Project no. 6524105

ATLAS

Artificial Intelligence Theoretical Foundations for Advanced Spatio-Temporal Modelling of Data and Processes

WP1: Coordination, Management, and Dissemination

Deliverables D1.3.3.

Dissemination report

Program for Development of Projects in the field of Artificial Intelligence
https://ai.ipb.ac.rs/

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Date: 10/30/2023
Type: Public

Summary

Several communication tools were tailored to target research communities, academia, policy-makers, as well as other direct and indirect stakeholders and beneficiaries. The effective dissemination of the project was pursued throughout its duration, including 13 peer-reviewed scientific papers, 2 monographs, 10 book chapters, and 19 conference papers. Conclusions and recommendations from these publications provide comprehensive information on the ATLAS findings relevant to the scientific community, the public, and policymakers.
To generate interest in the public benefits of the ATLAS and its findings, the project's website (https://ai.ipb.ac.rs/), Researchgate (https://www.researchgate.net/project/ATLAS-Project-2020), Instagram (https://www.instagram.com/atlas_project_2020/), Facebook (https://www.facebook.com/ATLAS-Project-2020-123071872871429), and Linkedin (https://www.linkedin.com/company/atlas-project-2020) were utilized as social media resources.

1. Full reference of the top three accepted or published scientific publications resulted from the project

1. monograph

eBook ISBN 978-3-030-72711-6
Artificial Intelligence: Theory and Applications
https://link.springer.com/book/10.1007/978-3-030-72711-6
published

2. article in journal
DOI: 10.1016/j.ins.2023.02.038
Zhang, D., Mesiar, R., & Pap, E. Choquet Type Integrals for Single-Valued Functions with Respect to Set-Functions and Set-Multifunctions. Information Sciences.
https://doi.org/10.1016/j.ins.2023.02.038
published

3. article in journal
DOI: 10.1016/j.chemosphere.2021.133154
Stojić, A., Jovanović, G., Stanišić, S., Herceg Romanić, S., Šoštarić, A., Udovičić, V., Perišić, M., Milićević, T. The PM2.5-bound polycyclic aromatic hydrocarbon behavior in indoor and outdoor environments, part II: explainable prediction of benzo [a] pyrene levels. Chemosphere.
https://doi.org/10.1016/j.chemosphere.2021.133154
published

2. Project promotion, public and visibility

Type of dissemination and communication activities*	Link (if available)	Type of audience reached
participation to a conference	http://media.rcub.bg.ac.rs/wp-content/uploads/wp-uploads/2021/04/07-Andreja-Stojic.mp4	The ATLAS project was presented by Andreja Stojić during the national presentation of the Horizon 2020 project on April 22nd (National Initiatives for Open Science – NI4OS).

participation to a conference	https://sinteza.singidunum.ac.rs/	The PI, prof. Pap and project participant A. Stojić were keynote speakers in the plenary session of the International scientific conference on information technology and data-related research, held on October 17th 2020, in Belgrade. One of the conference sessions was dedicated to artificial intelligence and the ATLAS project.
participation to a conference	https://sinteza.singidunum.ac.rs/	The project participant M. Perišić was the keynote speaker, and presented the ATLAS project in the plenary session of the 9th International Scientific Conference Sinteza 2022, in Belgrade.
communication campaign (radio)	https://www.youtube.com/watch?v=yND8umpCAdc&feature=emb_share&fbclid=IwAR13xWmetI15Yyyxjy7GzJynUH7g-nG4hw2rTPqwxot-XDcBHyUWwwpi6pI	The project PI, prof. Endre Pap and Andreja Stojić were guests on Sputnjik Srbija, and they were talking about the role of the PARADOX supercomputer in the ATLAS project.
participation to an event other than a conference or workshop	https://www.youtube.com/watch?v=nZGd2HqyPh4	Andreja Stojić was a guest at Vrt Fizike, a dedicated serial produced by the Institute of Physics Belgrade, talking about artificial intelligence, air pollution and the ATLAS project.
communication campaign (radio)	https://www.emisijaeureka.rs/post/eureka-64-masinsko-ucenje-i-kvalitet-vazduha	Andreja Stojić was a guest radio station broadcast, talking about artificial intelligence, air pollution and the ATLAS project.
communication campaign (radio)	https://www.buzzsprout.com/708018/6399268	Andreja Stojić was a guest radio station broadcast, talking about artificial intelligence, air pollution and the ATLAS project.
website	https://ai.ipb.ac.rs/	The relevant information on the project was presented to the wider audience via the Project website.
social media	https://www.researchgate.net/project/ATLAS-Project-2020	The relevant information on the project was presented to the wider audience via ResearchGate.
social media	https://www.instagram.com/atlas_project_2020/	The relevant information on the project was presented to the wider audience via Instagram.
social media	https://www.facebook.com/ATLAS-Project-2020-123071872871429	The relevant information on the project was presented to the wider audience via Facebook.
social media	https://www.linkedin.com/company/atlas-project-2020	The relevant information on the project was presented to the wider audience via LinkedIn.

