

CURRICULUM VITAE

Jerzy W. Grzymala-Busse

Education

M.S. in Electrical Engineering, Technical University of Poznan, Poland, 1964,
M.S. in Mathematics, University of Wroclaw, Poland, 1967,
Ph. D. in Engineering, Technical University of Poznan, Poland, 1969,
Habilitation Doctorate in Engineering, Technical University of Warsaw, Poland,
1972.

Academic Appointments

1964–1966, Assistant, Department of Electrical Engineering, Technical
University of Poznan,
1966–1970, Senior Assistant, Department of Electrical Engineering, Technical
University of Poznan,
1970–1973, Assistant Professor, Institute of Control Engineering, Technical
University of Poznan,
1973–1980, Associate Professor, Institute of Control Engineering, Technical
University of Poznan,
1980–1981, Visiting Professor, Department of Computer Science, University
of Kansas, Lawrence, KS,
1981–1993, Professor, Department of Computer Science, University of Kansas,
Lawrence, KS,
1993–present, Professor, Department of Electrical Engineering and Computer
Science, University of Kansas, Lawrence, KS.

Visiting Professor

1974, Mathematical Foundations of Computer Science Semester at the Stefan
Banach International Mathematical Center, Warsaw, Poland, one semester
course in Algebraic Theory of Automata,
1977, Spring semester, Department of Computer Science, University of Kansas.

Sabbatical Leaves

1989, Fall semester, University of Kansas,
1996, Fall semester, University of Kansas,
2003, Fall semester, University of Kansas,
2010, Fall semester, University of Kansas.

Awards

- Award of the Voivode of Poznan for research results, 1976,
 Three awards of the Minister of Science, Higher Education, and Technology for research results (1970, 1973, 1976),
 Eleven awards of the Rector of the Technical University of Poznan for research results, 1966–1980,
 Two awards of the Dean for teaching, 1966 and 1970,
 Two awards of the Rector for teaching, 1978 and 1979,
 Award of the Polish Academy of Science for research results, 1981,
 Listed among 82 faculty of the University of Kansas (out of nearly 2,000 full-time-equivalent faculty) as *the finest teacher from whom I took courses* by 10 or more graduating seniors (out of 1,115 students) in the 1987 survey. The survey is distributed every five years. Later results of the survey were not published,
 Nominated by graduate students to be honored as the *College of Liberal Arts and Sciences Mentor of the Year* in 1993,
 Chosen by undergraduate students in Electrical Engineering and Computer Science for teaching excellence in 2002,
 Miller Scholar for 2002, based on accomplishments during the calendar year 2001,
 Kemper Fellowship for teaching excellence, 2004,
 The Best Paper Award in the area of Data Mining, IEEWE Conference on Human System Interaction, Krakow, Poland, May 25–27, 2008,
 Nominated by KU seniors and selected as a 2008 H.O.P.E. Award semifinalist.
 Listed in
- Marquis *Who's Who in the World*,
 - Marquis *Who's Who in America*,
 - Marquis *Who's Who in Science and Engineering*,
 - Marquis *Who's Who in American Education*,
 - Marquis *Who's Who in Finance and Business*,
 - *American Men and Women of Science*, and in
 - *International Directory of Distinguished Leadership* by the American Biographical Institute, Inc.

Member of Editorial Boards of Scientific Journals

- 1975–1984, Associate Editor of the *Foundations of Control Engineering*,
 1975–1990, member of the Editorial Board of the *Fundamenta Informaticae*,
 1991–present, Editor of the *Foundations of Computing and Decision Sciences*,

- 2000–2001, Guest Editor of the *International Journal of Applied Mathematics and Computer Science* (special issue on rough sets),
- 2002–2009, member of the Editorial Advisory Board of the *International Journal of Knowledge-Based and Intelligent Engineering Systems*,
- 2003–present, member of the Editorial Board of the *Fundamenta Informaticae*,
- 2003–present, member of the Editorial Board of the *International Journal of Hybrid Intelligent Systems*,
- 2004–present, member of the Editorial Board of the *Transactions on Rough Sets*.
- 2008–present, member of the Editorial Board of the *International Journal of Fuzzy Systems and Rough Systems*,
- 2008–present, member of the Editorial Board of the *International Journal of Computer & Systems Engineering*,
- 2008–present, member of the Editorial Board of the *International Journal of Granular Computing, Rough Sets and Intelligent Systems*,
- 2009–present, member of the Editorial Board of the *International Journal of Multicriteria Decision Making*,
- 2009–present, member of the Editorial Board of the *International Journal of Computer Science: Theory, Technology and Applications*,
- 2009–present, member of the Editorial Board of the *IJISA—International Journal of Intelligent Systems and Applications*,
- 2009–present, member of the Editorial Board of the *International Journal of Computer Science: Theory, Technology and Applications*.

Teaching Activities

Data mining, knowledge acquisition, expert systems, artificial intelligence, computer architecture, computer organization, computability, discrete structures, probabilistic analysis, switching theory, automata theory, concurrency models, Petri nets, data structures.

Member of Examination Committees: 12 Ph.D. dissertations and one Habilitation Doctorate dissertation in Poland,

Advisor of: 21 M.S. theses and five Ph.D. dissertations in Poland. Also, 71 M.S. theses, four MS projects and two Ph.D. dissertations at the University of Kansas.

Member of Ph. D. final examination committees: Norwegian University of Science and Technology, Trondheim, Norway (2000), National University of Singapore (2002), Technical University of Poznan, Poland (2010), University of Regina, Regina, Saskatchewan, Canada (2007 and 2010).

Current Research Interests

Data mining, knowledge discovery in data bases, machine learning, expert systems, reasoning under uncertainty, rough set theory.

Publications

Theses and Dissertations

1. Algebraic models of synthesis of discrete systems (in Polish). M.S. Thesis, Poznan, 1964.
2. On some superpositions of Boolean functions (Boolean function towers) (in Polish). M.S. Thesis, Wroclaw, 1967.
3. Automorphisms of time-varying automata and their applications (in Polish). Doctoral Dissertation, Poznan, 1969.
4. Subautomata of finite automata, associated with change of operating time (in Polish). Habilitation Doctorate Dissertation. Technical University of Poznan Press, 45 pp., Poznan, 1972.

Books

1. Lech Beyga, Jerzy Grzymala-Busse and Boleslaw Mikolajczak. Automata Theory. Laboratorial Exercises (in Polish). Technical University of Poznan Press, Poznan. First Edition 1975, Second Edition 1979, 209 pp.
2. Jerzy Grzymala-Busse, Zdzislaw Miadowicz, Boleslaw Mikolajczak, Pawel Siwak and Antoni Wozniak. Switching Theory. Laboratorial Exercises (in Polish). Technical University of Poznan Press, Poznan, 1981, 202 pp.
3. Jerzy W. Grzymala-Busse. Managing Uncertainty in Expert Systems. Kluwer Academic Publishers, Boston/ Dordrecht/ London, 1991. Vol. 143 of the Kluwer International Series in Engineering and Computer Science, 224 pp.
4. Transactions on Rough Sets I. Edited by James F. Peters, Andrzej Skowron, Jerzy W. Grzymala-Busse, Bozena Kostek, Roman W. Swiniarski and Marcin S. Szczuka. Springer Verlag, 2004, 405 pp.
5. Rough Sets and Current Trends in Computing. Edited by Shusaku Tsumoto, Roman Slowinski, Jan Komorowski and Jerzy W. Grzymala-Busse. Lecture Notes in AI 3066, Springer-Verlag, Berlin, Heidelberg 2004, 849 pp.
6. Transactions on Rough Sets II. Edited by James F. Peters, Andrzej Skowron, Didier Dubois, Jerzy W. Grzymala-Busse, Masahiro Inuiguchi and Lech Polkowski. Springer Verlag, 2004, 363 pp.
7. Transactions on Rough Sets VI: Commemorating Life and Work of Zdzislaw Pawlak, Part I. Edited by James F. Peters, Andrzej Skowron, Ivo Düntsch,

Jerzy W. Grzymala-Busse, Ewa Orłowska and Lech Polkowski. Springer Verlag, 2007, 500 pp.

8. Rough Sets and Knowledge Technology. Edited by Guoyin Wang, Tianrui Li, Jerzy W. Grzymala-Busse, Duoqian Miao, Andrzej Skowron and Yiyu Yao. Lecture Notes in AI, vol. 5009, Springer-Verlag, Berlin, Heidelberg 2008, 765 pp.
9. Rough Sets and Current Trends in Computing. Edited by Chien-Chung Chan, Jerzy W. Grzymala-Busse and Wojciech P. Ziarko. Lecture Notes in AI, vol. 5306, Springer-Verlag, Berlin, Heidelberg, 2008, 532 pp.
10. Proceedings of the 2010 IEEE International Conference on Granular Computing. Edited by Xiaohua Hu, Tsau Young Lin, Vijay Raghavan, Jerzy Grzymala-Busse, Qing Liu and Andrei Broder. IEEE Computer Society, Conference Publishing Services, Los Alamitos, CA, 2010, 854 pp.
11. Selected Methods of Data Mining (in Polish). Edited by Zdzisław S. Hippe and Jerzy W. Grzymala-Busse. University of Information Technology and Management Press, Rzeszów, Poland, 150 pp.
12. Transactions on Rough Sets XIII. Edited by James F. Peters, Andrzej Skowron, Chien-Chung Chan, Jerzy W. Grzymala-Busse and Wojciech Ziarko. Springer Verlag, Lecture Notes in Computer Science 6499, 2011, 276 pp.
13. Selected Methods of Data Mining. Analysis of inconsistent data (in Polish). Edited by Zdzisław S. Hippe and Jerzy W. Grzymala-Busse. University of Information Technology and Management Press, Rzeszów, Poland, 2011, 110 pp.

Papers

Chapters in books

1. Jerzy W. Grzymala-Busse. Finite Automata. In Dictionary of Logic as Applied in the Study of Language, Martin Nijhoff Publishers, 1981, 39–42.
2. Jerzy W. Grzymala-Busse. Automata theory. An article to the 6th edition of the McGraw-Hill Encyclopedia of Science and Technology, 1987, vol. 2, 247–249.
3. Jerzy W. Grzymala-Busse. LERS—A system for learning from examples based on rough sets. In *Intelligent Decision Support. Handbook of*

Applications and Advances of the Rough Sets Theory, ed. by R. Slowinski, Kluwer Academic Publishers, 1992, 3–18.

4. Andrzej Skowron and Jerzy W. Grzymala-Busse. From rough set theory to evidence theory. In *Advances in the Dempster-Shafer Theory of Evidence*, ed. by R. Yager, M. Fedrizzi, and J. Kacprzyk, John Wiley & Sons, Inc., 1994, 193–236.
5. Linda Woolery, Michelle VanDyne, Jerzy Grzymala-Busse and Costas Tsatsoulis. Machine learning for development of an expert system to support nurses' assessment of preterm birth risk. In *Nursing Informatics: An International Overview for Nursing in a Technological Era*, ed. by S. J. Grobe and E. S. P. Pluyter-Wenting. Elsevier Publ., 1994, 357–361.
6. Michal R. Chmielewski and Jerzy W. Grzymala-Busse. Global discretization of continuous attributes as preprocessing for machine learning. In *Soft Computing: Rough Sets, Fuzzy Logic, Neural Networks, Uncertainty Management, Knowledge Discovery*, ed. by T. Y. Lin and A. M. Wilderberger, Simulation Councils, Inc., 1995, 294–297.
7. Jerzy W. Grzymala-Busse and Soe Than. An algorithm to compress data in learning from examples. In *Soft Computing: Rough Sets, Fuzzy Logic, Neural Networks, Uncertainty Management, Knowledge Discovery*, ed. by T. Y. Lin and A. M. Wilderberger, Simulation Councils, Inc., 1995, 259–262.
8. Jerzy W. Grzymala-Busse, Sally Y. Sedelow and Walter A. Sedelow, Jr. Machine learning & knowledge acquisition, rough sets, and the English semantic code. In *Rough Sets and Data Mining. Analysis of Imprecise Data*, ed. by T. Y. Lin and N. Cercone, Kluwer Academic Publishers, 1997, 91–107.
9. Chien-Chung Chan and Jerzy W. Grzymala-Busse. On the lower boundaries in learning rules from examples. In *Incomplete Information: Rough Set Analysis*, ed. by E. Orłowska, Physica-Verlag, 1998, 58–74.
10. Jerzy W. Grzymala-Busse and Paolo Werbrouck. On the best search method in the LEM1 and LEM2 algorithms. In *Incomplete Information: Rough Set Analysis*, ed. by E. Orłowska, Physica-Verlag, 1998, 75–91.
11. Jerzy W. Grzymala-Busse. Applications of the rule induction system LERS. In *Rough Sets in Knowledge Discovery 1, Methodology and Applications*, ed. by L. Polkowski and A. Skowron, Physica-Verlag, 1998, 366–375.
12. Jerzy W. Grzymala-Busse. LERS—A knowledge discovery system. In *Rough Sets in Knowledge Discovery 2, Applications, Case Studies and Software Systems*, ed. by L. Polkowski and A. Skowron, Physica-Verlag, 1998, 562–565.

