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Dr. Andreas Janecek

Curriculum Vitæ

Research Interests

Machine Learning & Data Mining	Supervised/unsupervised learning algorithms, classification/regression, clustering, feature selection, dimensionality reduction, distributed ('epidemic') data mining
Computational Intelligence	Stochastic optimization, nature-inspired meta-heuristics, swarm intelligence, fish school search, evolutionary algorithms, epidemic algorithms
Low-rank Approximations	Initialization strategies, parallel and distributed approximation, high-performance implementations
Cellular floating car data	Road traffic monitoring, incident detection, travel time estimation and prediction

Education

2006–2010	PhD (Dr. techn.) in Computer Science , <i>University of Vienna</i> Received with distinction
2000–2005	B.Sc and M.Sc in Business Informatics , <i>University of Vienna</i> Received with distinction

Professional Experience

Since 04/2012	Visiting Researcher , <i>Escola Politécnica de Pernambuco, Universidade de Pernambuco (UPE), Brazil.</i>
09/2011–03/2012	Postdoctoral Researcher , <i>Research Group Entertainment Computing, Faculty of Computer Science University of Vienna (UoV)</i>
09/2010–08/2011	Visiting Researcher , <i>School of Electronic Engineering and Computer Science, Peking University (PKU), China</i>
2007–2010	Research Associate , <i>Research Lab Computational Technologies and Applications, University of Vienna</i>
2006–2009	Research Associate , <i>Department of Distributed and Multimedia Systems, University of Vienna</i>

Teaching Experience

Natural Computation	Graduate course (M.Sc. program @ UPE): Optimization algorithms, swarm intelligence, evolutionary algorithms (given in English)
Computational Intelligence	Graduate course (PhD program @ PKU): Introduction to machine learning, meta-heuristics, nature-inspired search algorithms (given in English)
Computational Drug Design	Graduate course (M.Sc program @ UoV): Machine learning (feature selection, classification,...) in the context of drug classification (given in English)

Internet Technologies	2nd semester course (B.Sc program @ UoV): Network basics, TCP/IP and ISO/OSI-model, security aspects (partly given in English)
Technical Basics and System Software	1st semester course (B.Sc program @ UoV): Digital logic, Boolean algebra, computer architecture, UNIX, C, processes, shell scripts, IPC

Skills Profile

Communication	Good oral communication skills in English gained from teaching and from giving presentations at conferences, workshops and seminars. Well established academic writing skills developed with paper and thesis writing.
Team work and problem solving	Experienced in leading and working in team projects in research groups. Team-coordinator in the development and organization of several courses, financial chair and local program committee member of several conferences. Ability to solve problems in difficult and stressful situations.
Languages	<p>German: Mother tongue</p> <p>English: Fluently in speech and writing</p> <p>Spanish: Basics</p> <p>Chinese: 一点儿 Yidianr (a few basics)</p> <p>Portuguese: Just started</p>

IT Skills

Operating systems	Linux/UNIX, Windows
Programming skills	MATLAB, JAVA, C/C++, C#, .NET, R, CLIPS, PL/SQL, Visual Basic, Borland Delphi, Turbo Pascal, XML, CORBA, JAVA-RMI
Scripts	PHP, HTML, Perl, bash, sh
Data Mining tools	WEKA, YALE, RapidMiner, SPSS, Clementine
Others	Modeling (UML, SOA, ER), Latex, Photoshop, QuarkXPress

Program Committee Member / Reviewer

IC-SI	International Conference on Swarm Intelligence
CEC/WCCI	Special Session on Swarm Intelligence in Data Mining held in Conjunction with the IEEE Congress on Evolutionary Computation / World Congress on Computational Intelligence
SMCB	IEEE Transactions on Systems, Man, and Cybernetics: Part B - Cybernetics
TEC	IEEE Transactions on Evolutionary Computation

Awards and Scholarships

ICSI Best Paper Award	First Place Best Paper Award ICSI 2011 Second International Conference on Swarm Intelligence Chongqing, China
EM-ECW Scholarship	Erasmus Mundus External Cooperation Window for China Post-doctorate level Peking University, China, 09/2010 - 06/2011
ARES Best Paper Award	Second Place Best Paper Award ARES 2008 3rd International Conference on Availability, Reliability and Security (ARES) 2008 Technical University of Catalonia, Barcelona, Spain

