

# 20th Conference on Computer Science and Intelligence Systems (FedCSIS 2025)

## CONFERENCE REPORT

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The 20th Conference on Computer Science and Intelligence Systems (FedCSIS 2025) took place on September 14-17, 2025, in Kraków, Poland. It was chaired by Jarosław Wąs. Moreover, Tomasz Hachaj was the Chair, while Marian Bubak, Marek Grzegorowski and Łukasz Rauch, were the Co-Chairs of the Organizing Committee.

This year, FedCSIS was organized by the Polish Information Processing Society (Mazovia Chapter), IEEE Poland Section Computer Society Chapter, Systems Research Institute of Polish Academy of Sciences, The Faculty of Mathematics and Information Science Warsaw University of Technology, The Faculty of Electrical and Computer Engineering of the Rzeszów University of Technology and The Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering AGH in cooperation with The Faculty of Metals Engineering and Industrial Computer Science AGH, The Faculty of Materials Science and Ceramics AGH, and Centre for Computational Personalised Medicine SANO.

FedCSIS 2025 was technically co-sponsored by IEEE Poland Section, IEEE Poland Section Computer Society (Gdańsk) Chapter, IEEE Czechoslovakia Section Computer Society Chapter, IEEE Poland Section Systems, Man, and Cybernetics Society Chapter, IEEE Serbia and Montenegro Section Computational Intelligence Society Chapter, IEEE Serbia and Montenegro Section Young Professionals Affinity Group, Committee of Computer Science of the Polish Academy of Sciences and Mazovia Cluster ICT.

FedCSIS 2025 was organized in collaboration with the Strategic Partner QED Software, and sponsored by Intel+Lenovo, Jupiter as well as MDPI Electronics, MDPI Applied Sciences and MDPI AI journals. Moreover, FedCSIS 2025 has been conducted under Honorary Patronages of Professor Jerzy Lis, Rector of the AGH University of Kraków and of Aleksander Miszalski, Mayor of Krakow, as well as under patronages of the Ministry of Digital Affairs of the Republic of Poland, Polish Artificial Intelligence Society (PSSI), Forum Akademickie and Naukowe Towarzystwo Informatyki Ekonomicznej. Finally, media patronage was provided by Krakow.pl, TVP Info, TVP3 Kraków, and Kraków Convention Bureau.

This year, the structure of the conference remained the same as last year. FedCSIS 2025 had a single Main Track with 5 Topical Areas. The Main Track was supported by 12 Thematic Sessions and a Machine Learning Competition. Such structure emphasizes the integrity of the conference and its closeness to the issues that are crucial for the world around us. Here, we recognize the fact that today (in 2025) it is difficult to envision research (and its applications) without an intelligence component. Reflecting this, all five Topical Areas, which constitute the Main Track, represent various aspects of Intelligence Systems. Moreover, the Thematic Sessions provide further insights into selected areas of Intelligence Systems, approached from different perspectives.

### I. CONFERENCE STRUCTURE

Specifically, the designated Topical Areas were:

- Topical Area 1: Advanced Artificial Intelligence in Applications
- Topical Area 2: Computer Science & Systems
- Topical Area 3: Network Systems and Applications
- Topical Area 4: Information Technology for Business and Society
- Topical Area 5: Software, System and Service Engineering

Moreover, the following Thematic Sessions enriched the program of FedCSIS 2025:

- AgriAI – AI in Agriculture
- AI-HuSo – AI in Digital Humanities, Computational Social Sciences and Economics Research
- APL – Advances in Programming Languages
- CANA – Computer Aspects of Numerical Algorithms
- CNLPS – Challenges for Natural Language Processing
- CO – Computational Optimization
- DSH – Data Science in Health, Ecology and Commerce
- EDUC-AI-TION – Education & AI systems

- ISM – Information Systems Management
- MDASD – Model Driven Approaches in System Development
- NEMESIS – International Forum on Cyber Security, Privacy, and Trust
- SLSAS – Self Learning and Self Adaptive Systems

## II. INVITED CONTRIBUTIONS

FedCSIS 2025 invited four keynote speakers to deliver lectures providing a broader context for the conference participants. Presentation abstracts and slides can be found within the conference WWW site, while contributions related to their presentations can be found in conference Proceedings.

