 2020 in conjunction with the 24th European Conference on Artificial Intelligence (ECAI 2020).
- Special track: Data Analytics Trends and Applications, ICIST, Serbia, March 2020












Journals

- Dea Pujić, Nikola Tomašević, Marko Batić (2019) Semi-supervised Approach for Improving Generalization in Non-Intrusive Load Monitoring (submitted)
- Marko Jelić et al (2020) Towards self-sustainable island grids through optimal utilization of renewable energy potential and community engagement (accepted for publication)
- Guma Lakshen, Valentina Janev, Sanja Vraneš (2020) Arabic Linked Drug Dataset Consolidating and Publishing, Computer Science and Information Systems 00(0):0000–0000 (accepted for publication)
- Lazar Berbakov, Goran Dimić, Marko Beko, Jelena Vasiljević, Željko Stojković (2020) Collaborative Data Transmission in Wireless Sensor Networks, in IEEE Access Journal, Volume 8, Issue 1, 2020, pp. 39647 - 39658. <https://ieeexplore.ieee.org/document/9007355>
- Lazar Berbakov, Čarna Jovanović, Marina Svetel, Jelena Vasiljević, Goran Dimić, and Nenad Radulović (2019) Quantitative Assessment of Head Tremor in Patients with Essential Tremor and Cervical Dystonia by Using Inertial Sensors, in Sensors Journal, Volume 19, Issue 19, 2019. pp.1-16. <https://www.mdpi.com/1424-8220/19/19/4246>
- Nikola Tomasević, Nikola Gvozdenović, Sanja Vraneš, An overview and comparison of supervised data mining techniques for student exam performance prediction, Computers and Education Volume 143, January 2020, 103676 <https://doi.org/10.1016/j.compedu.2019.103676>
- Vuk Mijović, Nikola Tomasević, Valentina Janev, Mladen Stanojević, Sanja Vraneš (2019). *Emergency Management In Critical Infrastructures: A Complex-Event-Processing Paradigm*, Journal of Systems Science and Systems Engineering, Springer Berlin Heidelberg, February 2019, Volume 28, Issue 1, pp 37–62. <https://doi.org/10.1007/s11518-018-5393-5>

Sustainability

- Webinars (next Webinar – Conversational AI, December 2020)
- LAMBDA Platform
 - Lectures Repository
- Social networks
- LAMBDA Big Data Analytics Summer School
 - 2021 – PLATOON, SINERGY Project
 - 2022 – TRAPEZE, AIProficient
 - 2023 – SINERGY Conference

2021-2024	H2020	AI-PROFICIENT – Artificial Intelligence for improved PRO duction effICI ency, quality and maiNT enance	
2021-2024	H2020	HESTIA – H olistic dE mand response S ervices for European residen TIA l communities	
2020-2023	H2020	SINERGY – Capacity building in S mart and Innovative eNERGY management	
2020-2023	COST Action	Distributed Knowledge Graphs	
2020-2023	H2020	TRAPEZE – TR ansparency, P rivacy and security for E uropean citi ZE ns	
2020-2023	H2020	BorderUAS – Semi-autonomous border surveillance platform combining next generation unmanned aerial vehicles with ultra-high-resolution multi-sensor surveillance payload	
2019-2022	H2020	PLATOON – Digital PLA tform and analytical TOO ls for eN ergy	
2019-2023	COST Action	NexusLinguarum – European network for Web-centred linguistic data science	
2019-2023	H2020	TRINITY – TR ansmission system enhancement of regio Nal borders by means of Intelligen T market technolog Y	
2019-2022	H2020	IDEAS – Novel building I ntegration D esigns for increased E fficiencies in A dvanced climatically tunable renewable energy S ystems	
2019-2022	H2020	REACT – R enewable E nergy for self-sust A inable island C ommuni T ies	
2018-2021	H2020	LAMBDA – L earning, A pplying and M ultiplying B ig D ata A nalYTics	

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2020-2023	<div> <div>Start</div> <div>Nov 2020</div> </div>	TRAPEZE – TR ansparency, P rivacy and security for E uropean citi ZE ns	
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2019-2022	H2020	REACT – Renewable E nergy for self-sust A inable island C ommuni T ies	
2018-2021	H2020	LAMBDA – Learning, Applying and Multiplying B ig D ata Analytics	

Energy Domain

2021

PROFICIENT – Artificial Intelligence for improved **PRO**duction **effICI**ency, quality and **maINT**enance



2021-2024

H2020

HESTIA – Holistic dEmand response Services for European residen**TIA**l communities



2020-2023

H2020

SINERGY – Capacity building in **S**mart and Innovative e**NERGY** management



2020-2023

COST Action

Distributed Knowledge Graphs

2020-2023

H2020

TRAPEZE – **TRAN**sparency, **P**rivacy and security for **E**uropean citi**ZE**ns



2020-2023

H2020

BorderUAS – Semi-autonomous border surveillance platform combining next generation unmanned aerial vehicles with ultra-high-resolution multi-sensor surveillance payload