3. Scientific publications – full list of sci publications resulted from project implementation

	Type of scientific publication*	Open Access (yes/no)	DOI or ISBN (for books)	Full reference title	Publication status**
1	article in journal	no	DOI: 10.1016/j.envres.2020.110520	Stanišić, S., Perišić, M., Jovanović, G., Milićević, T., Romanić, S.H., Jovanović, A., Šoštarić, A., Udovičić, V. & Stojić, A. (2021) The PM2.5-bound polycyclic aromatic hydrocarbon behavior in indoor and outdoor environments, Part I: emission sources. Environmental Research, 110520	published
2	article in journal	no	DOI: 10.1088/1742-5468/abd30b	Vranić, A., Mitrović Dankulov, M. (2021) Growth signals determine the topology of evolving networks. Journal of Statistical Mechanics: Theory and Experiment, 013405	published
3	article in journal	no	DOI: 10.1016/j.ins.2021.02.065	Nedović Ljubo, Pap Endre and Dragić Đorđe (2021) Aggregation of triangle of distortion functions. Information Sciences, 563, pp: 401-417	published
4	article in journal	no	DOI: 10.1016/j.fss.2020.12.005	D. Zhang, R. Mesiar, E. Pap (2022) Pseudo-integral and generalized Choquet integral. Fuzzy Sets and Systems, 446, pp: 193-221.	published
5	article in journal	no	DOI: 10.1016/j.fss.2021.06.007	Zhang, D., & Pap, E. (2022). Generalized pseudo-integral Jensen's inequality for $((\oplus\ 1,\otimes\ 1),(\oplus\ 2,\otimes\ 2))$-pseudo-convex functions. Fuzzy Sets and Systems, 430, 126-143	published
6	article in journal	yes	DOI: 10.3390/math9243212	Pap, E. (2021). Four Types of Fixed-Point Theorems for Multifunctions in Probabilistic Metric Spaces. Mathematics, 9(24), 3212	published
7	article in journal	no	DOI: 10.1016/j.fss.2021.09.004	Zhang, D., Mesiar, R., & Pap, E. (2022). Jensen's inequality for Choquet integral revisited and a note on Jensen's inequality for generalized Choquet integral. Fuzzy Sets and Systems, 430, 79-87	published
8	article in journal	no	DOI: 10.1016/j.chemosphere.2021.133154	Stojić, A., Jovanović, G., Stanišić, S., Herceg Romanić, S., Šoštarić, A., Udovičić, V., Perišić, M., Milićević, T. (2022). The PM2.5-bound polycyclic	published

				aromatic hydrocarbon behavior in indoor and outdoor environments, part II: explainable prediction of benzo [a] pyrene levels. Chemosphere, 289, 133154	
9	article in journal	no	DOI: 10.1016/j.fss.2022.06.013	Zhang, D., Mesiar, R. and Pap, E. (2022). Jensen's inequalities for standard and generalized asymmetric Choquet integrals. Fuzzy Sets and Systems	published
10	article in journal	no	ISSN: 1942-2679	Pap, E., Konjović, Z., Obradović, Đ. and Radosavljević, I. (2022). A Unified Air Quality Assessment Framework Based on Linear Fuzzy Space Theory. International Journal on Advances in Intelligent Systems, Volume 15, Number 3 & 4, 130-142.	published
11	article in journal	no	DOI: 10.1016/j.ins.2023.02.038	Zhang, D., Mesiar, R., & Pap, E. (2023). Choquet Type Integrals for Single-Valued Functions with Respect to Set-Functions and Set-Multifunctions. Information Sciences, 630, pp: 252-270.	published
12	article in journal	no	DOI: 10.1016/j.fss.2022.06.013	Zhang, D., Mesiar, R., & Pap, E. (2023). Jensen's inequalities for standard and generalized asymmetric Choquet integrals. Fuzzy Sets and Systems, 457, 119-124.	published
13	article in journal	yes	DOI: 10.3390/atmos14010109	Jovanovic L, Jovanovic G, Perisic M, Alimpic F, Stanisic S, Bacanin N, Zivkovic M, Stojic A. (2023) The Explainable Potential of Coupling Metaheuristics-Optimized-XGBoost and SHAP in Revealing VOCs' Environmental Fate. Atmosphere. 14(1):109.	published
14	publication in conference	no	DOI: 10.48550/arXiv.2106.01771	Dragić, Đ., Pap, E., Nedović, Lj. (2021) Agregacija fazi mera, The 6th Conference on Mathematics in Engineering: Theory and Applications, June 11-13th, Novi Sad, Serbia.	published
15	publication in conference	yes	DOI: 10.15308/Sinteza-2020-3-7	Nešić, N., Vidović, M., Radosavljević, I., Mitrović, A., Obradović, Đ. (2020). An End to End Learning Approach for Distance Estimation Trained with Artificially Generated Stereo Images. Paper presented at Sinteza 2020 - International Scientific Conference on	published