- Damaševičius, Robertas, Kaunas University of Technology, Lithuania  
*Keynote title: AI-Driven Innovations in Brain Cancer Research*
- Dustdar, Schahram, TU Wien, Austria  
*Keynote title: Active Inference for Distributed Intelligence in the Computing Continuum*
- Jonker, Catholijn, TU Delft (main affiliation), Leiden University, Vrije Universiteit Amsterdam, Netherlands  
*Keynote title: Hybrid Human-AI Intelligence to Strengthen the Reflective and Learning Capacity of Organisations*
- Plank, Barbara, LMU Munich, Germany  
*Keynote title: Human-centered LLMs for Inclusive Language Technology*

Moreover, four past FedCSIS keynote speakers have been invited to prepare special contributions that refer to the core focus of the conference series. These were:

- Atiquzzaman, Mohammed, University of Oklahoma, USA  
*Contribution title: Q-ID: A Reinforcement Learning Framework for Adaptive Intrusion Detection*
- Blum, Christian, Artificial Intelligence Research Institute, Spain  
*Contribution title: Optimizing the Optimizer: An Example Showing the Power of LLM Code Generation*
- Luković, Ivan, University of Belgrade, Serbia  
*Contribution title: New Education Challenges in Profiling Digital Experts for a Digital Economy Era*
- Skowron, Andrzej, Systems Research Institute Polish Academy of Sciences, Poland  
*Contribution title: Interactive Granular Computing: Toward Computing Model for Complex Intelligent Systems*

Let us stress that videos of the keynote presentations and of invited contributions, delivered during the FedCSIS 2025 conference, are available on the conference website ([www.fedcsis.org](http://www.fedcsis.org)). We warmly encourage you to visit the website and watch these recordings to gain additional insights and perspectives shared by distinguished speakers.

Finally, as part of the official Conference Opening, a special presentation, entitled: *Paths to Zero Emission Computing – Reducing Energy Consumption, and carbon emissions in HPC and AI environments*, was delivered by Tikiri Wanduragala, Technology Leader Lenovo Infrastructure Solutions Group (ISG), Lenovo UK and Ireland. An extended abstract, outlining main points of this presentation, can be found in the Position papers of FedCSIS 2025 volume, published in the Annals of Computer Science and Information Systems book series.

## III. FEDCSIS 2025 COMPETITION – PREDICTING CHESS PUZZLE DIFFICULTY, SECOND EDITION

FedCSIS 2025 Challenge was entitled: Predicting Chess Puzzle Difficulty – Second Edition. It was the 11th data science challenge, organized within the scope of FedCSIS conference series. The goal was to build a model to predict the difficulty (measured as Lichess rating) of given chess puzzles. The 2025 competition was organized by:

- Ślęzak, Dominik, QED Software and University of Warsaw, Poland
- Ślęzak, Michał, Polish-Japanese Academy of Information Technology, Poland
- Świechowski, Maciej, Grail Team, Poland
- Zyśko, Jan, University of Warsaw, Poland

This year, 42 teams participated in the competition. They, collectively, submitted 1185 solutions. Team members represented 16 different countries from around the world, with largest number of representatives coming from Poland, Germany, United States and Singapore. After evaluation, the following contributions, found also in conference Proceedings volume, discuss the winning solutions:

- First place: Sebastian Björkqvist, Estimating the Difficulty of Chess Puzzles by Combining Fine-Tuned Maia-2 with Hand-Crafted and Engine Features
- Second place: Tyler Woodruff, Luke Imbing, Marco Cогnetta, The bread emoji Team’s Submission to the 2025 FedCSIS Predicting Chess Puzzle Difficulty Challenge
- Third place: Szymon Miłoz, Pretraining Transformers for Chess Puzzle Difficulty Prediction