13. Jerzy W. Grzymala-Busse, Linda K. Goodwin, Witold J. Grzymala-Busse and Xinqun Zheng. Problems of rule induction from preterm birth data. In *New Learning Paradigms in Soft Computing*, ed. by Lakhmi C. Jain and Janusz Kacprzyk, Physica-Verlag, 2002, 403–418.
14. Jerzy W. Grzymala-Busse, Linda K. Goodwin, Witold J. Grzymala-Busse and Xinqun Zheng. A comparison of rough set strategies for pre-term birth prediction. In *Technologies for Constructing Intelligent Systems*, ed. by B. Bouchon-Meunier, J. Gutierrez-Rios, L. Magdalena, and R. R. Yager, Springer Verlag, 2002, 239–252.
15. Jerzy W. Grzymala-Busse. Discretization of numerical attributes. In *Handbook of Data Mining and Knowledge Discovery*, ed. by W. Klösgen and J. Zytkow, Oxford University Press, 2002, 218–225.
16. Linda K. Goodwin and Jerzy W. Grzymala-Busse. Preterm birth prediction/ System LERS. In *Handbook of Data Mining and Knowledge Discovery*, ed. by W. Klösgen and J. Zytkow, Oxford University Press, 2002, 936–944.
17. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe and Stanislaw Bajcar. An estimate of melanoma endangerment on the basis of selected dermatoscopic images (in Polish). In *Biocybernetics and Biomedic Engineering 2000*, ed. by M. Nalecz, Vol. 7, *Computer and Telemedicine Systems*, ed. by E. Kacki, J. L. Kulikowski, A. Nowakowski and E. Waniewski. EXIT, Warsaw 2002, 213–224.
18. Jerzy W. Grzymala-Busse and Wojciech Ziarko. Data mining based on rough sets. In *Data Mining: Opportunities and Challenges*, ed. by John Wang, Idea Group Publ., 2003, 142–173.
19. Jerzy W. Grzymala-Busse and Rachel L. Freeman. Improving rules induced from data describing self-injurious behaviors by changing truncation cutoff and strength. In *Rough Set Theory and Granular Computing*, ed. by A. Skowron and L. Polkowski, Physica-Verlag, 2003, 177–185.
20. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Piotr Blajdo and Mariusz Wrzesien. New programming tools for knowledge engineering and machine learning. Optimization of some parameters of data mining systems (in Polish). In *Knowledge Engineering and Expert systems*, ed. by Z. Bubnicki and A. Grzech, Technical University of Wroclaw Press, 2003, 15–21.
21. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Maksymilian Knap and Teresa Mroczek. New programming tools for knowledge engineering and machine learning. A comparison of some representation systems of uncertain knowledge (in Polish). In *Knowledge Engineering and Expert*

- systems*, ed. by Z. Bubnicki and A. Grzech, Technical University of Wroclaw Press, 2003, 239–247.
22. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse, Linda K. Goodwin and Xinqun Zheng. An approach to imbalanced data set based on changing rule strength. In *Rough-Neuro Computing: Techniques to Computing with Words*, ed. by S. K. Pal, L. Polkowski, and A. Skowron, Springer-Verlag, 2004, 543–553.
 23. Jerzy W. Grzymala-Busse. Rule induction. In *Data Mining and Knowledge Discovery Handbook 2005*, ed. by Oded Maimon and Lior Rokach, Springer-Verlag, 2005, 277–294.
 24. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. Handling missing attribute values. In *Data Mining and Knowledge Discovery Handbook 2005*, ed. by Oded Maimon and Lior Rokach, Springer-Verlag, 2005, 37–57.
 25. Jerzy W. Grzymala-Busse. LERS—A data mining system. In *Data Mining and Knowledge Discovery Handbook 2005*, ed. by Oded Maimon and Lior Rokach, Springer-Verlag, 2005, 1347–1351.
 26. Jerzy W. Grzymala-Busse. Rough set theory with applications to data mining. In *Real World Applications of Computational Intelligence*, ed. by M. G. Negoita and B. Reusch, Springer Verlag, 2005, 221–244.
 27. Jerzy W. Grzymala-Busse and Wojciech Ziarko. Rough sets and data mining. In *Encyclopedia of Data Warehousing and Mining*, ed. by J. Wang, Information-Science Publishing, 2006, 973–977.
 28. Jerzy W. Grzymala-Busse. Rough set strategies to data with missing attribute values. In *Foundations and Novel Approaches in Data Mining*, ed. by T. Y. Lin, S. Ohsuga, C.-J. Liau and X. Hu. *Studies in Computational Intelligence*, vol. 9, Springer-Verlag, 2006, 197–212.
 29. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Teresa Mroczek, Edward Roj, Boleslaw Skowronski. Two approaches to mining hop extraction data. In *Rough Computing: Theories, Technologies and Applications*, ed. by Aboul Ella Hassanien, Zbigniew Suraj, Dominik Slezak and Pawan Lingras, IGI Global, 2008, 228–238.
 30. Jerzy Grzymala-Busse. Three approaches to missing attribute values—A rough set perspective. In *Data Mining: Foundations and Practice*, ed. by T. Y. Lin, Y. Xie, A. Wasilewska, C.-J. Liau. *Studies in Computational Intelligence*, vol. 118. Springer 2008, 139–152.
 31. Jerzy Grzymala-Busse. MLEM2 rule induction algorithms: with and without merging intervals. In *Data Mining: Foundations and Practice*, ed. by T.

- Y. Lin, Y. Xie, A. Wasilewska, C.-J. Liau. *Studies in Computational Intelligence*, vol. 118. Springer 2008, 153–164.
32. Jerzy W. Grzymala-Busse. Rough sets and granular computing in dealing with missing attribute values. Chapter 41 of the *Handbook of Granular Computing*, ed. by W. Pedrycz, A. Skowron and V. Kreinovich, John Wiley & Sons, Ltd, 2008, 873–888.
 33. Jerzy W. Grzymala-Busse. Rule induction, missing attribute values and discretization. *Encyclopedia of Complexity and Systems Science*, ed. by R. A. Meyers, Springer 2009, 7797–7804.
 34. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. Increasing data set incompleteness may improve rule set quality. In *Software and Data Technologies* edited by Jose Cornier, Boors Shishkov and Alpesh Ranchordas, Springer Verlag, 2009, 200–216.
 36. Pawel Cudek, Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe. Multistrategic classification system of melanocytic skin lesions: Architecture and first results. In *Computer Recognition Systems 3*. In Book Series: *Advances in Intelligent and Soft Computing*, vol. 57. Springer-Verlag, 2009, 381–387.
 37. Pawel M. Cudek, Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse. On the segmentation of the melanocytic lesions in medical images (in Polish). *Knowledge Engineering and Expert Systems*, ed. by: A. Grzech. K. Juszczyszyn, H. Kwasnicka and N. T. Ngueyen. EXIT, Warsaw, 2009, 453–461.
 38. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Teresa Mroczek, Wieslaw Paja, Adam Bucinski. A preliminary attempt to validation of Glasgow outcome scale for describing severe brain damages. In *Human-Computer Systems Interaction*. In Book Series: *Advances in Intelligent and Soft Computing*, vol. 60. Springer-Verlag, 2009, 173–182.
 39. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse, Lukasz Piatek. From the research on synthesis of static medical images of melanocytic skin lesions. In *Computers in Medical Activity*. In Book Series: *Advances in Intelligent and Soft Computing*, vol. 65. Springer-Verlag, 2009, 223–229.
 40. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. Increasing incompleteness of data sets—A strategy for inducing better rule sets. In *Advances in Machine Learning I*. Dedicated to the Memory of Professor Ryszard S. Michalski. In Book Series: *Studies in Computational Intelligence*, Springer Verlag, 2010, 345–365.
 41. Jerzy W. Grzymala-Busse. Rule induction. In *Data Mining and Knowledge Discovery Handbook, Second Edition*, ed. by O. Maimon and L. Rokach, Springer-Verlag, 2010, 249–265.

42. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. Handling missing attribute values. In *Data Mining and Knowledge Discovery Handbook, Second Edition*, ed. by O. Maimon and L. Rokach, Springer-Verlag, 2010, 33–51.
43. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Mining incomplete data—A rough set approach. Accepted for *Emerging Paradigms in Machine Learning*, ed. by S. Ramana, R. J. Howlett, L. C. Jain. Springer-Verlag.
44. Jerzy W. Grzymala-Busse, Shantan R. Marepally and Yiyu Yao. An empirical comparison of rule sets induced by LERS and probabilistic rough classification. Accepted for a special volume of *Intelligent Systems Reference Library dedicated to the memory of Professor Zdzislaw Pawlak*, ed. by S. Suraj and A. Skowron. Springer-Verlag.

Journal papers

1. Jerzy W. Grzymala-Busse. Automorphisms of polyadic automata. *Journal of the ACM* 16, 2 (April 1969), 208–219.
2. Jerzy W. Grzymala-Busse. On the periodic representations and the reducibility of periodic automata. *Journal of the ACM* 16, 3 (July 1969), 432–441.
3. Jerzy W. Grzymala-Busse. On the automorphisms of infinite time-varying automata. *Bull. Acad. Polon. Sci. Ser. Sci. Math. Astronom. Phys.* 18, 5 (May 1970), 261–266.
4. Jerzy W. Grzymala-Busse. On the endomorphisms of finite automata. *Math. Systems Theory* 4, 4 (Dec. 1970), 373–384.
5. Jerzy W. Grzymala-Busse. Periodic representations and T-partitionable equivalents of sequential machines. *IEEE Transactions on Computers* C-20, 2 (Feb. 1971), 190–198.
6. Jerzy W. Grzymala-Busse. On the decomposition of periodic representations of sequential machines. *IEEE Transactions on Computers* C-20, 8 (Aug. 1971), 929–933.
7. Jerzy W. Grzymala-Busse. Operation-preserving functions and autonomous factors of finite automata. *Journal of Computer and Systems Sciences* 5, 5 (Oct. 1971), 465–474.
8. Jerzy W. Grzymala-Busse. Automorphisms of total periodic automata. *Bull. Soc. Amis. Sci. Lett. Poznan, Ser. - B* 22 (1970/1971), 1972, 113–123.

9. Jerzy W. Grzymala-Busse. On the automorphisms of periodic automata extensions. *Bull. Acad. Pol. Sci. Ser. Sci. Math. Astronom. Phys.* 22, 3 (March 1974), 325–331.
10. Jerzy W. Grzymala-Busse. Generalized endomorphisms, congruences, and subautomata associated with the change of operating time of finite automata. *Found. Control Engineering* 1, 1 (1975), 3–14.
11. Jerzy W. Grzymala-Busse. On the state set partitions and relations on the input semigroup of automata. (In Russian). *Elektron. Informationsverarbeitung und Kybernetik* 11, 10–12 (1975), 581–582.
12. Jerzy W. Grzymala-Busse. On the strongly related automata. *Foundations of Control Engineering* 3, 1 (1978), 3–8.
13. Jerzy W. Grzymala-Busse. On the extensions of state independent automata. *Mitteilungen der Math. Gessellschaft der DDR* 23/77, p. 40. Also in *Found. Control Engineering* 3, 2 (1978), 59–62.
14. Jerzy W. Grzymala-Busse. Selected topics in automata theory. *Found. Control Engineering* 5, 3 (1980), 113–119.
15. Jerzy W. Grzymala-Busse. Algebraic automata theory—Main works of the Institute of Control Engineering. *Zeszyty Naukowe Politechniki Poznanskiej, Elektryka* 22 (1980), 23–29.
16. Jerzy W. Grzymala-Busse. Finite globally-idempotent semigroups. *Semigroup Forum* 22 (1981), 217–224.
17. Zamir Bavel, Jerzy Grzymala-Busse and K. Soo Hong. On the connectivity of the product of automata. *Fundamenta Informaticae* 7 (1984), 225–266.
18. Jerzy W. Grzymala-Busse and Zdzislaw Pawlak. On some subsets of the partition set. *Fundamenta Informaticae* 7 (1984), 483–488.
19. Jerzy W. Grzymala-Busse and Zamir Bavel. Characterization of state-independent automata. *Theoretical Computer Science* 43 (1986), 1–10.
20. Jerzy W. Grzymala-Busse. Knowledge acquisition under uncertainty—a rough set approach. *Journal of Intelligent & Robotic Systems* 1, 1 (1988), 3–16.
21. Jerzy W. Grzymala-Busse and Walter A. Sedelow, Jr. On rough sets and information system homomorphisms. *Bull. Polish Acad. Sci., Tech. Sci.* 36, 3–4 (1988), 233–239.
22. Jerzy W. Grzymala-Busse and Sachin Mithal. On the choice of the best test for attribute dependency in programs for learning from examples.

