PREPRINT

The Silver Jubilee of the Rzeszów School of Rough Sets and Petri Nets (2001–2026)

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Abstract

This article celebrates the 25th anniversary of the founding of the Rough Set and Petri Net Research Group (2001–2026). We trace the institutional evolution of this research collective from its origins at the University of Information Technology and Management in Rzeszów to its current home at the Institute of Computer Science of the University of Rzeszów. Over the past quarter-century, the group has become a vital hub for research in rough sets, Petri nets, concurrent systems, and data mining, significantly contributing to both local academic development in the Podkarpacie region—including the establishment of the university's computer science degree program—and the global computational intelligence community.

1 Introduction

The year 2026 marks the **Silver Jubilee of the Rough Set and Petri Net Research Group** (RSPN), a distinguished research collective that has spent twenty-five years advancing the frontiers of artificial intelligence, formal modeling, and knowledge discovery. Founded in **2001**, the group was envisioned as a collaborative space to bridge theoretical computer science with practical decision-support systems.

Over the last 25 years, the group's research focus—primarily centered around Zdzisław Pawlak's theory of rough sets and Carl Adam Petri's net theory—has evolved dynamically to meet the challenges of themodern data-driven era. This article provides a comprehensive overview of the group's rich history, its core scientific pillars, key publications, developed software systems, and its profound impact on promoting computer science in southeastern Poland. For a comprehensive and regularly updated overview of the group's current activities, full publication records, and complete historical archives, readers are encouraged to visit the official online platforms hosted by the University of Rzeszów.

2 Institutional Evolution and History

The institutional journey of the RSPN Research Group reflects its growth, adaptability, and increasing academic prestige within the Polish higher education ecosystem:

- **2001 – 2006: The Foundation Era at UITM Rzeszów**
  The group was officially established in **2001** within the Department of Foundations of Computer Science at the **University of Information Technology and Management (UITM)** in Rzeszów. During these formative years, the core research agenda was set, focusing on concurrent data mining and rough set foundations.

- **2006 – 2022: Transition to the University of Rzeszów**
  In **2006**, the group transitioned to the **University of Rzeszów (UR)**, embedding its operations within the Department of Computer Science. This move expanded the group's access to young talents, academic resources, and local research grants. Crucially, the group's presence and activities during this period became foundational for establishing the formal computer science degree program at the university.

- **2022 – Present: The Institute of Computer Science Era**
  Following structural reorganizations at the University of Rzeszów, the group now operates proudly within the newly established **Institute of Computer Science** (Faculty of Exact and Technical Sciences). This current phase is characterized by an increased focus on integrating classical AI models with modern machine learning techniques.

3 Main Research Orientations

The scientific agenda of the RSPN Research Group focuses heavily on the synergy between Zdzisław Pawlak's rough set theory, fuzzy sets, and Petri nets. The primary goal is solving complex problems in computational intelligence, automated knowledge discovery, and data mining. The group's specialized investigation domains include:

- **Concurrent Systems Modeling and Discovery:** Developing methodologies for synthesizing concurrent processes and discovering asynchronous concurrent models directly from experimental data tables.

- **Approximate and Fuzzy Reasoning:** Designing rule-based systems and approximate reasoning algorithms embedded within extended, rough, or fuzzy Petri net structures to guide automated decision-making processes under uncertainty.

- **Pattern Recognition and Data Reduction:** Researching multi-stage approaches to data classification, dimensionality reduction, feature selection, and efficient constraint-based clustering.

- **Distributed Algorithms and Applied CI:** Extracting distributed control algorithms from data and using computational intelligence (CI) frameworks for real-world setups like robotic control and real-time system monitoring.

4 Bibliometric Analysis and Research Output

A comprehensive analysis of the group's bibliography reveals a highly productive, balanced, and collaborative scientific trajectory over the past 25 years. The group's output reflects a strong presence in international publication channels, demonstrating both mathematical rigor and an applied focus on artificial intelligence.

4.1 Statistical Overview of Publications

The distribution of the group's academic works shows a strategic focus on peer-reviewed international channels. Conference proceedings represent approximately 50% of the aggregate output, emphasizing the group's active participation in global AI, granular computing, and concurrency forums. Peer-reviewed journal articles comprise roughly 35% of the output, frequently appearing in high-impact repositories like *Fundamenta Informaticae* and Springer's *Lecture Notes in Computer Science* (LNCS) or *Lecture Notes in Artificial Intelligence* (LNAI) series. The remaining 15% consists of authored monographs, edited volumes, and specialized book chapters.

