

**PROGRAM ON WEDNESDAY  
AUGUST 31<sup>ST</sup>, 2005**

10:00-13:00 REGISTRATION IN  
THE KINESIOLOGY BUILDING  
("registration and coffee area")

10:00-13:00 ED193  
FUTURE OF ROUGH SETS:  
PANEL DISCUSSION AND  
PRESENTATIONS

13:00 BUS TO MOOSE JAW  
DEPARTS FROM UNIVERSITY

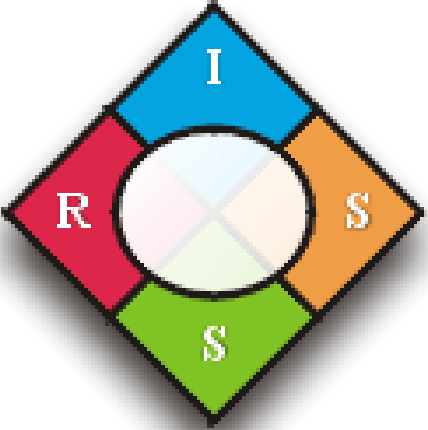
**IMPORTANT INFORMATION**

**In case of emergency, please call  
Dominik Ślęzak at 581-0485**

THURSDAY, SEPTEMBER 1 <sup>ST</sup> , 2005		
8:30 Transport from Hotels to University		
<b>9:00-13:20 AUDITORIUM (ED106)</b>		
9:00-9:20 Conference Opening Ceremony		
9:20-9:40 Coffee		
9:40-10:40 KEYNOTE TALK (T1) Chair: <i>Wojciech Ziarko</i>		
<b><u>Zdzisław Pawlak</u></b> (Author), <b><u>Andrzej Skowron</u></b> (Speaker): <b>Rough Sets and Flow Graphs</b>		
10:40-11:00 Coffee		
11:00-12:00 KEYNOTE TALK (T2) Chair: <i>Andrzej Skowron</i>		
<b><u>Vladimir Vapnik</u></b> : <b>Problem of Empirical Inference in Computer Learning and Statistics</b>		
12:00-12:20 Coffee		
12:20-13:20 KEYNOTE TALK (T3) Chair: <i>Tsau Young (T. Y.) Lin</i>		
<b><u>Ronald R. Yager</u></b> : <b>Belief Structures for Modeling Uncertainty in Granular Computing</b>		
13:30-14:30 LUNCH – UNIVERSITY CLUB, COLLEGE WEST, 2 <sup>ND</sup> FLOOR		
<b>14:40-19:00 ED106</b>	<b>14:40-19:00 ED193</b>	<b>14:40-19:00 CK187</b>
14:40-16:40 PLENARY WORKSHOP (T4A) Chair: <i>Ewa Orłowska</i> <b><u>Ewa Orłowska</u></b> : <b>A Roadmap of Information Logics and Information Algebras Inspired by Rough Sets</b> <b><u>Dimiter Vakarelov</u></b> : <b>A Modal Characterization of Indiscernibility and Similarity Relations in Pawlak's Information Systems</b> <b><u>Piotr Wasilewski</u></b> : <b>Informational Interpretation of Algebras of Sets</b>	14:40-16:40 SPECIAL SESSIONS (T4B) Chairs and Organizers: <i>Geuk Lee, Jiman Hong</i> <b>Security Applications &amp; Embedded Systems and Networking</b>	14:40-16:40 TUTORIAL (T4C) Chair: <i>Marcin Szczuka</i> <b><u>Igor Jurisica</u></b> : <b>Knowledge Discovery in High-Throughput Biological Domains: Introduction to Computational Biology</b>
16:40-17:00 Coffee		
17:00-18:00 WORKSHOP CONTINUED (T5A) Chair: <i>Ewa Orłowska</i> <b><u>Stephane Demri</u></b> : <b>On the Complexity of Information Logics</b>	14:40-16:40 SPECIAL SESSIONS (T5B) Chairs and Organizers: <i>Jiman Hong, Sung Y. Shin</i> <b>Embedded Systems and Networking (cont.) &amp; Bio-informatic Applications</b>	14:40-16:40 TUTORIAL (T5C) Chair: <i>Marcin Szczuka</i> <b><u>Andrzej Czyżewski</u></b> , <b><u>Bożena Kostek</u></b> : <b>Intelligent Signal Processing in Multimedia</b>
18:00-19:00 SESSION (T5D) Chair: <i>TBA</i> <b>Rough-Algebraic Foundations</b>		
<b>19:00-21:00 WELCOME PARTY</b>		
21:00 Transport to Hotels		