#### IV. PROFESSOR ZDZISŁAW PAWLAK AWARD

The, above-described, five Topical Areas of the FedCSIS Main Track reflect the five fundamental aspects of understanding, developing, and applying Intelligence Systems. This topical integrity is emphasized by the Professor Zdzisław Pawlak Award, presented in four categories: Best Paper, Young Researcher, Industry Cooperation, and International Cooperation. Here, note that although Professor Zdzisław Pawlak has been often recognized as “the father of Polish AI”, his research achievements have gone far beyond AI itself, in particular toward AI applications and Intelligence Systems as we understand them. Accordingly, for this award contributions from the Main Track and from all Thematic Sessions are considered. This year, the following contributions have been awarded:

- In the category *Best Paper*: Preiß, Niklas and Westner, Markus, From Agents to Copilots: A Systematic Review of Digital Assistant Technology Adoption in Proprietary Productivity Software
- In the category *Young Researcher*: Lorenz, Alisa, A New Dimension of Acceptance? Introducing Perceived Public Value as Extension of UTAUT in the Smart City Context
- In the category *Industry Cooperation*: Sadel, Jakub, Tarasiewicz, Tomasz, Kowaleczko, Paweł, Ziaja, Maciej, Kostrzewa, Daniel, Benecki, Paweł and Kawulok, Michał, Keypoint-based metric for evaluating image super-resolution quality
- In the category *International Cooperation*: De Maeyer, Wannes, Van Overberghe, Steven, Cornelis, Chris and Restrepo Lopez, Mauricio, Estimating the entropy of covering-based rough set approximation operators

Young Researcher Award was sponsored by the MDPI Applied Sciences Journal, International Cooperation Award was sponsored by the MDPI AI Journal, Industry Cooperation Award was sponsored by the MDPI Electronics Journal, while the Best Paper Award was sponsored by the Mazovia Branch of Polish Information Processing Society.

Here, let us also note that Professor Zdzisław Pawlak Awards have been presented to authors of best papers since 2006. Complete list of past winners can be found on the conference WWW site.

#### V. STATISTICS

Each contribution, submitted to FedCSIS 2025, was refereed by at least two referees and the acceptance rate of regular full papers was approximately 18.66% (47 accepted contributions, out of a total of 209 submissions representing 48 countries and 6 continents). Since we live in times when “data is the new oil”, the long-term trend of acceptance of regular full papers is depicted in Figure 1. Note that this year the lowest, thus far, acceptance rate for regular full papers has been recorded. Detailed information, concerning acceptance rates of regular full papers, since 2005, has been depicted in Figure 1.

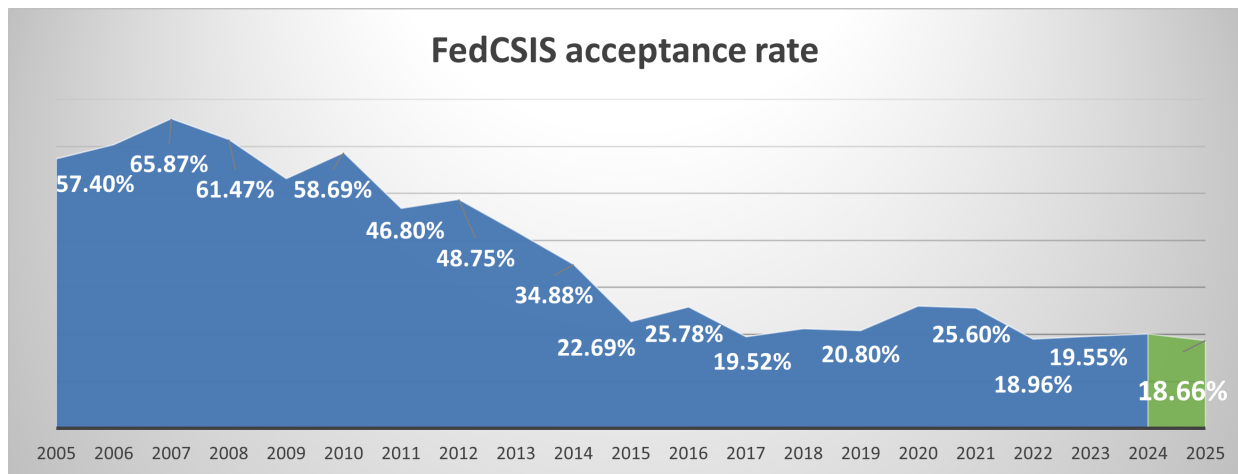


Figure 1. Acceptance rate for the regular full papers for the FedCSIS conference series since 2005 (when FedCSIS predecessor – IMCSIT – was organized for the first time).