Table 1: Estimated Statistical Distribution of the RSPN Research Group Publications.

Publication Channel Type	Percentage	Primary Theoretical Domain Focus
Conference Proceedings	50%	Petri Nets & Concurrency (approx. 35%)
Journal Articles & LNCS/LNAI	35%	Rough Set Theory Foundations (approx. 40%)
Monographs & Edited Volumes	15%	Applied Computational Intelligence (approx. 25%)

4.2 Co-authorship and Collaborative Networks

The group features an exceptionally high collaborative index. Over 90% of all documented publications are co-authored, showcasing a deeply integrated internal team structure and an expansive international network. This collaborative model links the University of Rzeszów with leading computational intelligence centers worldwide, fostering continuous academic exchange and joint grant initiatives.

4.3 Selected High-Impact Publications

The following works represent foundational literature and notable advancements authored by the group members:

1. Suraj, Z., Grochowalski, P.: Beyond the Black Box: A Novel Paradigm for Knowledge Representation and Decision-Making via Uninorm Petri Nets. *International Journal of Applied Mathematics and Computer Science (AMCS)*, 2026 (in press).

2. Suraj, Z., Grochowalski, P.: Navigating Uncertainty: A Framework for Benchmarking Decision Quality in Fuzzy Petri Nets. In: *Proceedings of the 26th International Conference on Computational Science (ICCS 2026)*, Hamburg, Germany, June 29 – July 1, 2026, Lecture Notes in Computer Science, Vol. 16788, Springer Nature, 2026, pp. 386–393.

3. Suraj, Z., Grochowalski, P.: A Novel Methodology for the Strategic Optimization of Uninorm Petri Nets in Intelligent Information Systems. In: *Proceedings of the 34th International Conference on Information Systems Development (ISD 2026)*, Prague, Czech Republic, September 2–4, 2026.

4. Suraj, Z., Grochowalski, P., Drygaś, P.: Automated Discovery of Concurrent Models of Decision-Making Systems from Data. In: *Proceedings of the 24th International Conference on Computational Science (ICCS 2024)*, Málaga, Spain, July 2–4, 2024, Lecture Notes in Computer Science, Springer, Vol. 14833, 2024, pp. 219–234.

5. Suraj, Z., Grochowalski, P., Drygaś, P.: Influence of Fuzzy Petri Net Operating Mode on Decision-Making. *Procedia Computer Science*, Vol. 246, Elsevier, 2024, pp. 2449–2458.

6. Suraj, Z., Grochowalski, P.: The RSDS – Bibliographic Database for Rough Sets and Related Fields. In: *Transactions on Rough Sets XXIII*, Lecture Notes in Computer Science, Vol. 13610, Springer Nature Switzerland AG, December 2022, pp. 99–117.

7. Suraj, Z., Olar, O., Bloshko, Y.: Modeling of Passenger Transport Logistics Based on Intelligent Computational Techniques. *International Journal of Computational Intelligence Systems*, Vol. 14, No. 173, Springer, 2021.

8. Suraj, Z., Grochowalski, P.: PNeS in Modelling, Control and Analysis of Concurrent Systems. In: *Proceedings of the 19th World Congress of the International Fuzzy Systems*

Association (IFSA 2021), Bratislava, Slovakia, September 19–24, 2021, Lecture Notes in Artificial Intelligence, Vol. 12872, Springer Nature, 2021, pp. 279–309.

9. Suraj, Z., Hassanien, A. E.: Fuzzy Petri Nets and Interval Analysis Working Together. In: R. Bello et al. (eds.), *Uncertainty Management with Fuzzy and Rough Sets*, Studies in Fuzziness and Soft Computing, Vol. 377, Springer, 2018, pp. 395–413.

10. Suraj, Z., Lasek, A., Lasek, P.: Inverted Fuzzy Implications in Approximate Reasoning. *Fundamenta Informaticae*, Vol. 143, Nos. 1-2, IOS Press, Amsterdam, 2016, pp. 151–171.

11. Suraj, Z., Grochowalski, P., Bandyopadhyay, S.: Flexible Generalized Fuzzy Petri Nets for Rule-based Systems. In: *Proceedings of the 5th International Conference on the Theory and Practice of Natural Computing (TPNC 2016)*, LNCS, Vol. 10071, Springer, 2016, pp. 196–207.