**FRIDAY, SEPTEMBER 2<sup>ND</sup>, 2005**

8:30 Transport from Hotels to University

<b>9:00-13:20 ED191</b>			<b>9:00-13:20 ED193</b>			<b>9:00-13:20 CK187</b>					
9:00-11:00 SESSION (F1A) Chair: <i>Anita Wasilewska</i> <b>Rough Set Approximations &amp; Approximate and Uncertain Reasoning &amp; Non-standard Logics</b>			9:00-11:00 SESSION (F1B) Chair: <i>Leszek Rolka</i> <b>Reasoning in Information Systems &amp; Rough-Probabilistic Approaches</b>			9:00-11:00 SESSION (F1C) Chair: <i>Sheela Ramanna</i> <b>Multimedia Applications</b>					
11:00-11:20 Coffee											
11:20-13:20 SESSION (F2A) Chair: <i>Churn-Jung Liau</i> <b>Spatial and Temporal Reasoning &amp; Non-standard Logics (cont.) &amp; Granular Computing</b>			11:20-13:20 SESSION (F2B) Chair: <i>Masahiro Inuiguchi</i> <b>Rough-Fuzzy Hybridization &amp; Evolutionary Computing</b>			11:20-13:20 SESSION (F2C) Chair: <i>Roman Słowiński</i> <b>Image Recognition and Processing &amp; Medical Applications &amp; Business Applications</b>					
13:30-14:30 LUNCH – UNIVERSITY CLUB, COLLEGE WEST, 2 <sup>ND</sup> FLOOR											
<b>14:40-17:00 ED191</b>			<b>14:40-17:00 ED193</b>								
14:40-15:40 PLENARY TALK (F3A) Chair: <i>Hideo Tanaka</i> <b><u>Salvatore Greco, Benedetto Matarazzo, Roman Słowiński</u> : Generalizing Rough Set Theory Through Dominance-Based Rough Set Approach</b>			14:40-15:40 PLENARY TALK (F3B) Chair: <i>Vijay Raghavan</i> <b><u>Ning Zhong</u> : Towards Human-Level Web Intelligence</b>								
15:40-16:00 Coffee											
16:00-17:00 PLENARY TALK (F4A) Chair: <i>JingTao Yao</i> <b><u>Wen-Xiu Zhang, Wei-Zhi Wu</u> : Knowledge Reduction in Rough Set Theory and Concept Lattice Theory</b>			16:00-17:00 PLENARY TALK (F4B) Chair: <i>Jerzy Grzymala-Busse</i> <b><u>Julio J. Valdes</u> : Visual Data Mining Using Virtual Reality Spaces</b>								
17:00-17:20 Coffee											
<b>17:20-19:00 ED193 – IRSS BUSINESS MEETING</b>											
19:00 Transport to Banquet											
<b>19:30-22:00 BANQUET – Radisson Plaza Hotel Saskatchewan</b>											
22:00 Transport to Hotels											