- International Journal of Software Engineering and Knowledge Engineering* 1, 4 (1991), 413–438.
23. Linda Woolery, Jerzy Grzymala-Busse, Sharon Summers and Alfian Budihardjo. The use of machine learning program LERS_LB 2.5 in knowledge acquisition for expert system development in nursing. *Computers in Nursing* 9 (1991), 227–234.
 24. Jerzy W. Grzymala-Busse. Selected algorithms of machine learning from examples. *Fundamenta Informaticae* 18 (1993), 193–207.
 25. Jerzy W. Grzymala-Busse and Soe Than. Data compression in machine learning applied to natural language. *Behavior Research Methods, Instruments, & Computers* 25 (1993), 318–321.
 26. Michal R. Chmielewski, Jerzy W. Grzymala-Busse, Neil W. Peterson and Soe Than. The rule induction system LERS—A version for personal computers. *Foundations of Computing and Decision Sciences* 18 (1993), 181–212.
 27. Joel D. Gunn and Jerzy W. Grzymala-Busse. Global temperature stability by rule induction: An interdisciplinary bridge. *Human Ecology* 22 (1994), 59–81.
 28. Linda K. Woolery and Jerzy W. Grzymala-Busse. Machine learning for an expert system to predict preterm birth risk. *Journal of the American Medical Informatics Association* 1 (1994), 439–446.
 29. Chien-Chung Chan and Jerzy W. Grzymala-Busse. On the two local inductive algorithms: PRISM and LEM2. *Foundations of Computing and Decision Sciences* 19 (1994), 185–203.
 30. Dobrosława M. Grzymala-Busse and Jerzy W. Grzymala-Busse. The usefulness of machine learning approach to knowledge acquisition. *Computational Intelligence* 11 (1995), 268–279.
 31. Zdzisław Pawlak, Jerzy W. Grzymala-Busse, Roman Slowinski and Wojciech Ziarko. Rough Sets. *Communications of the ACM* 38 (1995), 11, 89–95.
 32. Jerzy W. Grzymala-Busse. Rough Sets. *Advances in Imaging and Electron Physics* 94 (1995), 151–195.
 33. Linda K. Woolery and Jerzy Grzymala-Busse. Machine learning for development of an expert system to predict premature birth. *Biomed. Sci. Instrum.* 31 (1995), 29–34.

34. Jerzy W. Grzymala-Busse and Soe Than. An algorithm for data reduction in learning from examples. *Intelligent Automation and Soft Computing. An International Journal* 2 (1996), 161–167.
35. Jerzy W. Grzymala-Busse and Soe Than. Partition triples: A tool for reduction of data sets. *Journal of Computer and System Sciences* 53 (1996), 575–582.
36. Michal R. Chmielewski and Jerzy W. Grzymala-Busse. Global discretization of continuous attributes as preprocessing for machine learning. *Int. Journal of Approximate Reasoning* 15 (1996), 319–331.
37. Jerzy W. Grzymala-Busse, Jerzy Stefanowski and Wojciech Ziarko. Rough sets: facts versus misconceptions. *Informatica* 20 (1996), 455–465.
38. Jerzy W. Grzymala-Busse and Linda K. Goodwin. Predicting preterm birth risk using machine learning from data with missing values. *Bull. of Internat. Rough Set Society* 1 (1997), 17–21.
39. Jerzy W. Grzymala-Busse. Classification of unseen examples under uncertainty. *Fundamenta Informaticae* 30 (1997), 255–267.
40. Jerzy W. Grzymala-Busse. A new version of the rule induction system LERS. *Fundamenta Informaticae* 31 (1997), 27–39.
41. Linda Goodwin, Jonathan Prather, Kaye Schlitz, Mary A. Iannacchione, M. Hage, W. Edward Hammond, Sr. and Jerzy W. Grzymala-Busse. Data mining issues for improved birth outcomes. *Biomedical Sciences Instrumentation* 34 (1997), 291–296.
42. Hamid Moradi, Jerzy W. Grzymala-Busse and James A. Roberts. Entropy of English text: Experiments with humans and a machine learning system based on rough sets. *Information Sciences, An International Journal* 104 (1998), 31–47.
43. Jerzy W. Grzymala-Busse. Rule induction system LERS. *Bull. of Internat. Rough Set Society* 2 (1998), 18–20.
44. Jerzy W. Grzymala-Busse and Wojciech Ziarko. Data mining and rough set theory. *Communications of the ACM* 43 (2000), 108–109.
45. Jerzy W. Grzymala-Busse and Jerzy Stefanowski. Three discretization methods for rule induction. *International Journal of Intelligent Systems* 16 (2001), 29–38.
46. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse and Linda K. Goodwin. Coping with missing attribute values based on closest fit in

- preterm birth data: A rough set approach. *Computational Intelligence* 17 (2001), 425–434.
47. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse and Linda K. Goodwin. A comparison of three closest fit approaches to missing attribute values in preterm birth data. *International Journal of Intelligent Systems* 17 (2002), 125–134.
 48. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Application of covering algorithm for classification of melanoma spots on the skin. *Journal of Applied Computer Science* 10 (2002), 27–33.
 49. Jerzy W. Grzymala-Busse, Linda K. Goodwin and Xiaohui Zhang. Increasing sensitivity of preterm birth by changing rule strengths. *Pattern Recognition Letters*, vol. 24, N 6, (2003), 903–910.
 50. Rachel L. Freeman, Jerzy W. Grzymala-Busse and Mark Harvey. Functional behavioral assessment using the LERS data mining system—strategies for understanding complex physiological and behavioral patterns. *Journal of Intelligent Information Systems* 21 (2003), 173–181.
 51. Jerzy W. Grzymala-Busse. A comparison of three strategies to rule induction from data with numerical attributes. *Electronic Notes in Theoretical Computer Science* 82, N4 (2003), 9 pages, URL: <http://www.elsevier.nl/locate/entcs/volume82.html>.
 52. Zdzislaw S. Hippe, Stanislaw Bajcar, Piotr Blajdo, Jan P. Grzymala-Busse, Jerzy W. Grzymala-Busse, Maksymilian Knap, Wieslaw Paja and Mariusz Wrzesien. Diagnosing skin melanoma: Current versus future directions *TASK Quarterly* 7 (2003), 289–293.
 53. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe and Mariusz Wrzesien. Classification of multi-category cases by a binary classifier—methodology and programming tools (in Polish). *Prace Naukowe Akademii Ekonomicznej* 275 (2003) 121–127.
 54. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Stanislaw Bajcar, Alicja Bak and Aleksander Sokolowski. Decision trees—a method to support medical diagnosis exemplified by a case of melanocytic spots on the skin (in Polish). *Clinical Dermatology* 5 (2003), 201–209.
 55. Jerzy W. Grzymala-Busse. Data with missing attribute values: Generalization of indiscernibility relation and rule induction. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 1 (2004), 78–95.

56. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Maksymilian Knap and Teresa Mroczek. A new algorithm for generation decision trees. *Task Quarterly* 8 (2004), 243–247.
57. Jerzy W. Grzymala-Busse. Three strategies to rule induction from data with numerical attributes. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 2 (2004), 54–62.
58. Jerzy W. Grzymala-Busse. Characteristic relations for incomplete data: A generalization of the indiscernibility relation. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 4 (2005), 58–68.
59. Jerzy W. Grzymala-Busse, Jerzy Stefanowski and Szymon Wilk. A comparison of two approaches to data mining from imbalanced data. *Journal of Intelligent Manufacturing* 16 (2005), 565–573.
60. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Maksymilian Knap and Wieslaw Paja. Infoscience technology: the impact of Internet accessible melanoid data on health issues. *Data Science Technology* 4 (2005), 77–81 (<http://www.datasciencejournal.org>.)
61. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Edward Roj and Boleslaw Skowronski. Applying expert systems to hop extraction monitoring and prediction. *Polish Journal of Chemical Technology* 8 (2006), 1–3.
62. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. An experimental comparison of three rough set approaches to missing attribute values. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 6 (2007), 31–50.
63. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe and Teresa Mroczek. Deriving belief networks and belief rules from data: A progress report. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 7 (2007), 53–69.
64. Jerzy W. Grzymala-Busse and Wojciech Rzasa. Induction of decision rules from incomplete data by modified LEM2 algorithms. *Scientific Bulletin of Chelm, Section Mathematics and Computer Science*, N1, 2007, 49–60.
65. Jerzy W. Grzymala-Busse. Mining incomplete data—A rough set approach. *Journal of Chongqing University of Posts and Telecommunications, Natural Science Edition*, vol. 20, N3 (2008), 282–290.
66. Jerzy W. Grzymala-Busse and Wojciech Rzasa. Local and global approximations for incomplete data. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 8 (2008), 21–34.

67. Jerzy W. Grzymala-Busse and Wojciech Rzasa. Approximation space and LEM2-like algorithms for local coverings. *Fundamenta Informaticae*, vol. 85 (2008) 205–217.
68. Piotr Blajdo, Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Maksymilian Knap, Teresa Mroczek and Lukasz Piatek. An extended comparison of six approaches to discretization—A rough set approach. *Fundamenta Informaticae*, vol. 94 (2009), 121–131.
69. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse, Zdzislaw S. Hippe and Wojciech Rzasa. An improved comparison of three rough set approaches to missing attribute values. *Control and Cybernetics*, vol. 39 (2010), 469–486.
70. Jerzy W. Grzymala-Busse. Mining numerical data—A rough set approach. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 11 (2010), 1–13.
71. Jerzy W. Grzymala-Busse and Wojciech Rzasa. Definability and other properties of approximations for generalized indiscernibility relations. *Transactions on Rough Sets*, Lecture Notes in Computer Science Journal Subline, Springer-Verlag, vol. 11 (2010), 14–39.
72. Jerzy W. Grzymala-Busse and Wojciech Rzasa. A local version of the MLEM2 algorithm for rule induction. *Fundamenta Informaticae*, vol. 100 (2010), 99–116.
73. James F. Peters, Chien-Chung Chan, Jerzy W. Grzymala-Busse and Wojciech Ziarko. Preface: A rough set approach to data mining. *International Journal of Intelligent Systems*. vol. 26 (2011), 497–498.
74. Jerzy W. Grzymala-Busse and Yiuyu Yao. Probabilistic rule induction with the LERS data mining system. *International Journal of Intelligent Systems*, vol. 26 (2011), 518–539.
75. Clinton Cohagan, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Experiments on mining inconsistent data with bagging and the MLEM2 rule induction algorithm. Accepted to the *International Journal of Granular Computing, Rough Sets and Intelligent Systems*.

Conference papers

1. Tadeusz Puchalka, Antoni Wozniak and Jerzy Grzymala-Busse. On the synthesis of electric drive control systems by means of general algebra (in Polish). Proc. of the Int. Conference on Electric Drive, Warsaw, Poland, Sept. 23–25, 1965, vol. 2, 89–103.
2. Tadeusz Puchalka, Antoni Wozniak and Jerzy Grzymala-Busse. Generalized synthesis of finite automata by algebraic methods. Proc. of the 3rd Congress IFAC, London 1966, 7 pp. Translated into Russian in Trudy 3rd Mezdunar. Kongr. IFAC, Nauka, Moscow, 1972, 287–295.
3. Jerzy Grzymala-Busse and Pawel Siwak. Some realizations of automata (in Polish). Proc. of the 5th Pol. Conf. Control Engineering, Gdansk, Poland, June 7–9, 1971, vol. 2, 15–17.
4. Jerzy Grzymala-Busse. On the endomorphisms and periodic representations of finite automata (in Polish). V Pol. Conf. Control Engng, Gdansk, Poland, June 7–9, 1971. Conf. Proc., vol. 2, 11–14.
5. Antoni Wozniak, Jerzy Grzymala-Busse, Zdzislaw Miadowicz and Andrzej Wachowski. On the realization of sequential circuits by biwinding relays (in Polish). Proc. of the 6th Sci-Tech. Conf., Technical University of Poznan, Poland, Feb. 15–16, 1972, 241–244.
6. Jerzy W. Grzymala-Busse. On the connectivity of the periodic sum of automata. Proc. of the Symp. & Summer School Math. Found. Computer Sci., High Tatras, Czechoslovakia, Sept. 3–8, 1973, 231–234.
7. Jerzy W. Grzymala-Busse. On the problem of automata set representation. Proc. of the 3rd Annual Symp. Gesellschaft für Informatik, Hamburg, West Germany, Oct. 8–10, 1973. *Lecture Notes in Computer Sci.* vol. 1, 1973, 60–69, Springer Verlag.
8. Jerzy W. Grzymala-Busse. On the strongly related automata. Proc. of the IFAC Symp. Discrete Systems, Riga USSR, Sept. 30–Oct. 4, 1974, vol. 4, 118–127.
9. Jerzy W. Grzymala-Busse. On the periodic sum and extensions of finite automata. Proc. of the 3rd Symp. Math. Foundations Computer Sci., Jadwisin, Poland, June 17–22, 1974. *Lecture Notes in Computer Sci.* vol. 28, 1974, 46–52, Springer Verlag.
10. Jerzy W. Grzymala-Busse. On the set of all automata with the same monoid of endomorphisms. Proc. of the 4th Symp. Math. Foundations Computer Sci., Marianske Lazne, Czechoslovakia, Sept. 1–5, 1975. *Lecture Notes in Computer Sci.* vol. 32, 1975, 246–251, Springer Verlag.