2019-2022

H2020

PLATOON – Digital **PLA**tform and analytical **TOO**ls for e**N**ergy



2019-2022

H2020

NexusLinguarum – European network for Web-centred linguistic data science



2019-2022

H2020

TRINITY – **TR**ansmission system enhancement of regio**N**al borders by means of Intelligen**T** market technology



2019-2022

H2020

IDEAS – Novel building Integration Designs for increased **E**fficiencies in **A**dvanced climatically tunable renewable energy **S**ystems



2019-2022

H2020

REACT – Renewable **E**nergy for self-sust**A**inable island **C**ommuni**T**ies



2018-2021












H2020

LAMBDA – Learning, Applying and Multiplying **B**ig **D**ata Analytics



Start
Jan 2020

Started
in 2019

2021-2024	H2020	AI-PROFICIENT – Artificial Intelligence for improved PRO duction effICIENCY , quality and mai NTenance	
2021-2024	H2020	HESTIA – H olistic dE mand response S ervices for European residen TIAL communities	
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2018-2021	H2020	LAMBDA – L earning, A pplying and M ultiplying B ig D ata A nalYTics	

Key Performance Indicators

Category	Success Indicator
STRATEGIES / RECOMMENDATIONS	NUMBER OF STRATEGIC DOCUMENTS
BIG DATA ANALYTICS SCHOOL	NUMBER OF EVENTS
	NUMBER OF LECTURES (BOOKS, PUBLISHED, E.G. VIA CEUR-WS.ORG)
	NUMBER OF TRAINED TEACHERS / STUDENTS
LAMBDA-NETWORK OF EXPERTS	NUMBER OF ORGANIZATIONS
	NUMBER OF EXPERTS
CAPACITY BUILDING THROUGH THE LAMBDA LEARNING AND CONSULTING PLATFORM	NUMBER OF TOOLS INTEGRATED FOR EXPERIMENTATION
	NUMBER OF VISITS / EXCHANGES BETWEEN PARTNERS AND COLLABORATORS.
	NUMBER OF UNIVERSITY / ORGANIZATIONS THAT HAVE ADOPTED THE DEVELOPED OPEN LECTURES
DISSEMINATION AND OUTREACH (OTHER THAN BDA SCHOOL)	NUMBER OF WORKSHOPS, SEMINARS AND NETWORKING EVENTS ORGANIZED
	NUMBER OF BRAINSTORMING SESSIONS ON KEY SOCIETY CHALLENGES
	NUMBER OF JOINT SCIENTIFIC PAPERS

LAMBDA Activities in 2021

	Phase 1						Phase 2																		Phase 3											
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
T1.1		D	D			D																														
T1.2						D																														D
T1.3																		D											D							
T2.1			D			D																														
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T4.4																								D												
T5.1						D									D															D						
T5.2												D												D						D						
T5.3																								D						D						D
T6.1																								D					D							
T6.2																								D												D
			Milestone 1			Milestone 2						Milestone 3			Milestone 4									Milestone 5					Milestone 6							Milestone 7

LAMBDA Activities in 2021

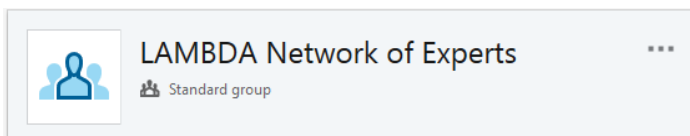
- Task 3.3 Belgrade BDA School
 - Proposal – to be focused on Energy
 - Organization of PhD Workshop
 - Develop new lectures
- Task 5.3 Exploitation and Sustainability
 - New proposals, HORIZON Europe
 - Prototypes
- Task 6.2 Monitoring Research and Innovation and Impact Analysis

Thank You for Your Attention !



Contact: Valentina.Janev@pupin.rs

Join Us



← LAMBDA Network of Experts

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Search members



Valentina Janev · You · Owner
Senior Research at The Mihajlo Pupin Institute



Paulo Figueiras · 1st
Computer Engineering and Data Science Researcher/PhD Student

Message



Una Kisić · 1st
Software Engineer at Mihajlo Pupin Institute

Message



Slobodan Jovanovic · 1st
Professor in Computer science at Belgrade Metropolitan University

Message



Nikola Nikačević · 1st
Analytics Advisor at SAS

Message



Sanja Vranes · 1st
Director General at Institute Mihajlo Pupin

Message



Dea Pujić · 1st
Junior Researcher at Mihajlo Pupin Institute

Message



Igor Franc · 1st
CEO and Founder at SECIT Security Consulting

Message



LEARNING, APPLYING, MULTIPLYING BIG DATA ANALYTICS



Почетна

О нама



lambda-net

@Net4LAMBDA

LAMBDA - Learning, Applying,
Multiplying Big Data Analytics

Придружио/ла се јул 2018.

7 Фотографије и видео снимци