12. Suraj, Z., Pancerz, K.: ROSECON: a Computer Tool for Synthesis and Verification of Concurrent Systems Specified by Information Systems. *Fundamenta Informaticae*, Vol. 126, No. 4, IOS Press, Amsterdam, 2013, pp. 335–351.

13. Delimata, P., Moshkov, M., Skowron, A., Suraj, Z.: Inhibitory Rules in Data Analysis. A Rough Set Approach. *Studies in Computational Intelligence*, Vol. 163, Springer-Verlag, Berlin, 2008.

14. Moshkov, M., Skowron, A., Suraj, Z.: Maximal Consistent Extensions of Information Systems Relative to Their Theories. *Information Sciences*, Vol. 178, No. 12, Elsevier, 2008, pp. 2600–2620.

15. Suraj, Z., Fryc, B.: Analysis of Approximate Petri Nets by Means of Occurrence Graphs. In: G. Lindemann, H. Schlingloff, H. D. Burkhard, L. Czaja, W. Penczek, A. Salwicki, A. Skowron, Z. Suraj (eds.), Special Volume with Selected Papers from CS&P 2006 Workshop, *Fundamenta Informaticae*, Vol. 79, Nos. 3-4, IOS Press, Amsterdam, 2007, pp. 541–551.

16. Pancerz, K., Suraj, Z.: Discovery of Asynchronous Concurrent Models from Experimental Tables. *Fundamenta Informaticae*, Vol. 61, No. 2, IOS Press, Amsterdam, 2004, pp. 97–116.

17. Pancerz, K., Suraj, Z.: Synthesis of Petri Net Models: A Rough Set Approach. *Fundamenta Informaticae*, Vol. 55, No. 2, IOS Press, Amsterdam, 2003, pp. 149–165.

18. Pawlak, Z., Peters, J. F., Skowron, A., Suraj, Z., Ramanna, S., Borkowski, M.: Rough Measures and Integrals: A Brief Introduction. In: T. Terano et al. (eds.), *New Frontiers in Artificial Intelligence*, Joint JSAI 2001 Workshop Post-Proceedings, Lecture Notes in Artificial Intelligence, Vol. 2253, Springer-Verlag, Berlin, 2001, pp. 375–379.

19. Peters, J. F., Skowron, A., Suraj, Z., Pedrycz, W., Ramanna, S.: Approximate Real-Time Decision Making: Concepts and Rough Fuzzy Petri Net Models. *International Journal of Intelligent Systems*, Special Issue: Threads in Fuzzy Petri Nets Research, 2001.

4.4 Major Research Grants and Projects

The theoretical work of the RSPN group has been consistently supported by institutional grants and domestic/international research initiatives. The research team led by Z. Suraj has a dynamic track record of international and national project execution, spanning key advancements in rough set theory, process mining, and knowledge discovery. Significant milestones and collaborative initiatives include:

- **International Research & Capacity Building:** In November 2011, Z. Suraj independently carried out a research task within the project "Can Rough Sets Be Useful for Process Mining?" at the Division of Computer, Electrical and Mathematical Sciences and Engineering, King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. This initiative was part of a broader EU-funded project, "Building the educational capacity of the University of Rzeszów in accordance with European standards," co-financed by the European Social Fund and KAUST.

- **Fulbright Academic Exchange:** The team successfully promoted high-level international exchange by organizing and supporting the academic visit of Prof. Roman Świniarski from the Department of Computer Science at San Diego State University (USA) to the University of Information Technology and Management (UITM) in Rzeszów (July–August 2003). This visit was fully funded under the prestigious Fulbright Senior Specialists Program, with Z. Suraj serving as the project manager.

- **Foundational Knowledge Discovery:** Z. Suraj acted as the principal investigator (project manager) for the ministerial project "Methods for Automatic Knowledge Discovery from Data Tables Based on Rough Set Theory and Related Approaches" (UITM Rzeszów, 2005–2007, independent research project no. 3 T11C 005 28), funded by the Ministry of Science and Information Technology.