11. Jerzy W. Grzymala-Busse. Problems of the change of operating time of finite automata. Proc. of the GI - 5. Jahrestagung, Dortmund, West Germany, Oct. 8–10, 1975. *Lecture Notes in Computer Sci.* vol. 34, 1975, 261–268, Springer Verlag.
12. Jerzy W. Grzymala-Busse. Recent development of automata theory in the Technical University of Poznan (in Russian). Proc. of the Comecon Meeting *General Automata Theory*, Riga, USSR, May 18–22, 1976. *Tanulmányok* 63/1977, MTA Számítástechnikai és Automatizálási Kutató Intezét, Budapest, Hungary, 1977, 49–52.
13. Jerzy W. Grzymala-Busse. Some problems of time-varying automata and their applications to the synthesis of automata (in Russian). Proc. of the 5th Internat. Symp. Applied Aspects of Automata Theory, Zlatni Pjasatzi, Bulgaria, May 15–19, 1979, vol. 1, 36–42.
14. Jerzy W. Grzymala-Busse. On some classes of semigroup automata (in Polish). Proc. of the 8th Pol. Conf. Control Engineering, Szczecin, September 16–17, 1980, vol. 1, 645–647.
15. Jerzy W. Grzymala-Busse. On the representation of finite lattices in the class of finite automata. Proc. of the Comecon Meeting *General Automata Theory*, Visegrad, Hungary, May 5–10, 1980. *Tanulmányok* 137/182, MTA Számítástechnikai és Automatizálási Kutató Intezét, Budapest, Hungary, 1982, 199–204.
16. Jerzy W. Grzymala-Busse. On the reduction of knowledge representation systems. Proc. of the 6th International Workshop on Expert Systems & Their Applications, Avignon, France, April 28–30, 1986, 463–478.
17. Zamir Bavel, Jerzy Grzymala-Busse, Yen-Teh Hsia and Rodolfo Mancisidor-Landa. Tier automaton representation of communication protocols. Proc. of the SIGCOMM'86 Symposium Communications Architecture & Protocols, Stowe, Vermont, August 5–7, 1986, 138–147.
18. Jerzy W. Grzymala-Busse. Algebraic properties of knowledge representation systems. Proc. of the ACM SIGART International Symposium on Methodologies for Intelligent Systems, Knoxville, Tennessee, Oct. 22–24, 1986, 432–440.
19. Zamir Bavel, Jerzy Grzymala-Busse, Yen-Teh Hsia and Rodolfo Mancisidor-Landa. New communication protocols from old. Proc. of the SIGCOMM'87 Symposium Frontiers in Computer Communications Technology, Stowe, Vermont, August 11–13, 1987, 147–160.
20. Jerzy W. Grzymala-Busse. Learning from examples based on rough multisets. Proc. of the Second International Symposium Methodologies

for Intelligent Systems, Charlotte, North Carolina, October 14–17, 1987, 325–332, North Holland.

21. Jerzy W. Grzymala-Busse. An overview of the LERS1 learning system. Proc. of the 2nd Int. Conf. on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Tullahoma, TN, June 6–9, 1989, 838–844.
22. Chien-Chung Chan and Jerzy W. Grzymala-Busse. Rough-set boundaries as a tool for learning rules from examples. Proc. of the ISMIS–89, 4th International Symposium on Methodologies for Intelligent Systems, Charlotte, North Carolina, October 12–14, 1989, 281–288, North Holland.
23. Jerzy W. Grzymala-Busse and Sachin Mithal. A comparison of four tests for attribute dependency in the LEM and LERS systems for learning from examples. Proc. of the 3rd Int. Conf. on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Charleston, SC, July 16–18, 1990, 949–958.
24. Jerzy W. Grzymala-Busse. On the reduction of instance space in learning from examples. Proc. of the ISMIS–90, 5th International Symposium on Methodologies for Intelligent Systems, Knoxville, TN, October 24–26, 1990, 388–395, North Holland.
25. Jerzy W. Grzymala-Busse. The LERS family of learning systems based on rough sets. Proc. of the 3rd Midwest Artificial Intelligence and Cognitive Science Society Conference, Carbondale, IL, April 12–14, 1991, 103–107.
26. Alfian Budihardjo, Jerzy Grzymala-Busse and Linda Woolery. Program LERS_LB 2.5 as a tool for knowledge acquisition in nursing. Proc. of the 4th Int. Conf. on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Koloa, Kauai, Hawaii, June 2–5, 1991, 735–740.
27. Jerzy W. Grzymala-Busse. On the unknown attribute values in learning from examples. Proc. of the ISMIS-91, 6th International Symposium on Methodologies for Intelligent Systems, Charlotte, North Carolina, October 16–19, 1991, 368–377, *Lecture Notes in Artificial Intelligence*, vol. 542, 1991, Springer-Verlag.
28. Jerzy W. Grzymala-Busse and Soe Than. On the compression of instance space in inductive learning. Proc. of the 4th Midwest Artificial Intelligence and Cognitive Science Society Conference, Utica, IL, May 3–4, 1992, 92–96.
29. Gabriel Gonzalez and Jerzy W. Grzymala-Busse. On the comparison of the LEM1 and LEM2 algorithms. The 1st Int. Workshop on Rough Sets:

- State of Art and Perspectives, Poznan-Kiekrz, Poland, September 2–4, 1992, 10–12.
30. Jerzy W. Grzymala-Busse and Soe Than. On the compression of data in learning from examples. The 1st Int. Workshop on Rough Sets: State of Art and Perspectives, Poznan-Kiekrz, Poland, September 2–4, 1992, 13–15.
 31. Jerzy W. Grzymala-Busse and Soe Than. Reduction of instance space in machine learning from examples. Proc. of the 5th International Symposium on Artificial Intelligence, Cancun, Mexico, December 7–11, 1992, 303–309.
 32. Jerzy W. Grzymala-Busse. Artificial Intelligence. Proc. of the ICCI'93, Fifth International Conference on Computing and Information, Sudbury, Ontario, Canada, May 27–29, 1993, 288.
 33. Jerzy W. Grzymala-Busse. ESEP: An expert system for environmental protection. Proc. of the RSKD–93, International Workshop on Rough Sets and Knowledge Discovery, Banff, Alberta, Canada, October 12–15, 1993, 499–508. Also in *Rough Sets, Fuzzy Sets and Knowledge Discovery*, W. P. Ziarko (ed.), Springer-Verlag, 1994, 466–473.
 34. Dobrosława M. Grzymala-Busse and Jerzy W. Grzymala-Busse. Comparison of machine learning and knowledge acquisition methods of rule induction based on rough sets. Proc. of the RSKD–93, International Workshop on Rough Sets and Knowledge Discovery, Banff, Alberta, Canada, October 12–15, 1993, 297–306. Also in *Rough Sets, Fuzzy Sets and Knowledge Discovery*, W. P. Ziarko (ed.), Springer-Verlag, 1994, 282–289.
 35. Jerzy W. Grzymala-Busse. The rule induction system LERS—A version for personal computers. Proc. of the RSKD–93, International Workshop on Rough Sets and Knowledge Discovery, Banff, Alberta, Canada, October 12–15, 1993, 509.
 36. Dobrosława M. Grzymala-Busse and Jerzy W. Grzymala-Busse. Evaluation of machine learning approach to knowledge acquisition. Proc. of the 14th Int. Avignon Conf., Paris, May 30–June 3, 1994, 183–192.
 37. Jerzy W. Grzymala-Busse. Managing uncertainty in machine learning from examples. Proc. of the Third Intelligent Information Systems Workshop, Wigry, Poland, June 6–11, 1994, 70–84.
 38. Jerzy W. Grzymala-Busse and Linda K. Woolery. Improving prediction of preterm birth using a new classification scheme and rule induction. Proc. of the 18-th Annual Symposium on Computer Applications in Medical Care (SCAMC), Washington, DC, November 5–9, 1994, 730–734.

39. Michelle M. Van Dyne, Linda K. Woolery, Jerzy Grzymala-Busse and Costas Tsatsoulis. Using machine learning and expert systems to predict preterm delivery in pregnant women. Proc of the 10th Conference on Artificial Intelligence Applications, 1994, 344–350.
40. Michal R. Chmielewski and Jerzy W. Grzymala-Busse. Global discretization of continuous attributes as preprocessing for machine learning. Proc. of the 3-rd Int. Workshop on Rough Sets and Soft Computing, San Jose, CA, November 10–12, 1994, 474–480.
41. Jerzy W. Grzymala-Busse and Soe Than. An algorithm to compress data in learning from examples. Proc. of the 3-rd Int. Workshop on Rough Sets and Soft Computing, San Jose, CA, November 10–12, 1994, 294–301.
42. Jerzy W. Grzymala-Busse, Sally Y. Sedelow and Walter A. Sedelow, Jr. Machine learning & knowledge acquisition, rough sets, and the English semantic code. Proc. of the Workshop on Rough Sets and Database Mining, 23rd Annual ACM Computer Science Conference CSC'95, Nashville, TN, March 2, 1995, 91–109.
43. Hamid Moradi, Jerzy W. Grzymala-Busse and James A. Roberts. Entropy of English text: experiments with humans and a machine learning system based on rough sets. Proc. of the 2nd Annual Joint Conference on Information Sciences, JCIS'95, Wrightsville Beach, North Carolina, Sept. 28–Oct. 1, 1995, 87–88.
44. Jerzy W. Grzymala-Busse and Joel Gunn. Global temperature analysis based on the rule induction system LERS. Proc. of the Fourth Workshop on Intelligent Information Systems WIS'95, Augustow, Poland, June 5–10, 1995, 148–158.
45. Jerzy W. Grzymala-Busse and Chien Pei B. Wang. Classification and rule induction based on rough sets. Proc. of the 5th IEEE International Conference on Fuzzy Systems FUZZ-IEEE'96, New Orleans, Louisiana, September 8–11, 1996, 744–747.
46. Jerzy W. Grzymala-Busse and Chien Pei B. Wang. Classification methods in rule induction. Proc of the Fifth Intelligent Information Systems Workshop, Deblin, Poland, June 2–5, 1996, 120–126.
47. Jerzy W. Grzymala-Busse and Linda K. Goodwin. A comparison of less specific versus more specific rules for preterm birth prediction. Proc. of the First Online Workshop on Soft Computing WSC1 on the Internet, served by Nagoya University, Japan, Aug. 19–Aug. 30, 1996, 129–133.
48. Jerzy W. Grzymala-Busse and Anitha Lakshmanan. LEM2 with interval extension: An induction algorithm for numerical attributes. Proc. of the

Fourth Int. Workshop on Rough Sets, Fuzzy Sets and Machine Discovery RSFD'96, Tokyo, Japan, November 6–8, 1996, 67–73.

49. Jerzy W. Grzymala-Busse. LERS: A system of knowledge discovery based on rough sets. Proc. of the Fourth Int. Workshop on Rough Sets, Fuzzy Sets and Machine Discovery RSFD'96, Tokyo, Japan, November 6–8, 1996, 443–444.
50. Jerzy W. Grzymala-Busse and Arthur Y. Wang. Modified algorithms LEM1 and LEM2 for rule induction from data with missing attribute values. Proc. of the Fifth International Workshop on Rough Sets and Soft Computing (RSSC'97) at the Third Joint Conference on Information Sciences (JCIS'97), Research Triangle Park, NC, March 2–5, 1997, 69–72.
51. Jerzy W. Grzymala-Busse and L. John Old. A machine learning experiment to determine part of speech from word-endings. Proc. of the 10th Int. Symposium on Methodologies for Intelligent Systems (ISMIS'97), Charlotte, NC, October 15–18, 1997, in *Foundations of Intelligent Systems*, Z. W. Ras and A. Skowron (eds.), *Lecture Notes in AI* 1325, Springer-Verlag, 1997, 497–506.
52. Jerzy W. Grzymala-Busse and Jerzy Stefanowski. Discretization of numerical attributes by direct use of the rule induction algorithm LEM2 with interval extension. Proc. of the Sixth Symposium on Intelligent Information Systems (IIS'97), Zakopane, Poland, June 9–13, 1997, 149–158.
53. Jerzy W. Grzymala-Busse and Soe Than. Inducing simpler rules from reduced data. Proc of the Seventh Workshop on Intelligent Information Systems (IIS'98), Malbork, Poland, June 15–19, 1998, 371–378.
54. Jerzy W. Grzymala-Busse and Xihong Zou. Classification strategies using certain and possible rules. Proc. of the First International Conference on Rough Sets and Current Trends in Computing, Warsaw, Poland, June 22–26, 1998. *Lecture Notes in Artificial Intelligence*, No. 1424, Springer Verlag, 1998, 37–44.
55. Jerzy W. Grzymala-Busse and Ta-Yuan Hsiao. Dropping conditions in rules induced by ID3. Proceedings of the 6th International Workshop on Rough Sets, Data Mining and Granular Computing RSDMGrC'98 at the 4th Joint Conference on Information Sciences (JCIS'98), Research Triangle Park, NC, October 23–28, 1998, 351 – 354.
56. Jerzy W. Grzymala-Busse, Linda K. Goodwin and Xiaohui Zhang. Preterm birth risk assessed by a new method of classification using selective partial matching. Proc of the Eleventh International Symposium on Methodologies for Intelligent Systems, Warsaw, Poland, June 8–11, 1999.