**SATURDAY, SEPTEMBER 3<sup>RD</sup>, 2005**

8:30 Transport from Hotels to University

<b>9:00-10:00 ED191</b>		<b>9:00-10:00 ED193</b>		
9:00-10:00 PLENARY TALK (S1A) Chair: <i>Yiyu Yao</i> <b><u>Witold Pedrycz</u> : Granular Computing with Shadowed Sets</b>	9:00-10:00 PLENARY TALK (S1B) Chair: <i>Guoyin Wang</i> <b><u>Hung Son Nguyen</u> : Approximate Boolean Reasoning Approach to Rough Sets and Data Mining</b>			
10:00-10:20 Coffee				
<b>10:20-13:20 ED191</b>		<b>10:20-13:20 ED193</b>		<b>10:20-13:20 CK187</b>
10:20-11:20 SESSION (S2A) Chair: <i>Tetsuya Murai</i> <b>Rough-Algebraic Foundations (cont.)</b>	10:20-11:20 SESSION (S2B) Chair: <i>TBA</i> <b>Rough Set Software</b>	10:20-11:20 SESSION (S2C) Chair: <i>Shoji Hirano</i> <b>Fuzzy Methods in Data Analysis &amp; Image Recognition and Processing (cont.)</b>		
11:20-11:40 Coffee				
11:40-13:20 SESSION (S3A) Chair: <i>Julia Johnson</i> <b>Machine Learning</b>	11:40-13:20 SESSION (S3B) Chair: <i>Cory Butz</i> <b>Information Retrieval &amp; Web Content Analysis</b>	11:40-13:20 INVITED SESSION (S3C) Chairs and Organizers: <i>James F. Peters, Rene V. Mayorga</i> <b>Intelligent and Sapient Systems</b>		
13:30-14:30 LUNCH – UNIVERSITY CLUB, COLLEGE WEST, 2 <sup>ND</sup> FLOOR				
<b>14:40-19:00 ED191</b>		<b>14:40-19:00 ED193</b>		
14:40-16:40 SESSION (S4A) Chair: <i>TBA</i> <b>Feature Selection and Reduction</b>	14:40-16:40 SESSION (S4B) Chair: <i>TBA</i> <b>Spatial and Temporal Reasoning (cont.) &amp; Hybrid and Hierarchical Methods</b>			
16:40-17:00 Coffee				
17:00-19:00 SESSION (S5A) Chair: <i>TBA</i> <b>Data Mining &amp; Industrial Applications</b>	17:00-19:00 SESSION (S5B) Chair: <i>Dominik Ślęzak</i> <b>Rough-Probabilistic Approaches (cont.) &amp; Probabilistic Network Models</b>			
19:00 Transport from University to Farewell Party				
<b>19:30 FAREWELL PARTY – 2007 6<sup>th</sup> Avenue, Regina, S4R 1B1 (Old Warehouse District)</b>				

**SESSION T4B (THURSDAY 14:40-16:40 ED193):**

1. Intrusion Detection System Based on Multi-class SVM *H. Lee, J. Song, D. Park* 511(II)
2. A Development of Intrusion Detection and Protection System Using Netfilter Framework *M. W. Kil, S. K. Kim, G. Lee, Y. Kwon* 520(II)
3. A Group Decision-Making Model of Risk Evasion in Software Project Bidding Based on VPRS *G. Xie, J. Zhang, K.K. Lai* 530(II)
4. Ensuring Data Security Against Knowledge Discovery in Distributed Information Systems *S. Im, Z. W. Ras* 548(II)
5. A Scheme for Inference Problems Using Rough Sets and Entropy *X. Chen, R. Wei* 558(II)
6. An Efficient Bandwidth Management Scheme for a Hard Real-Time Fuzzy Control System Based on the Wireless LAN *J. Lee, M. Kang, Y. Jin, H. Kim, J. Kim* 644(II)

**SESSION T5B (THURSDAY 17:00-19:00 ED193):**

1. Application of Rough Set for Routing Selection Based on OSPF Protocol *Y. Liu, H. Tang, M. Wang, S. Sun* 654(II)
2. Energy Aware Routing with Dynamic Probability Scaling *G. Park, S. Yi, J. Heo, W. C. Choi, G. Jeon, Y. Cho, C. Shim* 662(II)
3. Uncertainty Handling in Tabular-Based Requirements Using Rough Sets *Z. Li, G. Ruhe* 678(II)
4. An Open Source Microarray Data Analysis System with GUI: Quintet *J.-K. Choe, T.-H. Chung, S. Park, H. G. Cho, C.-G. Hur* 392(II)
5. An Ontology-Based Pattern Mining System for Extracting Information from Biological Texts *M. Abulaish, L. Dey* 420(II)
6. Parallel Prediction of Protein-Protein Interactions Using Proximal SVM *Y. Chung, S.-Y. Cho, S. Y. Shin* 430(II)

**SESSION T5D (THURSDAY 18:00-19:00 ED191):**

1. Proximity Spaces of Exact Sets *P. J. Apostoli, A. Kanda* 94(I)
2. Concept Lattices vs. Approximation Spaces *P. Wasilewski* 114(I)
3. Algebraic Approach to Generalized Rough Sets *M. Kondo* 132(I)