- **Process Modeling & Concurrency:** In close collaboration with the research team directed by Professor Andrzej Skowron from the University of Warsaw, the RSPN group made significant contributions to concurrent systems. Z. Suraj independently executed key tasks within two major research projects funded by national science ministries: "Discovering Concurrent Process Models from Experimental Data" (2008–2011, project no. N N516 368334) and "Connections Between Rough Set Theory and Concurrency Theory" (2000–2003, State Committee for Scientific Research project no. 8 T11C 025 19, focusing on the synthesis of concept approximations).

5 Software Systems and Digital Tools

A key pillar validating the theoretical frameworks developed by the RSPN group is the design and implementation of specialized computer systems. These systems serve a dual purpose: conducting experimental verification of algorithms using massive datasets and supporting university-level teaching:

- **Rough Set Database System (RSDS):**
  Operated continuously from **2003 to 2025** (formerly accessible at `https://rsds.ur.edu.pl`), RSDS is a flagship global bibliographic service for researchers in rough sets and related disciplines. Co-developed by Dr. Piotr Grochowalski, the system implements advanced semantic, ontological, and intelligent text database searching to assist international citation and metadata analyses.

  As a special tribute to Professor Zdzisław Pawlak's monumental scientific contributions, the creators of RSDS implemented an automated metric inspired by the Erdős number: the **Pawlak Number**. The system automatically evaluates the Pawlak Number of the 1st kind (direct co-authorship with Prof. Pawlak) and the 2nd kind (calculated via the co-authorship distance graph). The RSPN group proudly maintains a direct academic lineage, featuring this distinctive metric within its research core.

- **Experimental Software Suites:**
  Over the group's history, a total of **6 specialized computer systems** have been developed

by its members to support theoretical calculations and system simulations. Among these, two platforms deserve exceptional recognition:

- **PNeS (Petri Net System):** An integrated graphical software environment designed for constructing, modifying, analyzing, and simulating classic, fuzzy, and adaptive fuzzy Petri nets. PNeS serves as an expert platform for verifying concurrent properties and has been extended to support the automated logical control of mobile robotic workflows under uncertain environments.
- **ROSECON (ROugh SEts and CONcurrency):** An original computer tool specifically engineered for the automatic synthesis, reconstruction, and verification of concurrent models directly from information systems and experimental data tables. Rooted in Pawlak's rough set theory, ROSECON derives structural rules to output predictive Coloured Petri Nets, allowing researchers to closely cooperate with PNeS for advanced verification pipelines.

6 Educational Legacy and Regional Impact

Beyond international research papers, the group plays an indispensable role as a "foundry of talent" and digital memory hub in southeastern Poland:

- **Academic Mentorship and Scientific Advancement:**
  The group has successfully guided the academic development of its members. Within its long-standing research framework, a total of **5 PhD degrees** in computer science, **1 PhD degree** in mathematics, **1 PhD** in social informatics, **1 PhD** in automation and robotics, and **3 DSc/Habilitation** degrees (all in computer science) have been conferred.
- **The "Matematycy i Informatycy Podkarpacia+" Portal:**
  In **2013**, a dedicated science and knowledge portal was conceptualized and launched. Its ongoing mission is preserving the historical memory and popularized achievements of prominent mathematicians and computer scientists historically or professionally rooted in the Podkarpacie region.
- **Organization of High-Profile Scientific Conferences:**
  The group has an established track record of driving global and regional scientific integration through major domestic and international symposiums:
  - *Soft Computing and Distributed Processing (SCDP):* The group independently organized and hosted the international conference *SCDP 2001* in Rzeszów. Crucially, **Professor Zdzisław Pawlak personally attended SCDP 2001 as a Keynote Speaker**, providing foundational momentum and directly blessing the early initiatives of the Rzeszów research school.
  - *Concurrency, Specification and Programming (CS&P):* In close collaboration with **Humboldt University in Berlin** and the **University of Warsaw**, members of the group successfully co-hosted three prominent editions of this international workshop: in **Czarna (2003)**, **Ruciane-Nida (2005)**, and **Rzeszów (2015)**.
  - *Regional Conferences:* In partnership with the **Rzeszów University of Technology**, the **Łódź University of Technology**, and the **State Higher Vocational School in Chełm** (PWSZ Chełm), the group co-organized over a dozen editions of the "Środowiskowa Konferencja Matematyczno-Informatyczna" (Regional Mathematical and Computer Science Conference).
- **Editorial Contributions to the Rough Set Community:**
  The group's academic footprint extends heavily into core editorial roles for the global

community. Members have actively served on the Editorial Board of Springer's flagship journal series, ***Transactions on Rough Sets***. Furthermore, a major milestone was reached in **2013** through the co-editing of the definitive two-volume tribute anthology published by Springer: *Rough Sets and Intelligent Systems – Professor Zdzisław Pawlak in Memoriam* (Volumes 1 and 2).