- Lecture Notes in Artificial Intelligence, No. 1609, Springer Verlag, 1999, 612–620.
57. Jerzy W. Grzymala-Busse, Linda K. Goodwin and Xiaohui Zhang. Increasing sensitivity of preterm birth by changing rule strengths. Proc of the 8th Workshop on Intelligent Information Systems (IIS'99), Ustron, Poland, June 14–18, 1999, 127–136.
 58. Jerzy W. Grzymala-Busse and Jerzy Stefanowski. Two approaches to numerical attribute discretization for rule induction. Proc. of the 5th International Conference of the Decision Sciences Institute, Athens, Greece, July 4–7, 1999, 1377–1379.
 59. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse and Linda K. Goodwin. A closest fit approach to missing attribute values in preterm birth data. Proc. of the Seventh Int. Workshop on Rough Sets, Fuzzy Sets, Data Mining and Granular-Soft Computing (RSFDGrC'99), Ube, Yamaguchi, Japan, November 8–10, 1999. Lecture Notes in Artificial Intelligence, No. 1711, Springer Verlag, 1999, 405–413.
 60. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Data mining experiments for a melanoma data set. Proc. of the Ninth International Symposium on Intelligent Information Systems, Bystra k/Bielska Biala, Poland, June 12–16, 2000. Advances in Soft Computing. M. Klopotek, M. Michalewicz, S. T. Wierzchon (eds.), Physica-Verlag, 2000, 27–34.
 61. Jerzy W. Grzymala-Busse, Linda K. Goodwin, Witold J. Grzymala-Busse and Xinqun Zheng. Comparing different rough set strategies in using rules induced from pre-term birth data. Proc. of the IPMU-2000 Information Processing and Management of Uncertainty in Knowledge-Based Systems, Madrid, Spain, July 3–7, 2000, 388–394.
 62. Jerzy W. Grzymala-Busse, Linda K. Goodwin, Witold J. Grzymala-Busse and Xinqun Zheng. An approach to imbalanced data sets based on changing rule strength. Learning from Imbalanced Data Sets, AAAI Workshop at the 17th Conference on AI, AAAI-2000, Austin, TX, July 30–31, 2000, 69–74.
 63. Jerzy W. Grzymala-Busse and Pankaj Shah. A comparison of rule matching methods used in AQ15 and LERS. Proceedings of the Twelfth International Symposium on Methodologies for Intelligent Systems, ISMIS 2000, Charlotte, NC, October 11–14, 2000. Lecture Notes in Artificial Intelligence, No. 1932, Springer Verlag, 2000, 148–156.
 64. Jerzy W. Grzymala-Busse and Ming Hu. A comparison of several approaches to missing attribute values in data mining. Proceedings of the Second International Conference on Rough Sets and Current Trends in Computing RSCTC'2000, Banff, Canada, October 16–19, 2000, 340–347.

65. Rachel L. Freeman, Jerzy W. Grzymala-Busse, Laura A. Riffel and Stephen R. Schroeder. A self-injurious behavior data set analyzed by data mining system LERS. Proceedings of the Japanese Society for Artificial Intelligence International Workshop on Rough Set Theory and Granular Computing, RSTGC-2001, Matsue, Shimane, Japan, May 20–22, 2001, 195–200.
66. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Application of covering algorithm for classification of melanoid marks on the skin. Proceedings of the 10th International Conference on System-Modeling-Control, Zakopane, Poland, May 21–25, 2001, 261–265.
67. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Melanoma prediction using k-Nearest Neighbor and LEM2 algorithms. Proceedings of the Tenth International Symposium on Intelligent Information Systems, Zakopane, Poland, June 18–22, 2001, 43–55.
68. Jerzy W. Grzymala-Busse, Pippa S. Loupe and Stephen R. Schroeder. Analysis of behavioral responsiveness of rats to GBR12909 using data mining system LERS. Proceedings of the 5th World Multiconference on Systemics, Cybernetics and Informatics, SCI'2001, Orlando, FL, July 22–25, 2001. Vol. 7, Computer Science and Engineering, 528–533.
69. Jan P. Grzymala-Busse, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Prediction of melanoma using rule induction based on rough sets. Proceedings of the 5th World Multiconference on Systemics, Cybernetics and Informatics, SCI'2001, Orlando, FL, July 22–25, 2001. Vol. 7, Computer Science and Engineering, 523–527.
70. Rachel L. Freeman, Jerzy W. Grzymala-Busse, Laura A. Riffel and Stephen R. Schroeder. Analyzing the relation between heart rate, problem behavior, and environmental events using data mining system LERS. Proceedings of the Fourteenth IEEE Symposium on Computer-Based Medical Systems, CBMS 2001, Bethesda, MD, July 26–27, 2001, 11–16.
71. Pippa S. Loupe, Rachel L. Freeman, Jerzy W. Grzymala-Busse and Stephen R. Schroeder. Using rule induction for prediction of self-injuring behavior in animal models of development disabilities. Proceedings of the Fourteenth IEEE Symposium on Computer-Based Medical Systems, CBMS 2001, Bethesda, MD, July 26–27, 2001, 171–176.
72. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse, Stanislaw Bajcar, Bartosz Kinczyk and Krzysztof Klubek. A comparison of covering and induction algorithms for generation of rules identifying melanocyte changes (in Polish). Proc. of the Telemedicine Conference, Lodz, Poland, September 24–26, 2001, 37–41.

73. Jan P. Grzymala-Busse, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Melanoma prediction using data mining system LERS. Proceeding of the 25th Anniversary Annual International Computer Software and Applications Conference COMPSAC 2001, Chicago, IL, October 8–12, 2001, 615–620.
74. Rachel L. Freeman, Jerzy W. Grzymala-Busse, Laura A. Riffel and Stephen R. Schroeder. Analysis of self-injurious behavior by the LERS data mining system. In *New Frontiers in Artificial Intelligence*, the Joint JSAI 2001 Workshop Post-Proceedings, Terano T., Nisihida, T., Namatome, A., Tsumoto, S., Ohsawa, Y., and Washio, T. (eds.), Lecture Notes in Computer Science, vol. 2253, *Springer-Verlag*, 2001, 395–399.
75. Jerzy W. Grzymala-Busse and Ming Hu. A comparison of several approaches to missing attribute values in data mining. Proceedings of the Second International Conference, RSCTC'2000, Banff, Canada, October 16–19, 2000, Revised Papers. Lecture Notes in Artificial Intelligence, 2005, Subseries of Lecture Notes in Computer Science, Springer Verlag, 2001, 378–385.
76. Stanislaw Bajcar, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. A comparison of six discretization algorithms used for prediction of melanoma. Proceedings of the Eleventh International Symposium on Intelligent Information Systems, IIS'2002, Sopot, Poland, June 3–6, 2002, Physica-Verlag, 2003, 3–12.
77. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse, Stanislaw Bajcar, Piotr Blajdo, Maksymilian Knap, Wieslaw Paja and Mariusz Wrzesien. A melanoma database: Current status and future research (in Polish). Proceedings of the 3-rd National Conference INFOBAZY'2002, Gdansk, Poland, June 24–26, 2002, 51–56.
78. Jerzy W. Grzymala-Busse. MLEM2: A new algorithm for rule induction from imperfect data. Proceedings of the 9th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU 2002, Annecy, France, July 1–5, 2002, 243–250.
79. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Postprocessing of rule sets induced from a melanoma data set. Proceedings of the COMPSAC 2002, 26th Annual International Conference on Computer Software and Applications, Oxford, England, August 26–29, 2002, 1146–1151.
80. Zdzislaw Hippe, Jerzy W. Grzymala-Busse and Alicja Bak. Virtual visualization in control and support of medical diagnoses. Proceedings of the International Conference on Artificial Intelligence in Control and Management, AICM'02, Lodz, Poland, September 25–26, 2002, 127–134.

81. Jerzy W. Grzymala-Busse and Zdzislaw Hippe. A search for the best data mining method to predict melanoma. Proceedings of the RSCTC 2002, Third International Conference on Rough Sets and Current Trends in Computing, Malvern, PA, October 14–16, 2002, Springer-Verlag, 538–545.
82. Jerzy W. Grzymala-Busse. A comparison of three strategies to rule induction from data with numerical attributes. Proceedings of the International Workshop on Rough Sets in Knowledge Discovery (RSKD 2003), in conjunction with the European Joint Conferences on Theory and Practice of Software 2003, Warsaw, Poland, April 5–13, 2003, 132–140.
83. Alison Alvarez, Stanislaw Bajcar, Frank M. Brown, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Optimization of the ABCD formula used for melanoma diagnosis. Proceedings of the IIPWM'2003, International Conference on Intelligent Information Processing and WEB Mining Systems, Zakopane, Poland, June 2–5, 2003, 233–240. Springer-Verlag.
84. Jerzy W. Grzymala-Busse. MLEM2—Discretization during rule induction. Proceedings of the IIPWM'2003, International Conference on Intelligent Information Processing and WEB Mining Systems, Zakopane, Poland, June 2–5, 2003, 499–508. Springer-Verlag.
85. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Maksymilian Knap and Teresa Mroczek. A new algorithm for decision tree generation - a concept and implementation (in Polish). Proceedings of the 13-th National Conference on Biocybernetics and Biomedicine Engineering, Gdansk, Poland, September 10–13, 2003, 257–262.
86. Jerzy W. Grzymala-Busse, Stanislaw Bajcar, Witold J. Grzymala-Busse and Zdzislaw S. Hippe. Data mining analysis of the ABCD formula used for diagnosis of melanoma. Proceedings of the CS&P, 2003, Workshop on Concurrency, Specification and Programming, Czarna, Poland, September 25–27, 2003, 205–212.
87. Kurt Varmuza, Jerzy W. Grzymala-Busse, Zdzislaw Hippe and Teresa Mroczek. Comparison of consistent and inconsistent models in biomedical domain: A rough set approach to melanoma data. Proceedings of the AI-METH 2003, Symposium on Artificial Intelligence Methods, Gliwice, Poland, November 5–7, 2003, 323–328.
88. Jerzy W. Grzymala-Busse. Rough set strategies to data with missing attribute values. Proceedings of the Workshop on Foundations and New Directions in Data Mining, in conjunction with the third IEEE International Conference on Data Mining, Melbourne, FL, November 19–22, 2003, 56–63.

89. Stanislaw Bajcar, Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse and Zdzislaw S. Hippe. Diagnosis of melanoma based on data mining and ABCD formulas. Proceedings of the HIS 2003—the Third International Conference on Hybrid Intelligent Systems, Melbourne, Australia, December 14–17, 2003. Design and Application of Hybrid Intelligent Systems, ed. by A. Abraham, M. Köppen, K. Franke, IO Press, 2003, 614–622.
90. Ron Andrews, Stanislaw Bajcar, Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe and Chris Whiteley. Optimization of the ABCD formula for melanoma diagnosis using C4.5, a data mining system. Proceedings of the RSCTC'2004, the Fourth International Conference on Rough Sets and Current Trends in Computing, Uppsala, Sweden, June 1–5, 2004. Lecture Notes in Artificial Intelligence 3066, Springer-Verlag 2004, 630–636.
91. Jerzy W. Grzymala-Busse. Characteristic relations for incomplete data: A generalization of the indiscernibility relation. Proceedings of the RSCTC'2004, the Fourth International Conference on Rough Sets and Current Trends in Computing, Uppsala, Sweden, June 1–5, 2004. Lecture Notes in Artificial Intelligence 3066, Springer-Verlag 2004, 244–253.
92. Teresa Mroczek, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Rules from belief networks: A rough set approach. Proceedings of the RSCTC'2004, the Fourth International Conference on Rough Sets and Current Trends in Computing, Uppsala, Sweden, June 1–5, 2004. Lecture Notes in Artificial Intelligence 3066, Springer-Verlag 2004, 483–487.
93. Jerzy W. Grzymala-Busse, Jay Hamilton and Zdzislaw S. Hippe. Diagnosis of melanoma using IRIM, a data mining system. Proceedings of the ICAISC'2004, the Seventh International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, June 7–11, 2004. Lecture Notes in Artificial Intelligence 3070, Springer-Verlag 2004, 996–1001.
94. Jerzy W. Grzymala-Busse. Rough set approach to incomplete data. Proceedings of the ICAISC'2004, the Seventh International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, June 7–11, 2004. Lecture Notes in Artificial Intelligence 3070, Springer-Verlag 2004, 50–55.
95. Jerzy W. Grzymala-Busse and Sachin Siddhaye. Rough set approaches to rule induction from incomplete data. Proceedings of the IPMU'2004, the 10th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, Perugia, Italy, July 4–9, 2004, vol. 2, 923–930.
96. Jerzy W. Grzymala-Busse, Jerzy Stefanowski and Szymon Wilk. A comparison of two approaches to data mining from imbalanced data.

- Proceedings of the KES 2004, 8-th International Conference on Knowledge-based Intelligent Information & Engineering Systems, Wellington, New Zealand, September 20–24, 2004. Part I, Lecture Notes in AI, vol. 3213, Springer Verlag, Berlin-Heidelberg, 2004, 757–763.
97. Jerzy W. Grzymala-Busse. Three approaches to missing attribute values—A rough set perspective. Proceedings of the Workshop on Foundation of Data Mining, in conjunction with the Fourth IEEE International Conference on Data Mining, Brighton, UK, November 1–4, 2004, 55–62.
 98. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse, Maksymilian Knap and Wieslaw Paja. Infoscience technology: An impact of Internet accessible melanoid data on health issues. The 19th International CODATA Conference *The Information Society: New Horizons for Science*, Berlin, Germany, November 7–10, 2004. Abstract in the Electronic Proceedings: <http://www.codata.org/04conf/index.html>.
 99. Zdzislaw S. Hippe, Jerzy Grzymala-Busse, Piotr Blajdo, Maksymilian Knap, Teresa Mroczek, Wieslaw Paja and Mariusz Wrzesien. Classification of medical images in the domain of melanoid skin lesions. Proceedings of the CORES' 05, 4-th International Conference on Computer Recognition Systems, Springer-Verlag, May 22–25, 2005, Rydzyna, Poland, 519–526.
 100. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse and Jay Hamilton IV. Discriminant versus strong rule sets. Proceedings of the IIPWM'2005, International Conference on Intelligent Information Processing and WEB Mining Systems, Springer-Verlag, Gdansk, Poland, June 13–16, 2005, 67–76.
 101. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe and Teresa Mroczek. Belief rules vs. decision rules: A preliminary appraisal of the problem. Proceedings of the IIPWM'2005, International Conference on Intelligent Information Processing and WEB Mining Systems, Springer-Verlag, Gdansk, Poland, June 13–16, 2005, 431–435.
 102. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Data mining methods supporting diagnosis of melanoma. Proceedings of the IEEE CBMS 2005, 18th IEEE Symposium on Computer-Based Medical Systems, IEEE Computer Society, Dublin, Ireland, June 23–24, 2005, 371–373.
 103. Jerzy W. Grzymala-Busse, Linda K. Goodwin, Witold J. Grzymala-Busse and Xinqun Zheng. Handling missing attribute values in preterm birth data sets. Proceedings of the RSFDGrC'2005, the Tenth International Conference on Rough Sets, Fuzzy Sets, data Mining, and Granular Computing, Springer-Verlag, Regina, Canada, September 1–3, 2005, 342–351.