				Information Technology and Data Related Research.	
16	publication in conference	yes	DOI: https://doi.org/10.15308/Sinteza-2020-8-13	Perišić, M., Jovanović, G., Vranić, A., Stanišić, S. (2020). Benzene Source Apportionment Using Bivariate Correlation and Regression Analyses. Paper presented at Sinteza 2020 - International Scientific Conference on Information Technology and Data Related Research.	published
17	publication in conference	yes	DOI: https://doi.org/10.15308/Sinteza-2020-14-22	Petrović, J., Jovanović, M. (2020). Conversational Agents for Learning Foreign Languages a Survey. Paper presented at Sinteza 2020 - International Scientific Conference on Information Technology and Data Related Research.	published
18	publication in conference	yes	DOI: https://doi.org/10.15308/Sinteza-2020-23-28	Stojić, A., Mustać, B., Jovanović, G. (2020). Explainable Machine Learning Prediction of PCB-138 Behavior Patterns in Edible Fish from Croatian Adriatic. Paper presented at Sinteza 2020 - International Scientific Conference on Information Technology and Data Related Research.	published
19	publication in conference	yes	DOI: https://doi.org/10.15308/Sinteza-2020-29-34	Jovanović, G., Stanišić, S., Perišić, M. (2020). Multifractal Characteristics of Criteria Air Pollutant Time Series in Urban Areas. Paper presented at Sinteza 2020 - International Scientific Conference on Information Technology and Data Related Research.	published
20	publication in conference	yes	DOI: https://doi.org/10.15308/Sinteza-2020-35-40	Stojić, A., Matek Sarić, M., Herceg Romanić, S. (2020). Shapley Additive Explanations of Indicator PCB-138 Distribution in Breast Milk. Paper presented at Sinteza 2020 - International Scientific Conference on Information Technology and Data Related Research.	published
21	publication in conference	yes	DOI: https://doi.org/10.1530	Stanišić, S., Perišić, M., Stojić, A. (2020). The Use of Innovative Methodology for the Characterization of Benzene, Toluene, Ethylbenzene and	published

			8/Sinteza-2020-41-45	Xylene Sources in the Belgrade Area. Paper presented at Sinteza 2020 - International Scientific Conference on Information Technology and Data Related Research.	
22	publication in conference	yes	ISBN: 978-86-6060-077-8	Perišić, M., Stojić, A., Jovanović, G., Šoštarić, A., Maletić, D., Vudragović, D., Stanišić, S. (2021) The potential for forecasting the particulate matter levels in complex urban environment, International Conference of Experimental and Numerical Investigations and New Technologies - CNN TECH, 29 Jun – 02 July Zlatibor, Serbia.	published
23	publication in conference	yes	ISBN: 978-86-6060-077-8	Stojić, A., Jovanović, G., Stanišić, S., Šoštarić, A., Vranić, A., Mitrović Dankulov, M., Perišić, M. (2021) The impact of humidity and temperature on particulate matter environmental fate, International Conference of Experimental and Numerical Investigations and New Technologies - CNN TECH, 29 Jun – 02 July Zlatibor, Serbia.	published
24	publication in conference	yes	ISBN: 978-86-6060-077-8	Stanišić, S., Perišić, M., Stojić, A., Šoštarić, A., Vudragović, D., Maletić, D., Jovanović, G. (2021) The impact of gaseous pollutants on particulate matter distribution, International Conference of Experimental and Numerical Investigations and New Technologies - CNN TECH, 29 Jun – 02 July Zlatibor, Serbia.	published
25	publication in conference	yes	ISBN: 978-86-6060-077-8	Stupar, N., Vranić, A., Stojić, A., Vuković, G., Vudragović, D., Maletić, D., Mitrović Dankulov, M. (2021) Spatio-temporal analysis of mobility patterns in the city of Belgrade, International Conference of Experimental and Numerical Investigations and New Technologies - CNN TECH, 29 Jun – 02 July Zlatibor, Serbia.	published
26	publication in conference	yes	ISBN: 978-86-6060-077-8	Jovanović, G., Stanišić, S., Perišić, M., Šoštarić, A., Mitrović Dankulov, M., Vranić, A., Stojić, A. (2021) Environmental factors governing particulate	published