6.1 Seminar Activities: Quantitative and Qualitative Analysis

The structural core of the RSPN group's internal knowledge transfer relies heavily on its dedicated scientific seminars directed across multiple periods: at UITM Rzeszów (2001–2006) and the University of Rzeszów (2011–2022, and its ongoing iterations through 2024–2026).

6.1.1 Statistical Profile of Authors and Affiliations

An analysis of the registration logs for the RSPN and joint institutional seminars (such as the recurring UR–UŚ Katowice symposiums) indicates a highly collaborative framework capable of engaging multi-institutional networks:

- **Internal Research Core (approx. 45%):** Dominated by core members from the University of Rzeszów who focus on fundamental theory modifications, algorithmic synthesis, and institutional research evaluation.
- **Domestic External Network (approx. 40%):** Prominent researchers from major Polish computing centers, notably the University of Silesia, Warsaw University, and regional applied sciences centers.
- **International Affiliations (approx. 15%):** Guest speakers and joint-paper authors linking the group to renowned global institutions in Germany, Saudi Arabia (KAUST), Sweden (Uppsala University), and Canada.

6.1.2 Thematic Distribution of Seminar Topics

As detailed in Table 2, the seminars exhibit a balanced distribution between non-classical Petri nets and rough set foundations, which together constitute nearly two-thirds of the total research deliverables. This core theoretical focus is complemented by robust investigations into distributed systems, demonstrating the group's capacity to apply foundational algebraic models to complex network environments. Furthermore, a dedicated portion of the seminar curriculum is systematically allocated to academic and discipline evaluation, ensuring that advanced technical benchmarks and scientific metrics guide the continuous quality control of the school's research outputs.

Table 2: Thematic Clustering and Prevalence of RSPN Seminar Deliverables.

Thematic Cluster	**Estimated Share**	**Key Exemplary Sub-topics**
Non-classical & Fuzzy Petri Nets	35%	Prioritized nets, knowledge-based real-time systems.
Rough Sets & Concept Drifts	30%	Feature ranking, missing values, classification data tables.
Distributed Systems	20%	Distributed knowledge aggregation, hexagonal grid worlds.
Academic & Discipline Evaluation	15%	Technical computer science benchmarks, metric analyses.

6.1.3 Strategic Insights and Conclusions

Based on the longitudinal evaluation of the RSPN seminar logs, three primary scientific conclusions can be derived:

1. **Shift to Hybridized AI Models:** The historical trajectory of topics shows a distinct movement from pure, classical Petri Nets and Pawlak rough set definitions toward hybrid systems (e.g., *Flexible Generalized Fuzzy Petri Nets with Priorities*). This proves the group's adaptability in addressing real-time sensor measurements and incomplete datasets typical for modern Big Data.

2. **High Institutional Interoperability:** The strong turnout of external co-authors and reciprocal seminars indicates that RSPN does not operate in isolation. It serves as an active regional catalyst, combining theoretical data reduction methods with concrete engineering outputs.

3. **Robust Pipeline for Peer-Review Integrity:** The integration of seminar presentations with doctoral monitoring ensures that theoretical breakthroughs are rigorously scrutinized internally before progressing to high-tier international publication venues (such as *AMCS*, *Fundamenta Informaticae*, *International Journal of Computational Intelligence Systems*, *LNCS/LNAI*, or *Procedia Computer Science*).

7 Conclusion and Future Perspectives

Over its 25-year history, the Rough Set and Petri Net Research Group has transformed from a localized unit into a mature, internationally recognized research hub. By combining the discrete mathematical precision of Petri nets with the robust data reduction properties of rough sets, the group continues to deliver relevant solutions to modern AI problems. As the group faces the next era within the Institute of Computer Science at the University of Rzeszów, its rich heritage guarantees further innovative contributions to intelligent systems, big data analytics, and concurrent workflows.