#### VI. FEDCSIS INDEXATION

While this is a report from the 2025 edition of FedCSIS, we would also like to share the most recent developments related to bibliometrics and conference indexation. All conference materials are indexed in DBPL, CrossRef, DOAJ Directory of Open Access Journals, Index Copernicus. Moreover, Proceedings of FedCSIS 2024 have been included in Scopus and Web of Science. This allows us to provide the most recent (March 2026) H indexes of FedCSIS in both repositories (in Figure 2 and 3).

Separately, we have submitted Annals of Computer Science and Information Systems (where all post-FedCSIS materials are published) to be evaluated by Index Copernicus. We have obtained score of 100. This is the highest score available for publication that does not have complete coverage in Scopus and Web of Science. In addition, the conference is ranked at Level 1 in the JUFO portal ranking

## Citation overview

For 2,016 documents

2,016 Documents | 17,880 Citations | 43 h-index

Date range: 2011 to 2025

Exclude citations Hide documents with 0 citations Export

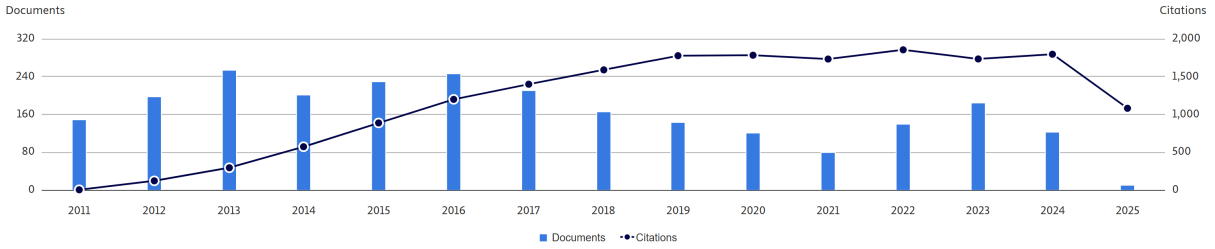


Figure 2. Bibliometrics of FedCSIS according to Scopus.