				matter distribution in an urban environment, International Conference of Experimental and Numerical Investigations and New Technologies - CNN TECH, 29 Jun – 02 July Zlatibor, Serbia.	
27	publication in conference	yes	ISBN: 978-86-85525-24-7	Radosavljević, I., Obradović, Đ., Konjović, Z., Mitrović, A., Gavrić, S., Vidović, M., Nešić, N. (2021) Experiment-driven system for machine learning based research management. 11th International Conference on Information Society and Technology – ICIST 2021, Mar 7-10, Kopaonik, Serbia.	published
28	publication in conference	yes	DOI: https://doi.org/10.3390/proceedings2022081116	E. Pap, Pseudo-analysis as a tool of information processing, Proceedings conference Theoretical and Foundational Problems in Information Studies (TFP), Online, 12–19 September 2021.	published
29	publication in conference	yes	ISBN: 978-86-7306-164-1	Perišić, M. (2021). The hybrid computational approach in revealing particulate matter related processes, 8th International WeBIOPATR Workshop & Conference Particulate Matter: Research and Management, Decembar 1st 2021, Belgrade, Serbia.	published
30	publication in conference	yes	ISBN: 978-86-7306-164-1	Jovanović, G., Stanišić, S., Perišić M., Šoštarić, A. and Stojić, A. (2021). Key factors governing particulate matter environmental fate in an urban environment, 8th International WeBIOPATR Workshop & Conference Particulate Matter: Research and Management, Decembar 1st 2021, Belgrade, Serbia.	published
31	publication in conference	yes	ISBN: 978-1-61208-977-5	Endre Pap, Đorđe Obradović, Zora Konjović, Ivan Radosavljević (2022). Linear Fuzzy Space Based Framework for Air Quality Assessment. INTELLI 2022: The Eleventh International Conference on Intelligent Systems and Applications, Venice, Italy, from May 22, 2022 to May 26, 2022, pp: 22-26.	published

32	publication in conference	no	http://www.aai2022.kg.ac.rs/aai-2022-papers/	Andreja M. Stojić, Mirjana D. Perišić, Gordana P. Jovanović, Svetlana M. Stanišić (2022). Artificial intelligence in revealing air pollution related processe. SICAA: 1st Serbian International Conference on Applied Artificial Intelligence, Kragujevac, Serbia, May 19-20, 2022.	published
33	chapter in monograph	no	DOI: https://doi.org/10.52305/DKIM5863	Jovanović, G., Perišić, M., Stanišić, S., and Stojić, A., 2022. Explaining Xylene Wet Deposition Using Artificial Intelligence. In Horizons in World Physics, Volume 307. Nova Science Publishers, NY, USA, ISBN: 978-1-63485-375-0, pp. 1-1.	published
34	chapter in monograph	no	ISBN: 978-1-68507-626-9	Stanišić, S., Jovanović, G. Perišić, M. Herceg Romanić, S., Milićević, T., and Stojić, A., 2022. Explaining the Environmental Fate of PAHs in Indoor and Outdoor Environments by the Use of Artificial Intelligence. In Polycyclic Aromatic Hydrocarbons: Sources, Exposure and Health Effects. Nova Science Publishers, NY, USA, ISBN: 978-1-63485-375-0, pp. 1-36.	published
35	chapter in monograph	no	ISBN: 978-3-030-72711-6	Pap, E. (2021) Mathematical base for Artificial Intelligence, in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	published
36	chapter in monograph	no	ISBN: 978-3-030-72711-6	Stojić, A., Mustać, B., Jovanović, G., Đinović Stojanović, J., Perišić, M., Stanišić, S., Herceg Romanić, S. (2021) Explainable machine learning prediction of PCB-138 behavior patterns in edible fish from Croatian Adriatic, in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	published
37	chapter in monograph	no	ISBN: 978-3-030-72711-6	Jovanović, G., Matek Sarić, M., Herceg Romanić, S., Stanišić, S., Mitrović Dankulov, M., Popović, A., Perišić, M. (2021) Patterns of PCB-138 occurrence in the breast milk of primiparae	published