104. Jerzy W. Grzymala-Busse. Incomplete data and generalization of indiscernibility relation, definability, and approximations. Proceedings of the RSFDGrC'2005, the Tenth International Conference on Rough Sets, Fuzzy Sets, data Mining, and Granular Computing, Springer-Verlag, Regina, Canada, September 1–3, 2005, 244–253.
105. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Teresa Mroczek, Edward Roj and Boleslaw Skowronski. Data mining analysis of granular bed caking during hop extraction. Proceedings of the ISDA'2005, Fifth International Conference on Intelligent System Design and Applications, IEEE Computer Society, Wroclaw, Poland, September 8–10, 2005, 426–431.
106. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Teresa Mroczek, Edward Roj and Boleslaw Skowronski. Data mining experiments on hop processing data. Proceedings of the HIS'2005, Fifth International Conference on Hybrid Intelligent Systems, IEEE Computer Society, Rio de Janeiro, Brazil, November 6–9, 2005, 175–180.
107. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. System BeliefSEEKER—A new approach to induction of belief networks and belief rules. Proc. of the AI-METH 2005, Symposium on Methods of Artificial Intelligence, Gliwice, Poland, November 16–18, 2005, 59–60.
108. Jerzy W. Grzymala-Busse. MLEM2 rule induction algorithms: with and without merging intervals. Proceedings of the Workshop on Foundations of Semantic Oriented Data and WEB Mining, in conjunction with the ICDM'05, Fifth IEEE International Conference on Data Mining, Houston, TX, November 27–30, 2005, 24–28.
109. Jerzy W. Grzymala-Busse and Gustavo P. Sudre. A comparison of two partial matching strategies for classification of unseen cases. Proc. of the IEEE GrC'2006, IEEE International Conference on Granular Computing, Atlanta, GA, May 10–12, 2006, 800–805.
110. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse and Lukasz Piatek. Randomized dynamic generation of selected melanocytic skin lesion features. Proceedings of the IIS'2006 International Conference on Intelligent Information Systems, New Trends in Intelligent Information Processing and WEB Mining, Springer-Verlag, Ustron, Poland, June 19–22, 2006, 21–29.
111. Jerzy W. Grzymala-Busse and Steven Santos. Experiments on data with three interpretations of missing attribute values—A rough set approach. Proceedings of the IIS'2006 International Conference on Intelligent Information Systems, New Trends in Intelligent Information Processing and WEB Mining, Springer-Verlag, Ustron, Poland, June 19–22, 2006, 143–152.

112. Jianwen Fang and Jerzy W. Grzymala-Busse. Leukemia prediction from gene expression data—A rough set approach. Proceedings of the ICAISC'2006, the Eighth International Conference on Artificial Intelligence and Soft Computing, Lecture Notes in Artificial Intelligence, vol. 4029, Springer-Verlag, Zakopane, Poland, June 25–29, 2006, 899–908.
113. Jerzy W. Grzymala-Busse. Experiments on mining incomplete data—A rough set approach. Proceedings of the IPMU'2006, the 11th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, Paris, France, July 2–7, 2006, 2586–2593.
114. Jerzy W. Grzymala-Busse. A rough set approach to data with missing attribute values. Proceedings of the RSKT'2006, the First International Conference on Rough Sets and Knowledge Technology, Lecture Notes in Artificial Intelligence, vol. 4062, Springer-Verlag, Chongqing, P. R. China, July 24–26, 2006, 58–67.
115. Jianwen Fang and Jerzy W. Grzymala-Busse. Mining of microRNA expression data—A rough set approach. Proceedings of the RSKT'2006, the First International Conference on Rough Sets and Knowledge Technology, Lecture Notes in Artificial Intelligence, vol. 4062, Springer-Verlag, Chongqing, P.R. China, July 24–26, 2006, 785–765.
116. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse and Teresa Mroczek. Belief networks vs. belief rules: basic theory and practical issues. Proceedings of the 3-rd Conference Chemometrics - Methods and Applications, Zakopane, Poland, October 19–22, 2006, 47–67.
117. Jerzy W. Grzymala-Busse and Wojciech Rzasca. Local and global approximations for incomplete data. Proceedings of the RSCTC 2006, the Fifth International Conference on Rough Sets and Current Trends in Computing, Kobe, Japan, November 6–8, 2006 Lecture Notes in AI, 4259. ed. by: S. Greco, Y. Hata, S. Hirano, M. Inuiguchi, H.-S. Nguyen, R. Slowinski, Springer Verlag, Berlin, Heidelberg, 2006, 244–253.
118. Jerzy W. Grzymala-Busse and Wojciech Rzasca. Definability of approximations for a generalization of the indiscernibility relation. Proceedings of the 2007 IEEE Symposium on Foundations of Computational Intelligence (FOCI'2007), Honolulu, Hawaii, April 1–5, 2007, IEEE Computer Society, 65–72.
119. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Agnieszka Kordek, Teresa Mroczek and Wojciech Podraza. Neonatal infection diagnosis using constructive induction in data mining. Proceedings of the 11-th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing (RSFDGrC' 2007), Toronto, Canada, May 14–16, 2007, Springer: Berlin, Heidelberg, New York, Lecture Notes in AI, vol.

- 4482, ed. by A. An, J. Stefanowski, S. Ramanna, C. J. Butz, W. Pedrycz and G. Wang, 289–296.
120. Jianwen Fang and Jerzy W. Grzymala-Busse. Mining mass spectrometry database search results—A rough set approach. Proceedings of the RSEISP'2007, the International Conference of Rough Sets and Emerging Intelligent Systems Paradigms, Warsaw, Poland, June 28–30, 2007. Springer, Berlin, Heidelberg, New York, Lecture Notes in AI, vol. 4585, ed. by M. Kryszkiewicz, J. F. Peters, H. Rybinski and A. Skowron, 340–349.
 121. Jerzy W. Grzymala-Busse. Mining numerical data—A rough set approach. Proceedings of the RSEISP'2007, the International Conference of Rough Sets and Emerging Intelligent Systems Paradigms, Warsaw, Poland, June 28–30, 2007. Springer, Berlin, Heidelberg, New York, Lecture Notes in AI, vol. 4585, ed. by M. Kryszkiewicz, J. F. Peters, H. Rybinski and A. Skowron, 12–21.
 122. Jerzy W. Grzymala-Busse and Wojciech Rzasa. Discovery of decision rules in incomplete data. Modified LEM2 algorithm for local approximations. Proceedings of the Thirteen International Conference on Mathematics and Computer Science, Chelm, Poland, July 1–4, 2007, 46–47.
 123. Zdzislaw S. Hippe, Jerzy W. Grzymala-Busse and Lukasz Piatek. Synthesis of static images of melanocytic skin lesions. Proc. of the Int. Conference on Computers in Medical Activity, Lodz, Poland, September 19–21, 2007. In *Information Technologies in Biomedicine*, ed. by E. Pietka and J. Kawa, Springer-Verlag, Berlin, Heidelberg, 2008, 225–231.
 124. Jerzy W. Grzymala-Busse and Wojciech Rzasa. Approximation space and LEM2-like algorithms for local approximations. Proceedings of the Concurrency, Specification and Programming Workshop, Lagow, Poland, September 27–29, 2007, 279–289.
 125. Jianwen Fang and Jerzy W. Grzymala-Busse. Predicting penetration across the blood-brain barrier—A rough set approach. Proceedings of the IEEE Int. Conference on Granular Computing GrC 2007, Silicon Valley, USA, November 2–4, 2007, IEEE Computer Society, 231–236.
 126. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse, Zdzislaw S. Hippe and Wojciech Rzasa. A comparison of three approximation strategies for incomplete data sets. Proceedings of the IEEE Int. Conference on Granular Computing GrC 2007, Silicon Valley, USA, November 2–4, 2007, IEEE Computer Society, 301–306.
 127. Piotr Blajdo, Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Maksymilian Knap, Teresa Mroczek and Lukasz Piatek. A comparison of six approaches to discretization—A rough set perspective. Proceedings of the

- Rough Sets and Knowledge Technology, RSKT'2008 Conference, Chengdu, China, May 17–19, 2008, ed. by G. Wang, T. Li, J. W. Grzymala-Busse, D. Miao, A. Skowron and Y. Y. Yao, Springer Verlag, Lecture Notes in AI, vol. 5009, 31–38.
128. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Teresa Mroczek, Adam Bucinski, Agnieszka Strepikowska and Andrzej Tutaj. Prediction of severe brain damage outcome using two data mining methods, 6 pp., available on the CD: *Proceedings of the 2008 Conference on Human System Interaction*, Krakow, Poland, May 25–27, 2008, 585–590. IEEE Computer Society, IEEE catalog number: 08EX1995C, ISBN: 1-4244-1543-8.
 129. Jerzy W. Grzymala-Busse, Witold J. Grzymala-Busse, Zdzislaw S. Hippe and Wojciech Rzasa. An improved comparison of three rough set approaches to missing attribute values. *Proceedings of the 16-th Int. Conference on Intelligent Information Systems*. Zakopane, Poland, June 16–18, 2008, 141–150.
 130. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. Improving quality of rule sets by increasing incompleteness of data sets. *Proceedings of the ICSOFT'2008, 3-rd Int. Conference on Software and Data Technologies*, volume PL/DPS/KE, Porto, Portugal, July 5–8, 2008, 241–248.
 131. Jerzy W. Grzymala-Busse and Edward Roj. A rough set approach to developing an expert system for hop extraction process. *Proceedings of the 18-th Int. Congress of Chemical and Process Engineering*, Praha, Czech Republic, August 24–28, 2008, 6 pp.
 132. Jerzy W. Grzymala-Busse and Witold J. Grzymala-Busse. Inducing better rule sets by adding missing attribute values. *Proceedings of the 6-th International Conference on Rough Sets and Current Trends in Computing, RSCTC'2008*, Akron, OH, October 23–25, 2008, ed. by C.-C. Chan, J. W. Grzymala-Busse and W. P. Ziarko. Springer-Verlag, Lecture Notes in AI, vol. 5306, 160–169.
 133. Jerzy W. Grzymala-Busse and Yiyu Yao. A comparison of the LERS classification system and rule management in PRSM. *Proceedings of the 6-th International Conference on Rough Sets and Current Trends in Computing, RSCTC'2008*, Akron, OH, October 23–25, 2008, ed. by C.-C. Chan, J. W. Grzymala-Busse and W. P. Ziarko. Springer-Verlag, Lecture Notes in AI, vol. 5306, 202–210.
 134. Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe, Wojciech Rzasa and Supriya Vasudevan. A valued tolerance approach to missing attribute values in data mining. *Proceedings of the HSI'2009, 2-nd International Conference on Human System Interaction*, Catania, Italy, May 21–23, 2009, 220–227.

135. Jerzy W. Grzymala-Busse. A comparison of traditional and rough set approaches to missing attribute values in data mining. Proceedings of the Data Mining 2009, 10-th International Conference on Data Mining, Detection, Protection and Security, Royal Mare Village, Crete, Greece, May 27–29, 2009, 155–163.
136. Lukasz Piatek, Jerzy W. Grzymala-Busse, Zdzislaw S. Hippe. A new approach to synthesis of some biomedical images. Proceedings of the IIS 2009 Conference Recent Advances in Intelligent Information Systems, Krakow, Poland, June 15–18, 2009, 289–299.
137. Jerzy W. Grzymala-Busse. A closest fit approach to missing attribute values. Proceedings of the IIS 2009 conference Recent Advances in Intelligent Information Systems, Krakow, Poland, June 15–18, 2009, 429–442.
138. Jerzy W. Grzymala-Busse. A multiple scanning strategy for entropy based discretization. Proceedings of the 18-th International Symposium on Methodologies for Intelligent Systems, Prague, Czech Republic, September 14–17, 2009. Springer-Verlag, Lecture Notes in AI, vol. 5722, 25–34.
139. Jerzy W. Grzymala-Busse and Wojciech Rzas. Local approximations. Proceedings of the 10-th International Conference on Intelligent data Engineering and Automated Learning (IDEAL'2009), Burgos, Spain, September 23–26, 2009. Springer-Verlag, Lecture Notes in AI, vol. 5788, 9–16.
140. Jerzy W. Grzymala-Busse. Mining data with missing attribute values: A comparison of probabilistic and rough set approaches. Proceedings of the ISKE 2009, the 4-th International Conference on Intelligent Systems and Knowledge Engineering, Hasselt, Belgium, November 27–28, 2009, Intelligent Decision Making Systems, ed. by K. Vanhoof, D. Ruan, T. Li and G. Wets. World Scientific Publ., Co., 2010, 153–158.
141. Teresa Mroczek, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. A new machine learning tool for mining brain stroke data. Proceedings of the HSI 2010 (3-rd International Conference on Human System Interaction, Rzeszow, Poland, May 13–15, 2010. IEEE Computer Society, 246–250.
142. Pawel Cudek, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Melanocytic skin lesion image classification. Part I: Recognition of skin lesion. Proceedings of the HSI 2010 (3-rd International Conference on Human System Interaction, Rzeszow, Poland, May 13–15, 2010. IEEE Computer Society, 251–257.