**SESSION F1A (FRIDAY 9:00-11:00 ED191):**

1. Rough Sets and Higher Order Vagueness *A. Skowron, R. Swiniarski* 33(I)
2. Second-Order Rough Approximations in Multi-criteria Classification with Imprecise Evaluations and Assignments *K. Dembczynski, S. Greco, R. Slowinski* 54(I)
3. Live Logic: Method for Approximate Knowledge Discovery and Decision Making *M. Sapir, D. Verbel, A. Kotsianti, O. Saidi* 532(I)
4. Decision Theory = Performance Measure Theory + Uncertainty Theory *E. Eberbach* 551(I)
5. Ordered Belief Fusion in Possibilistic Logic *C.-J. Liau* 632(I)
6. Arrow Decision Logic *T.-F. Fan, D.-R. Liu, G.-H. Tzeng* 651(I)

**SESSION F1B (FRIDAY 9:00-11:00 ED193):**

1. On Consistent and Partially Consistent Extensions of Information Systems *Z. Suraj, K. Pancierz, G. Owsiany* 224(I)
2. A New Treatment and Viewpoint of Information Tables *M. Kudo, T. Murai* 234(I)
3. Incomplete Data and Generalization of Indiscernibility Relation, Definability, and Approximations *J. W. Grzymala-Busse* 244(I)
4. Discernibility Functions and Minimal Rules in Non-deterministic Information Systems *H. Sakai, M. Nakata* 254(I)
5. Variable Precision Rough Set Approach to Multiple Decision Tables *M. Inuiguchi, T. Miyajima* 304(I)
6. Rough Sets Handling Missing Values Probabilistically Interpreted *M. Nakata, H. Sakai* 325(I)

**SESSION F1C (FRIDAY 9:00-11:00 CK187):**

1. Intelligent Algorithms for Optical Track Audio Restoration *A. Czyzewski, M. Dziubinski, L. Litwic, P. Maziewski* 283(II)
2. Multiresolution Pitch Analysis of Talking, Singing, and the Continuum Between *D. Gerhard* 294(II)
3. Toward More Reliable Emotion Recognition of Vocal Sentences by Emphasizing Information of Korean Ending Boundary Tones *T.-S. Lee, M. Park, T.-S. Kim* 304(II)
4. Some Issues on Detecting Emotions in Music *P. Synak, A. Wieczorkowska* 314(II)
5. A Global-Motion Analysis Method via Rough-Set-Based Video Pre-classification *Z. Yuan, Y. Wu, G. Wang, J. Li* 323(II)
6. Analysis and Generation of Emotionally-Charged Animated Gesticulation *B. Kostek, P. Szczuko* 333(II)

**SESSION F2A (FRIDAY 11:20-13:20 ED191):**

1. Representing the Process Semantics in the Situation Calculus *C. Li* 591(I)
2. A Discrete Event Control Based on EVALPSN Stable Model Computation *K. Nakamatsu, S.-L. Chung, H. Komaba, A. Suzuki* 671(I)
3. Discernibility-Based Variable Granularity and Kansei Representations *Y. Muto, M. Kudo* 692(I)
4. Granular Logic with Closeness Relation and Its Reasoning *Q. Liu, Q. Wang* 709(I)
5. Ontological Framework for Approximation *J. Stepaniuk, A. Skowron* 718(I)
6. Semantic Oriented Search Engine: Semantic Web without Ontology *I.-J. Chiang, T. Y. Lin, Y. Liu* 728(I)

**SESSION F2B (FRIDAY 11:20-13:20 ED193):**

1. Upper and Lower Probabilities of Fuzzy Events Induced by a Fuzzy Set-Valued Mapping *W.-Z. Wu* 345(I)
2. Variable Precision Fuzzy Rough Sets Model in the Analysis of Process Data *A. Mieszkowicz-Rolka, L. Rolka* 354(I)
3. An Extension of Rough Approximation Quality to Fuzzy Classification *V.-N. Huynh, T. Murai, T.-B. Ho, Y. Nakamori* 373(I)
4. Multilayer FLC Design Based on RST *H. Guo, F. Wang, Y. Qiu* 392(I)
5. Research on Clone Mind Evolution Algorithm *G. Xie, H. Guo, K. Xie, W. Zhao* 431(I)
6. MEA Based Nonlinearity Correction Algorithm for the VCO of LFM CW Radar Level Gauge *G. Yan, G. Xie, Y. Qiu, Z. Chen* 461(I)