				and multiparae using SHapley Additive exPlanations analysis, in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	
38	chapter in monograph	no	ISBN: 978-3-030-72711-6	Stanišić, S., Perišić, M., Jovanović, G., Maletić, D., Vudragović, D., Vranić, A., Stojić, A. (2021) What information on volatile organic compounds can be obtained from the data of a single measurement site through the use of artificial intelligence? in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	published
39	chapter in monograph	no	ISBN: 978-3-030-72711-6	Obradović, Đ., Konjović, Z., Pap, E., Šoštarić, A. (2021) The Linear Fuzzy Space: Theory and Applications, in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	published
40	chapter in monograph	no	ISBN: 978-3-030-72711-6	Pap, E., Nedović, Lj., Ralević, N. (2021) Image fuzzy segmentation using aggregated distance functions and pixel descriptors, in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	published
41	chapter in monograph	no	ISBN: 978-3-030-72711-6	Nešić, N., Vidović, M., Radosavljević, I., Mitrović, A., Obradović, Đ. (2021) A generative model for the creation of large synthetic image datasets used for distance estimation, in monograph Artificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	published
42	chapter in monograph	no	ISBN: 978-3-030-72711-6	Stanišić, N., Radojević, T., Stanić, N. (2021) Appraisal of Apartments in Belgrade using Hedonic Regression: Model Specification, Predictive Performance, Suitability for Mass Appraisal, and Comparison with Machine Learning Methods, in monograph Ar-	published

				tificial Intelligence: Theory and Applications, Springer series – Studies in Computational Intelligence.	
43	monograph	no	ISBN: 978-3-030-72711-6	Pap, E (Editor) (2021) Artificial Intelligence: Theory and Applications, Springer, Studies in Computational Intelligence 973, 2021. https://www.springer.com/gp/book/9783030727109	published
44	monograph	no	ISBN: 978-3-031-11100-6	Gavriluţ, Alina and Endre Pap (Editors). Regular Non-Additive Multi-measures. Fundaments and Applications. Vol. 448. Springer Nature, 2022. https://link.springer.com/book/10.1007/978-3-031-11100-6	published

4. References which are submitted but not accepted and published yet

	Type of scientific publication*	**Open Access (yes/no)**	**Publication status****	**Full reference title** **(list all authors, tentative title and planned journal)**	**Expected deadline for publishing**
1	article in journal	Yes	submitted	Bacanin Nebojsa, Mirjana Perisic, Gordana Jovanovic, Zivkovic Miodrag, Stanisic Svetlana, Simic Vladimir and Andreja Stojic; The explainable potential of coupling hybridized metaheuristics, XGBoost, and SHAP in revealing toluene behavior in the atmosphere. Expert Systems.	April 2023
2	article in journal	Yes	submitted	Gordana Jovanović, Mirjana Perisić, Nebojša Bačanin, Miodrag Živković, Svetlana Stanišić, Ivana Štrumberger, Filip Alimpić and Andreja Stojić. Explainable potential of coupling metaheuristics-optimized-XGBoost and SHAP in revealing PAHs' environmental fate. Toxics.	April 2023

Conclusions

Communication, dissemination, and exploitation of the results are of paramount importance to enable the maximization of the project activities impact. To that end, the project has defined and implemented a coherent, long-term communication strategy for knowledge management, entailing the development of several communication tools tailored to communicate the project highlights, raise and maintain the interest and awareness of the targeted audience, including research communities, academia, policy-makers, as well as other direct and indirect stakeholders and beneficiaries.

Besides the website for introducing the ATLAS and its activities, the central communication tool of high visibility was the ATLAS publicly available online platform. In addition to the pilot platform, the effective dissemination of the project was pursued throughout its duration, across all its activities, with the aim to raise awareness amongst the relevant population entailing:

1) 13 peer-reviewed scientific papers, 2 monographs, 10 book chapters, and 19 conference papers with conclusions and recommendations that will provide comprehensive information on the ATLAS findings relevant for the scientific community, the public and policymakers;
2) dedicated events that were arranged to coincide with major ATLAS milestones, including public meetings, organized to encourage the engagement of research community and academia, support media coverage of scientific advances, as well as to empower the relevant stakeholders with the ATLAS findings;
3) social media, including newspapers, television, social networks that generated interest by communicating public benefits of the ATLAS and its findings.