143. Jerzy W. Grzymala-Busse and Shantan R. Marepally. Sensitivity and specificity for mining data with increased incompleteness. Proceedings of the 10-th International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, June 13–17, 2010. Artificial Intelligence and Soft Computing, Part I. Leszek Rutkowski, Rafal Scherer, Ryszard Tadeusiewicz, Lotfi A. Zadeh, Jacek M. Zurada (eds). LNAI 6113, Springer-Verlag, Berlin Heidelberg, 2010, 355–362.
144. Jerzy W. Grzymala-Busse, Shantan R. Marepally and Yiyu Yao. An empirical comparison of rule sets induced by LERS and Probabilistic Rough Classification. Proceedings of the 7-th International Conference on Rough Sets and Current Trends in Computing (RSCTC 2010), Warsaw Poland, June 28–30, 2010. Rough Sets and Current Trends in Computing. Marcin Szczuka, Marzena Kryszkiewicz, Sheela Ramanna, Richard Jensen, Xinghua Hu (eds). LNAI 6086, Springer-Verlag, Berlin Heidelberg, 2010, 590–599.
145. Clinton Cohagan, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Mining inconsistent data with the bagged MLEM2 rule induction algorithm. Proceedings of the 2010 IEEE Conference on Granular Computing (GrC 2010), Silicon Valley, CA, August 14–16, 2010 IEEE Computer Society CPS, 115–120.
146. Jerzy W. Grzymala-Busse. Selected topics of data mining. Proceedings of the 2010 IEEE Conference on Granular Computing (GrC 2010), Silicon Valley, CA, August 14–16, 2010 IEEE Computer Society CPS, 22–23.
147. Jerzy W. Grzymala-Busse, Shantan R. Marepally and Yiyu Yao. A comparison of positive, boundary, and possible rules using the MLEM2 rule induction algorithm. Proceedings of the 10-th International Conference on Hybrid Intelligent Systems (HIS 2010), Atlanta GA, August 23–25, 2010. IEEE Computer Society, 7–12.
148. Clinton Cohagan, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. A comparison of three voting methods for bagging with the MLEM2 algorithm. Proceedings of the 11-th International Conference on Intelligent Data Engineering and Automated Learning, IDEAL 2010, Paisley, Scotland, September 1–3 2010. Springer Verlag, Berlin-Heidelberg, Lecture Notes in Computer Science 6283, 2010, 118–125.
149. Jerzy W. Grzymala-Busse. Rough set and CART approaches to mining incomplete data. Proceedings of the International Conference on Soft Computing and Pattern Recognition, Cergy Pontoise, France, December 7–10, 2010. IEEE Computer Society, 214–219.
150. Pawel Cudek, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Asymmetry of digital images describing melanocytic skin lesions. Proceedings of the 4-th International Conference on Computer

- Recognition Systems Wroclaw, Poland, May 23–25, 2011, Springer Verlag, Berlin–Heidelberg, *Advances in Intelligent and Soft Computing* 95, 605–611, 2011.
151. Jerzy W. Grzymala-Busse. A comparison of rough set approaches to mining symbolic data with missing attribute values. *Proceedings of the ISMIS 2011, the 19-th International Symposium on Methodologies for Intelligent Systems, Warsaw, Poland, June 28–30, 2011.* Springer Verlag, Berlin-Heidelberg, *Lecture Notes in Computer Science* 6804, 2011, 52–61.
 152. Jerzy W. Grzymala-Busse. Generalized parameterized approximations. *Proceedings of the RSKT'2011, the 6-th International Conference on Rough Sets and Knowledge Technology, Banff, Canada, October 9–12, 2011.* Springer Verlag, Berlin-Heidelberg, *Lecture Notes in Computer Science* 6954, 2011, 136–145.
 153. Jerzy W. Grzymala-Busse. Mining incomplete data—A rough set approach. *Proceedings of the RSKT'2011, the 6-th International Conference on Rough Sets and Knowledge Technology, Banff, Canada, October 9–12, 2011.* Springer Verlag, Berlin-Heidelberg, *Lecture Notes in Computer Science* 6954, 2011, 1–7.
 154. Patrick G. Clark and Jerzy W. Grzymala-Busse. Experiments on probabilistic approximations. *Proceedings of the Gr'2011, the IEEE International Conference on Granular Computing.* Kaohsiung, Taiwan, November 8–10, 2011, 144–149.
 155. Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. Mining data with numerical attributes and missing attribute values—A rough set approach. *Proceedings of the Gr'2011, the IEEE International Conference on Granular Computing.* Kaohsiung, Taiwan, November 8–10, 2011, 214–219.
 156. Jerzy W. Grzymala-Busse. An empirical comparison of rule induction using feature selection with the LEM2 algorithm. Submitted to a conference.
 157. Patrick G. Clark and Jerzy W. Grzymala-Busse. Rule induction using probabilistic approximations and data with missing attribute values. Submitted to a conference.
 158. Patrick G. Clark, Jerzy W. Grzymala-Busse and Zdzislaw S. Hippe. How good are probabilistic approximations for rule induction from data with missing attribute values. Submitted to a conference.

Patents

1. A system for temperature control in storage of agricultural products, 1971. Polish Patent # 62592 (co-authored).
2. J. Grzymala-Busse and R. Cieslak. A switching circuit realizing strictly periodic automata, 1975. Polish Patent # 73713.
3. J. Grzymala-Busse and A. Gazinski. A relay generator of random numbers, 1976. Polish Patent # 70446.

Published Reviews

19 reviews of books in the Zentralblatt für Mathematik, 1982–present,
 4 reviews of books in the Mathematical Reviews, 1991–present,
 92 reviews of papers in the Mathematical Reviews, 1978–present.

Research Reports

1. Zamir Bavel and Jerzy Grzymala-Busse. Semigroup-type automata. Department of Computer Science, University of Kansas, TR-77-2, May 1977, 10 pp.
2. Zamir Bavel and Jerzy W. Grzymala-Busse. On protocol projections and safety properties. University of Kansas, SDF-565-86–9, 1986, 13 pp.
3. Jerzy W. Grzymala-Busse. Rough-set and Dempster-Shafer approaches to knowledge acquisition under uncertainty—A comparison. University of Kansas, manuscript, 1987, 14 pp.
4. John S. Dean and Jerzy W. Grzymala-Busse. An overview of the learning from examples module LEM1. Department of Computer Science, University of Kansas, TR-88-2, October 1988, 13 pp.
5. Jerzy W. Grzymala-Busse and Mohideen Noordeen. CRS—A program for clustering based on rough set theory. Department of Computer Science, University of Kansas, TR-88-3, October 1988, 13 pp.
6. Jerzy W. Grzymala-Busse and Douglas J. Sikora. LERS1—A system for learning from examples based on rough sets. Department of Computer Science, University of Kansas, TR-88-5, November 1988, 16 pp.
7. Jerzy W. Grzymala-Busse. On the learning of minimal discriminant rules from examples. Department of Computer Science, University of Kansas, TR-89-3, November 1989, 18 pp.

8. Jerzy W. Grzymala-Busse. Learning minimal discriminant rules from examples with inconsistencies—a rough set approach. Department of Computer Science, University of Kansas, TR-89-4, November 1989, 17 pp.
9. Jerzy W. Grzymala-Busse and Sachin Mithal. A comparison of four tests for attribute dependency in the LEM and LERS systems for learning from examples. Department of Computer Science, University of Kansas, TR-89-5, November 1989, 15 pp.
10. David Chen and Jerzy W. Grzymala-Busse. An overview of the learning programs LEM1.1 and LERS1.1. Department of Computer Science, University of Kansas, TR-89-9, December 1989, 11 pp.
11. Jerzy W. Grzymala-Busse and Chen H. Yang. LERS_LB—An implementation of lower boundaries for learning rules from examples. Department of Computer Science, University of Kansas, TR-89-10, December 1989, 8 pp.
12. Jerzy W. Grzymala-Busse and Lei Yue. The machine learning programs LEM2 and LERS_LB2 based on single coverings and blocks. Department of Computer Science, University of Kansas, TR-90-3, November 1990, 15 pp.
13. Alfian Budihardjo and Jerzy W. Grzymala-Busse. An overview of the learning program LERS_LB 2.5. Department of Computer Science, University of Kansas, TR-90-4, December 1990, 9 pp.
14. Andrzej Skowron and Jerzy W. Grzymala-Busse. From the rough set theory to the evidence theory. Institute of Computer Science, Warsaw University of Technology, RR 8/91, October 1991, 49 pp.
15. Chien-Chung Chan and Jerzy W. Grzymala-Busse. On the lower boundaries in learning rules from examples. Department of Computer Science, University of Kansas, TR-91-13, December 1991, 15 pp.
16. Chien-Chung Chan and Jerzy W. Grzymala-Busse. On the attribute redundancy and the learning programs ID3, PRISM, and LEM2. Department of Computer Science, University of Kansas, TR-91-14, December 1991, 20 pp.
17. Gabriel Gonzalez and Jerzy W. Grzymala-Busse. On the comparison of the LEM1 and LEM2 algorithms. Department of Computer Science, University of Kansas, TR-91-15, December 1991, 13 pp.
18. Jerzy W. Grzymala-Busse and Paolo Werbrouck. On the best search method in the LEM and LEM2 algorithms. Department of Computer Science, University of Kansas, TR-91-16, December 1991, 26 pp.

19. Michal R. Chmielewski and Jerzy W. Grzymala-Busse. Global discretization of continuous attributes as preprocessing for inductive learning. Department of Computer Science, University of Kansas, TR-92-7, December 1992, 28 pp.
20. Jerzy W. Grzymala-Busse, Jerzy Stefanowski and Wojciech Ziarko. Rough sets: facts versus misconceptions. Institute of Computer Science, Warsaw University of Technology, RR 61/95, December 1995, 10 pp.

Invited scholarly presentations (last three years):

1. Improving of quality of rule sets through increasing incompleteness of data sets. University of Rzeszow, Rzeszow, Poland, January 8, 2009.
2. Mining incomplete data and rough set theory. University of Warsaw, Warsaw, Poland, June 22, 2009.
3. Mining incomplete data—A rough set approach. A keynote talk presented at the RSKT'2011, the 6-th International Conference on Rough Sets and Knowledge Technology, Banff, Canada, October 9–12, 2011.

Chairing a session on Conferences (last three years):

1. HSI 2009, the 2-nd International Conference on Human System Interaction, Catania, Italy, May 21–23, 2009.
2. IIS 2009, the 17-th International Conference on Intelligent Information Systems, Krakow, Poland, June 15–18, 2009.
3. ISMIS'2009, the Eighteenth International Symposium on Methodologies for Intelligent Systems, Prague, Czech Republic, September 14–17, 2009.
4. IDEAL 2009, the 10-th International Conference on Intelligent Data Engineering and Automated Learning, Burgos, Spain, September 23–26, 2009.
5. ICAISC 2010, the 10-th International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, June 13–17, 2010.
6. RSCTC 2010, the 7-th International Conference on Rough Sets and Current Trends in Computing (RSCTC 2010), Warsaw Poland, June 28–30, 2010.
7. GrC 2010, the 2010 IEEE Conference on Granular Computing, Silicon Valley, CA, August 14–16, 2010.

8. HIS 2010, the 10-th International Conference on Hybrid Intelligent Systems
Atlanta, GA, August 23–25, 2010.
9. ISMIS 2011, the 19-th International Symposium on Methodologies for
Intelligent Systems, Warsaw, Poland, June 28–30, 2011.
10. Gr 2011, the IEEE International Conference on Granular Computing.
Kaohsiung, Taiwan, November 8–10, 2011.

Societies and Organizations

1981–present, Association for Computing Machinery,
ACM Special Interest Group on Artificial Intelligence,
ACM Special Interest Group on Knowledge Discovery and Data Mining,
1982–present, Upsilon Pi Epsilon,
1986–present, Association for the Advancement of Artificial Intelligence (former
American Association for Artificial Intelligence),
1996–2005, International Rough Set Society, a member of the Advisory Board,
2005–2010 Vice-President of the International Rough Set Society,
2010–present, member of the International Rough Set Society Steering
Committee,
2007–present, a member of the IEEE Granular Computing Technical Committee,
2011–present, a member of the IEEE SMC Society Technical Committee on Soft
Computing.

Service

Examination Committees (last three years)

Chair of the Oral Examination for the Ph. D. (once).
Member of the Oral Examination for Master's degree (eight times)
Member of the Final Examination for Ph. D. degree (five times).

Department of Electrical Engineering and Computer Science (last three years)

2000–2010, a member of the Untenured Faculty Review Subcommittee,
2000–2010, a member of the Faculty Rights, Privileges, and Responsibilities
Committee,
2011–present, the chairman of the Faculty Rights, Privileges and Responsibilities
Committee
2011–present, a member of the Untenured Faculty Committee.