Appendix: The RSPN Research Community Network

Based on historical institutional records, the active research core and global collaboration network of the group over the past quarter-century comprise the following individuals:

Core Research Group Members

The following 23 researchers from Poland form the structural foundation of the RSPN group:

- P. Delimata, P. Drygaś, B. Fryc (Olejko), K. Garwol, P. Grochowalski, M. Knap, M. Kozdrański, W. Kozioł, A. Lasek, P. Lasek, P. Leończyk, Ł. Lew, Ł. Maciura, Z. Matusiewicz (Makara), G. Owsiany, W. Paja, A. Paluch, K. Pancerz, T. Ruchlewicz, W. Rząsa, G. Szostek, R. Szostek, J. Wojtowicz.

Collaborating Persons and Global Affiliations

The group's international and domestic collaborative framework includes 73 scientists across 14 nations:

- **Poland:** J. Andreasik, P. Artiemjew, D. Bober, J. Bytnar, L. Czaja, L. Gajecki, L. Gniewek, Z. Hippe, M. Kryszkiewicz, M. Kwaśnik, M. Matczak, M. Nycz, M. Pałasiński, L. Pelc, W. Penczek, M. Piętal, M. Piróg-Mazur, L. Polkowski, L. Pyziak, L. Rolka, H. Rybiński,

A. Salwicki, R. Słowiński, D. Ślęzak, A. Skowron, M. Sochacka-Piętal, J. Stankiewicz, M. Szczuka, J. Szkoła, T. Szmuc, M. Szpyrka, J. Tocki, I. Tralle, A. Wakulicz-Deja, J. Winkowski, P. Witkowski, K. Wojciechowski, J. Zając, B. Zielosko, P. Zięba.

- **Canada:** M. Borkowski, I. Düntsch, P. Lingras, W. Pedrycz, J. F. Peters, S. Ramanna, J.-T. Yao.
- **China:** F. Min, G. Wang.
- **Egypt:** N. El Gayar, A. E. Hassanien.
- **Germany:** H. D. Burkhard, G. Lindemann, H. Schlingloff.
- **Hungary:** T. Mihálydeák.
- **India:** S. Bandyopadhyay, M. Banerjee, S. K. Pal.
- **Italy:** D. Ciucci.
- **Portugal:** L. Baptista.
- **Saudi Arabia:** M. Moshkov.
- **Spain:** J. Serrano-Guerrero.
- **Sweden:** J. Komorowski.
- **Ukraine:** Y. Bloshko, L. Dobuliak, O. Nakonechny, O. Olar, A. Provotar, B. Rytsar, P. Venherskyi.
- **USA:** J. Grzymała-Busse, J. Konrad, R. Świniarski.

Acknowledgments

On the momentous occasion of the 25th anniversary of the Rough Set and Petri Net Research Group, the authors wish to express their deepest gratitude to everyone who has contributed to the group's scientific journey, growth, and enduring legacy since 2001.

Special and profound recognition is uniquely dedicated to **Professor Andrzej Skowron** from the University of Warsaw. As a long-standing mentor to the members of the RSPN group, Professor Skowron's exceptional substantive, intellectual, and organizational support has been foundational. Without his guidance, neither the official formation of this group nor the development of prominent computer science research and the establishment of the computer science degree program in Rzeszów would have been possible.

Furthermore, we would like to express our heartfelt gratitude and appreciation to our distinguished international colleagues for their decades of inspiring scientific collaboration: Prof. James F. Peters, Prof. Sheela Ramanna, Prof. Mikhail Moshkov, Prof. Roman Świniarski, Prof. Jan Komorowski, Prof. Aboul Ella Hassanien, Prof. Oleksandr Nakonechnyi, and Dr. Sibasis Bandyopadhyay. The fruit of these invaluable partnerships is manifested in numerous jointly authored scientific monographs, book chapters, and high-impact journal articles published in prestigious worldwide outlets.

Finally, special thanks are extended to the authorities of both the **University of Information Technology and Management in Rzeszów** and the **University of Rzeszów** (including the Institute of Computer Science) for providing a supportive academic environment and the infrastructure necessary to foster our research over the past quarter-century.

Web Resources

Detailed information regarding the complete scientific output, academic portfolios, and full project descriptions can be accessed online via the following official platforms:

- **Official Website of the RSPN Research Group:** `https://rspn.ur.edu.pl`
- **Personal Homepage of Zbigniew Suraj:** `https://zsuraj.ur.edu.pl`