**SESSION F2C (FRIDAY 11:20-13:20 CK187):**

1. Rough Set Approach to Sunspot Classification Problem *S. H. Nguyen, T. T. Nguyen, H. S. Nguyen* 263(II)
2. Handling Missing Attribute Values in Preterm Birth Data Sets *J. W. Grzymala-Busse, L. K. Goodwin, W. J. Grzymala-Busse, X. Zheng* 342(II)
3. Relevant Attribute Discovery in High Dimensional Data Based on Rough Sets and Unsupervised Classification: Application to Leukemia Gene Expressions *J. J. Valdes, A. J. Barton* 362(II)
4. A Hybrid Approach to MR Imaging Segmentation Using Unsupervised Clustering and Approximate Reducts *S. Widz, K. Revett, D. Slezak* 372(II)
5. Simplifying the Manager Competency Model by Using the Rough Set Approach *W.-W. Wu, Y.-T. Lee, G.-H. Tzeng* 484(II)
6. Using Rough Set and Worst Practice DEA in Business Failure Prediction *J.-J. Shuai, H.-L. Li* 503(II)

**SESSION S2A (SATURDAY 10:20-11:20 ED191):**

1. Rough Group, Rough Subgroup and Their Properties *D. Miao, S. Han, D. Li, L. Sun* 104(I)
2. Rough Sets over the Boolean Algebras *G.-L. Liu* 124(I)
3. Logic for Rough Sets with Rough Double Stone Algebraic Semantics *J.-H. Dai* 141(I)

**SESSION S2B (SATURDAY 10:20-11:20 ED193):**

1. Credibility Coefficients in ARES Rough Set Exploration System *R. Podraza, M. Walkiewicz, A. Dominik* 29(II)
2. DIXER – Distributed Executor for Rough Set Exploration System *J. G. Bazan, R. Latkowski, M. Szczuka* 39(II)
3. RoSy: A Rough Knowledge Base System *R. Andersson, A. Vitoria, J. Maluszynski, J. Komorowski* 48(II)

**SESSION S2C (SATURDAY 10:20-11:20 CK187):**

1. User-Driven Fuzzy Clustering: On the Road to Semantic Classification *A. Dorado, W. Pedrycz, E. Izquierdo* 421(I)
2. A Novel Method of Image Filtering Based on Iterative Fuzzy Control *R.-H. Lu, M. Yang, Y.-H. Qiu* 241(II)
3. Land Cover Classification of IKONOS Multispectral Satellite Data: Neuro-fuzzy, Neural Network and Maximum Likelihood Methods *J. Han, K. Chi, Y. Yeon* 251(II)

**SESSION S3A (SATURDAY 11:40-13:20 ED191):**

1. On Degree of Dependence Based on Contingency Matrix *S. Tsumoto, S. Hirano* 471(I)
2. Model Selection and Assessment for Classification Using Validation *W. Jaworski* 481(I)
3. Combination of Metric-Based and Rule-Based Classification *A. Wojna* 501(I)
4. Combining Classifiers Based on OWA Operators with an Application to Word Sense Disambiguation *C. A. Le, V.-N. Huynh, H.-C. Dam, A. Shimazu* 512(I)
5. System Health Prognostic Model Using Rough Sets *Z. M. Wojcik* 522(I)

**SESSION S3B (SATURDAY 11:40-13:20 ED193):**

1. A Comprehensive OWA-Based Framework for Result Merging in Metasearch *E. D. Diaz, A. De, V. Raghavan* 193(II)
2. Efficient Pattern Matching of Multidimensional Sequences *S. Lee, K. Oh, D. Kwon, W. Choi, J. Hong, J. Choi, D. Lee* 202(II)
3. HQC: An Efficient Method for ROLAP with Hierarchical Dimensions *X.-Y. Dong, H.-K. Huang, H.-S. Li* 211(II)
4. Knowledge Discovery Based Query Answering in Hierarchical Information Systems *Z. W. Ras, A. Dardzinska, O. Gurdal* 221(II)
5. An Efficient and Practical Algorithm for the Many-Keyword Proximity Problem by Offsets *S.-R. Kim, J. Hong* 477(II)