University of Kansas

Summer 2011, a member of the Scholarly Misconduct Investigation Committee.

Engineering Senate (last three years)

2008-2009, Sabbatical Leave Committee,
1999–2010, Faculty Rights, Privileges, and Responsibilities Committee.

Nation

National Committees

1989–present, National Research Council.

KDD Laboratory, University of North Carolina at Charlotte, an Associate,

Rough Set Technology Laboratory, University of Regina, Regina, Saskatchewan, Canada, an Affiliated Member,

Kansas Institute for Positive Behavior Support Advisory Board, a Member.

Reviewing for Journals (last three years)

International Journal of Intelligent Systems ,
European Journal of Operational Research,
Journal of Intelligent Information Systems,
International Journal of Knowledge-Based Intelligent Engineering Systems,
Data and Knowledge Engineering Journal,
Fundamenta Informaticae,
International Journal of Uncertainty, Fuzziness and Knowledge Based Systems,
International Journal of Cognitive Informatics and natural Intelligence,
International Journal of Approximate Reasoning,
International Journal of Granular Computing, Rough Sets and Intelligent Systems,
Transactions on Rough Sets.

Conference Program Committees (last three years)

HAIS'2009, the Fourth International Conference on Hybrid Artificial Intelligence Systems, Salamanca, Spain, June 10–12, 2009. A member of the Program Committee.

- IIS 2009, the 17-th International Conference on Intelligent Information Systems, Krakow, Poland, June 15–18, 2009. A member of the Program Committee.
- RSKT'2009, the Fourth International Conference on Rough Sets and Knowledge Technology, Gold Coast, Australia, July 12–16, 2009. A member of the Organizing Committee.
- HIS 2009, the 9-th International Conference on Hybrid Intelligent Systems, Shenyang, Liaoning, China, August 12–14, 2009. A member of the Program Committee.
- GrC'2009, the IEEE Int. Conference on Granular Computing, Lushan Mountain, Nanchang, China, August 17–19, 2009. A member of the Program Committee.
- DEXA 2009, the 20-th International Conference on Database and Expert Systems, Linz, Austria, August 31–September 4, 2009. A member of the Program Committee.
- ISMIS'2009, the Eighteenth International Symposium on Methodologies for Intelligent Systems, Prague, Czech Republic, September 14–17, 2009. A member of the Program Committee.
- IDEAL 2009, the 10-th International Conference on Intelligent Data Engineering and Automated Learning, Burgos, Spain, September 23–26, 2009. A member of the Program Committee.
- ICMMI'2009, the International Conference on Man-Machine Interactions (in memoriam of Adam Mrozek), Beskids - Kocierz Pass, Poland, September 25–27, 2009. A member of the Program Committee.
- MEDES'2009, the International ACM Conference on Management of Emergent Digital EcoSystems, Lyon, France, October 27–30, 2009. A member of the Program Committee.
- WSC 2009, the 14-th Online World Conference on Soft Computing and Industrial Applications, November 17–29, 2009. A member of the Program Committee.
- ISDA'2009, the Ninth International Conference on Intelligent Systems Design and Applications, Pisa, Italy, November 30–December 2, 2009. A member of the Program Committee.
- SoCPaR 2009, the International Conference on Soft Computing and pattern recognition, Malacca, Malaysia. December 4-7, 2009. A member of the Program Committee.

RSFSDMGrC 2009, the 12-th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing, Delphi, India, December 16–18, 2009. A member of the Program Committee.

HSI'2010, the 3-rd International Conference on Human System Interaction, Rzeszow, Poland, May 13–15, 2010. A member of the Technical Program Committee.

IIS'2010, the International Joint Conference on Intelligent Information Systems, Siedlce, Poland, June 8–10, 2010. A member of the Program Committee.

ICAISC 2010, the International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, June 13–17, 2010. A member of the Scientific Committee.

HAI 2010, the 5-th International Conference on Hybrid Artificial Intelligence Systems, San Sebastian, Spain, June 23–25, 2010. A member of the Program Committee.

RSCTC 2010, the 7-th International Conference on Rough Sets and Current trends in Computing, Warsaw, Poland, June 28–30, 2010. A member of the Program Committee

GrC 2010, the IEEE Int. Conference on Granular Computing, Silicon Valley, CA, August 14–16, 2010. A Program Chair.

HIS 2010, the 10-th International Conference on Hybrid Intelligent Systems, Atlanta, GA, August 23–25, 2010. A member of the Program Committee.

DEXA 2010, the 21-st International Conference on Database and Expert Systems, Linz, Austria, August 30–September 3, 2010. A member of the Program Committee.

IDEAL 2010, the 11-th International Conference on Intelligent Data Engineering and Automated Learning, Paisley, Scotland, September 1–3, 2010. A member of the Program Committee.

RSKT 2010, the 5-th International Conference on Rough Set and Knowledge Technology. Beijing, China, October 15–17, 2010. A chair of the Publicity Committee.

RST 2010, the Rough Set Theory Workshop, Zhoushan, Zhejiang, China, October 19–21, 2010. A member of the Program Committee.

- SoCPaR 2010, the International Conference on Soft Computing and Pattern Recognition, Cergy Pointose, France, December 7–10, 2010. A member of the Program Committee.
- HAIIS 2011, the 6-th International Conference on Hybrid Artificial Intelligence Systems, Wroclaw, Poland, May 23–25, 2011. A member of the Program Committee.
- IIS 2011, the 19th International Conference Intelligent Information Systems, organized jointly with the conference on Security & Intelligent Information Systems, Warsaw, Poland, June 13–14, 2011. A member of the Program Committee.
- FUZ-IEEE 2011, the International Conference on Fuzzy Systems, Taipei, Taiwan, June 27–30, 2011. A member of the Technical Program Committee.
- ISMIS 2011, the Nineteenth International Symposium on Methodologies for Intelligent Systems, Warsaw, Poland, June 28–30, 2011. A member of the Program Committee.
- DEXA 2011, the 22-nd International Conference on Database and Expert Systems, Toulouse, France, August 29–September 2, 2011. A member of the Program Committee.
- IDEAL 2011, the 12-th International Conference on Intelligent Data Engineering and Automated Learning, Norwich, England, September 7–9, 2011. A member of the Program Committee.
- RST 2011, the Rough Set Theory Workshop, Milan, Italy, September 14–16, 2011,. A member of the Program Committee.
- ICMMI 2011, the International Conference on Man-Machine Interactions, Beskids, Poland, October 6–9, 2011. A member of the Program Committee.
- RSKT 2011, the 6-th International Conference on Rough Sets and Knowledge Technology, Banff, Canada, October 9–12, 2011. A member of the Program Committee.
- SoCPaR 2011, the Third International Conference on Soft Computing and Pattern Recognition, Dalian, China, October 14–16, 2011. A member of the Program Committee.
- GrC 2011, the IEEE Int. Conference on Granular Computing, Kaohsiung, Taiwan, November 8–10, 2011. A member of the Program Committee.

MEDES 2011, the International ACM Conference on Management of Emergent Digital EcoSystems, San Francisco, CA, November 21–24, 2011. A member of the Program Committee.

HIS 2011, the 11-th International Conference on Hybrid Intelligent Systems, Malacca, Malaysia, December 5–8, 2011. A member of the Program Committee.

HAIS 2012, the 7-th International Conference on Hybrid Artificial Intelligence Systems, Salamanca, Spain, March 28–30, 2012. A member of the Program Committee.

JRS 2012, the Joint Rough Set Symposium, a joint conference of the Eighth International Conference on Rough Sets and Current Trends in Computing (RSCTC 2012) and the Seventh International Conference on Rough Sets and Knowledge Technology (RSKT2012), Chengdu, China, August 17–20, 2012. A co-chair of the RSKT Program Committee. A member of the JRS Steering Committee.

GrC 2012, the IEEE Int. Conference on Granular Computing, Hangzhou, China, August 11–13, 2012. A member of the Steering Committee and the Program Committee.

DEXA 2012, the 23-rd International Conference on Database and Expert Systems, Vienna, Austria, August 3–7, 2012. A member of the Program Committee.

SOCO 2012, the 7-th International Conference on Soft Computing Models in Industrial and Environmental Applications, Ostrava, Czech Republic, September 2012. A member of the Program Committee.

MEDES 2012, the International ACM Conference on Management of Emergent Digital EcoSystems, Addis Ababa, Ethiopia, October 28–31, 2012. A member of the Program Committee.

ISMIS 2012, the 20-th International Symposium on Methodologies for Intelligent Systems, Macau, China, December 5–7, 2012. A member of the Program Committee.

Reviewing for Symposia (last three years)

HSI 2009, the 2-nd International Conference on Human System Interaction, Catania, Italy, May 21–23, 2009.

IIS 2009, the 17-th International Conference on Intelligent Information Systems, Krakow, Poland, June 15–18, 2009.

- RSKT 2009, the Fourth International Conference on Rough Sets and Knowledge Technology, Gold Coast, Australia, July 12–16, 2009.
- HIS 2009, the 9-th International Conference on Hybrid Intelligent Systems, Shenyang, LiaoNing, China, August 12–14, 2009.
- GrC 2009, the IEEE Int. Conference on Granular Computing, Lushan Mountain, Nanchang, China, August 17–19, 2009.
- DEXA 2009, the 20-th International Conference on Database and Expert Systems, Linz, Austria, August 31–September 4, 2009.
- ICMMI 2009, the International Conference on Man-Machine Interactions (in memoriam of Adam Mrozek), Beskids - Kocierz Pass, Poland, September 25–27, 2009.
- WSC 2009, the 14-th Online World Conference on Soft Computing and Industrial Applications, November 17–29, 2009.
- SoCPaR 2009, the International Conference on Soft Computing and pattern recognition, Malacca, Malaysia. December 4-7, 2009.
- RSFSMDMGrC 2009, the 12-th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing, Delphi, India, December 16–18, 2009.
- ISMIS 2009, the Eighteenth International Symposium on Methodologies for Intelligent Systems, Prague, Czech Republic, September 14–17, 2009.
- IDEAL 2009, the 10-th International Conference on Intelligent Data Engineering and Automated Learning, Burgos, Spain, September 23–26, 2009.
- RSFSMDMGrC 2009, the 12-th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing, Delphi, India, December 16–18, 2009.
- IIS 2010, the International Joint Conference on Intelligent Information Systems, Siedlce, Poland, June 8–10, 2010.
- ICAISC 2010, the International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, June 13–17, 2010.
- HAIS 2010, the 5-th International Conference on Hybrid Artificial Intelligence Systems, San Sebastian, Spain, June 23–25, 2010.

RSCTC 2010, the 7-th International Conference on Rough Sets and Current trends in Computing, Warsaw, Poland, June 28–30, 2010.

GrC' 2010, the IEEE Int. Conference on Granular Computing, Silicon Valley, CA, August 14–16, 2010.

HIS 2010, the 10-th International Conference on Hybrid Intelligent Systems, Atlanta, GA, August 23–25, 2010.

DEXA 2010, the 21-st International Conference on Database and Expert Systems, Linz, Austria, August 30–September 3, 2010.

IDEAL 2010, the 11-th International Conference on Intelligent Data Engineering and Automated Learning, Paisley, Scotland, September 1–3, 2010.

RSKT 2010, the 5-th International Conference on Rough Set and Knowledge Technology. Beijing, China, October 15–17. 2010.

RST 2010, the Rough Set Theory Workshop, Zhoushan, Zhejiang, China, October 19–21, 2010.

SoCPaR 2010, the International Conference on Soft Computing and Pattern Recognition, Cergy Pointose, France, December 7–10, 2010.

HAIS 2011, the 6-th International Conference on Hybrid Artificial Intelligence Systems, Wroclaw, Poland, May 23–25, 2011.

IIS 2011, the 19th International Conference Intelligent Information Systems, organized jointly with the conference on Security & Intelligent Information Systems, Warsaw, Poland, June 13–14, 2011.

FUZ-IEEE 2011, the International Conference on Fuzzy Systems, Taipei, Taiwan, June 27–30, 2011.

ISMIS 2011, the Nineteenth International Symposium on Methodologies for Intelligent Systems, Warsaw, Poland, June 28–30, 2011.

IDEAL 2011, the 12-th International Conference on Intelligent Data Engineering and Automated Learning, Norwich, England, September 7–9, 2011.

RST 2011, the Rough Set Theory Workshop, Milan, Italy, September 14–16, 2011.

ICMMI 2011, the International Conference on Man-Machine Interactions, Beskids, Poland, October 6–9, 2011.

RSKT 2011, the 6-th International Conference on Rough Sets and Knowledge Technology, Banff, Canada, October 9–12, 2011.

SoCPaR 2011, the Third International Conference on Soft Computing and Pattern Recognition, Dalian, China, October 14–16, 2011.

GrC 2011, the IEEE Int. Conference on Granular Computing, Kaohsiung, Taiwan, November 8–10, 2011.

Reviewing Grant Proposals (last three years)

Nine reviews for the National Science Foundation (SBIR program) participation in the NSF Information Technology Panel, Phase I, August 2009,

Six reviews for the National Science Foundation (SBIR program). participation in the NSF Biomarkers, Bioinformatics and Cell Imaging Panel, Phase I, February 2010,

Six reviews for the National Science Foundation (SBIR program) participation in the NSF Systems Biology and Bioinformatics Panel, Phase I, September 2010,

One review for the Natural Sciences and Engineering Research Council of Canada, 2011.