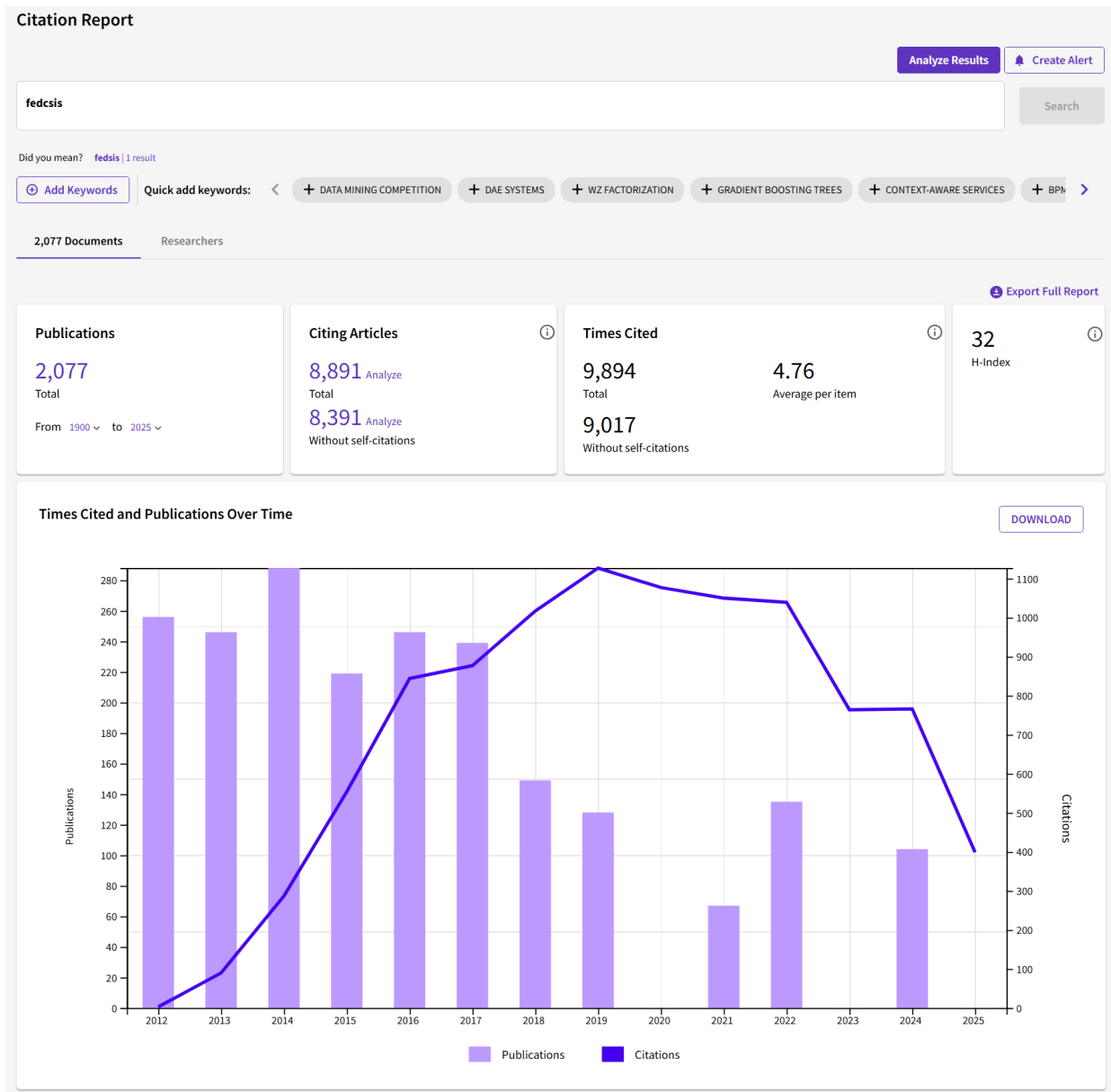


Figure 3. Bibliometrics of FedCSIS according to Web of Science.

## VII. POST CONFERENCE PUBLICATIONS

As a result of the conference three volumes have been published: (i) Conference Proceedings, (ii) Position Papers and (iii) Communication Papers.

Conference materials were initially published on the conference WWW site (as Preprints). After the conference, final versions of full and short papers have been indexed in the IEEE Digital Library (ART: ISBN 978-83-973291-7-1, IEEE Catalog Number CFP2585N-ART, Web: ISBN 978-83-973291-6-4, ISSN 2300-5963, DOI 10.15439/978-83-973291-6-4); furthermore, they will be sent to the Scopus and the Clarivate Web of Science for indexing. Position Papers and Communication Papers were published as a separate volumes (ISSN 2300-5963; ISBN 978-83-973291-8-8, DOI: 10.15439/978-83-973291-8-8, for the Position Papers volume, and ISBN 978-83-973291-9-5, DOI: 10.15439/978-83-973291-9-5 for the Communication Papers volume). Moreover, Proceedings, Position Papers and Communication Papers of the FedCSIS 2025 Conference (in their final version) were posted at the conference WWW site – available through the Archive section of the [www.fedcsis.org](http://www.fedcsis.org) web-site (alongside publications from all past conferences). It should be stressed that only papers presented in the conference were published in either form (the FedCSIS conference series strictly adheres to the “IEEE No-show Policy”).

## VIII. FEDCSIS IN PICTURES

Let us also share a few pictures, taken during FedCSIS 2025.



Figure 4. Conference opening in the Main Aula of the AGH University of Krakow



Figure 5. Professor Catholijn Jonker delivering her keynote lecture.



Figure 6. Participants listening to keynote delivered by Professor Robertas Damaševičius



Figure 7. Professor Schahram Dustdar delivering his keynote lecture.



Figure 8. Thematic session in progress



Figure 9. Maria Ganzha introducing keynote lecture by Professor Barbara Plank.



Figure 10. Family picture in front of the conference site.

Respectfully submitted by the facilitators of the FedCSIS Conference Series.

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