**SESSION S3C (SATURDAY 11:40-13:20 CK187):**

1. Behavioral Pattern Identification Through Rough Set Modelling *J. G. Bazan, J. F. Peters, A. Skowron* 688(II)
2. Selecting Attributes for Soft-Computing Analysis in Hybrid Intelligent Systems *P. Pattaraintakorn, N. Cerccone, K. Naruedomkul* 698(II)
3. Brain Signals: Feature Extraction and Classification Using Rough Set Methods *R. Fazel-Rezai, S. Ramanna* 709(II)
4. On the Design and Operation of Sapient (Wise) Systems *R. V. Mayorga* 719(II)
5. Three Steps to *Robo Sapiens* *J. Negrete-Martinez* 727(II)

**SESSION S4A (SATURDAY 14:40-16:40 ED191):**

1. The Second Attribute *S. Han, J. Wang* 156(I)
2. Pairwise Cores in Information Systems *J. Wroblewski* 166(I)
3. Incremental Attribute Reduction Based on Elementary Sets *F. Hu, G. Wang, H. Huang, Y. Wu* 185(I)
4. Finding Rough Set Reducts with SAT *R. Jensen, Q. Shen, A. Tuson* 194(I)
5. Feature Selection with Adjustable Criteria *J.T. Yao, M. Zhang* 204(I)
6. Feature Selection Based on Relative Attribute Dependency: An Experimental Study *J. Han, R. Sanchez, X. Hu* 214(I)

**SESSION S4B (SATURDAY 14:40-16:40 ED193):**

1. A Clustering Method for Spatio-temporal Data and Its Application to Soccer Game Records *S. Hirano, S. Tsumoto* 612(I)
2. Hierarchical Information Maps *A. Skowron, P. Synak* 622(I)
3. A Hierarchical Approach to Multimodal Classification *A. Skowron, H. Wang, A. Wojna, J. Bazan* 119(II)
4. Rough Learning Vector Quantization Case Generation for CBR Classifiers *Y. Li, S. C.-K. Shiu, S. K. Pal, J. N.-K. Liu* 128(II)
5. ML-CIDIM: Multiple Layers of Multiple Classifier Systems Based on CIDIM *G. Ramos-Jimenez, J. Campo-Avila, R. Morales-Bueno* 138(II)
6. Reducing the Storage Requirements of 1-v-1 Support Vector Machine Multi-classifiers *P. Lingras, C. J. Butz* 166(II)

**SESSION S5A (SATURDAY 17:00-19:00 ED191):**

1. A Classification Model: Syntax and Semantics for Classification *A. Wasilewska, E. Menasalvas* 59(II)
2. “Rule + Exception” Strategies for Knowledge Management and Discovery *Y. Yao, F.-Y. Wang, J. Wang* 69(II)
3. Reverse Prediction *J. Johnson, P. Campeau* 88(II)
4. Prediction Mining – An Approach to Mining Association Rules for Prediction *J. Deogun, L. Jiang* 98(II)
5. A Rough Set Based Model to Rank the Importance of Association Rules *J. Li, N. Cercone* 109(II)
6. Fuzzy Forecast Modeling for Gas Furnace Based on Fuzzy Sets and Rough Sets Theory *K. Xie, Z. Chen, Y. Qiu* 614(II)

**SESSION S5B (SATURDAY 17:00-19:00 ED193):**

1. Probabilistic Rough Sets *W. Ziarko* 283(I)
2. Variable Precision Bayesian Rough Set Model and Its Application to Human Evaluation Data *T. Nishino, M. Nagamachi, H. Tanaka* 294(I)
3. Rough Membership and Bayesian Confirmation Measures for Parameterized Rough Sets *S. Greco, B. Matarazzo, R. Slowinski* 314(I)
4. The Computational Complexity of Inference Using Rough Set Flow Graphs *C. J. Butz, W. Yan, B. Yang* 335(I)
5. A Comparative Evaluation of Rough Sets and Probabilistic Network Algorithms on Learning Pseudo-independent Domains *J.-H. Lee* 571(I)
6. On the Complexity of Probabilistic Inference in Singly Connected Bayesian Networks *D. Wu, C. J. Butz* 581(I)