References

Prof. Wilfried Gansterer

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Faculty of Computer Science, University of Vienna
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Prof. Ying Tan

Head of Group “Computational Intelligence Laboratory”,
School of Electronics Engineering and Computer Science, Peking University
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Prof. Fernando Buarque de Lima Neto

Head of “Computational Intelligence” Group,
Escola Politécnica de Pernambuco, Universidade de Pernambuco, Brazil
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Publications

Book Chapters

Andreas G.K. Janecek and Wilfried N. Gansterer. Utilizing Nonnegative Matrix Factorization for E-mail Classification Problems. In Michael W. Berry and Jacob Kogan, editors, *Text Mining III: Application and Theory*. Wiley, 2010, pages 57 – 80.

Wilfried N. Gansterer, Andreas G.K. Janecek, and Robert Neumayer. Spam Filtering Based on Latent Semantic Indexing. In Michael W. Berry and Malu Castellanos, editors, *Survey of Text Mining II: Clustering, Classification, and Retrieval*, pages 165–183. Springer, 2008.

Journal Articles

Andreas G.K. Janecek and Ying Tan. Swarm Intelligence for Non-negative Matrix Factorization. *International Journal of Swarm Intelligence Research (IJSIR)*, 2(4):12–34, 2011.

Andreas G.K. Janecek, Stefan Schulze Grotthoff, and Wilfried N. Gansterer. libNMF – A Library for Nonnegative Matrix Factorization. *Computing and Informatics*, 30(2):205–224, 2011.

Michael A. Demel, Andreas G.K. Janecek, Wilfried N. Gansterer, and Gerhard F. Ecker. Comparison of Contemporary Feature Selection Algorithms: Application to the Classification of ABC-transporter Substrates. *QSAR Combinat Chem*, 28(10):1087–1091, 2009.

Michael A. Demel, Andreas G.K. Janecek, Khac-Minh Thai, Gerhard F. Ecker, and Wilfried N. Gansterer. Predictive QSAR Models for Polyspecific Drug Targets: The Importance of Feature Selection. *Current Computer - Aided Drug Design*, 4(2):91–110, 2008.

Andreas G.K. Janecek, Wilfried N. Gansterer, Michael Demel, and Gerhard F. Ecker. On the Relationship Between Feature Selection and Classification Accuracy. *JMLR: Workshop and Conference Proceedings*, 4:90–105, 2008.

Peer-reviewed Conference Articles

Andreas G.K. Janecek and Ying Tan. Using Population Based Algorithms for Initializing Nonnegative Matrix Factorization. In *ICSI'2011: Second International Conference on Swarm Intelligence*, pages 307–316. Springer LNCS 6729, 2011. *ICSI 2011 Best Paper Award!*

Andreas G.K. Janecek and Ying Tan. Iterative Improvement of the Multiplicative Update NMF Algorithm using Nature-inspired Optimization. In *ICNC'2011: The 7th International Conference on Natural Computation*, ISBN: 978-1-4244-9951-9, 2011.

Andreas G.K. Janecek and Ying Tan. Feeding the Fish - Weight Update Strategies for the Fish School Search Algorithm. In *ICSI'2011: Second International Conference on Swarm Intelligence*, pages 553–562. Springer LNCS 6729, 2011.

Andreas G.K. Janecek and Wilfried N. Gansterer. E-Mail Classification based on Non-Negative Matrix Factorization. In *5th International Text Mining Workshop 2009 in conjunction with the 9th SIAM Conference of Data Mining*. SIAM, 2009.

Andreas G.K. Janecek, Wilfried N. Gansterer, and K. Ashwin Kumar. Multi-level Reputation-based Greylisting. In *ARES '08: 3rd International Conference on Availability, Reliability and Security*, pages 10–17. IEEE Computer Society, 2008.

Julien Gossa, Andreas G.K. Janecek, Karin A. Hummel, Wilfried N. Gansterer, and Jean-Marc Pierson. Proactive Replica Placement Using Mobility Prediction. *9th International Conference on Mobile Data Management Workshops*, pages 182–189, 2008.

Wilfried N. Gansterer, Andreas G.K. Janecek, and Peter Lechner. A Reliable Component-based Architecture for E-Mail Filtering. In *ARES '07: 2nd International Conference on Availability, Reliability and Security*, pages 43–50. IEEE Computer Society, 2007.

Wilfried N. Gansterer, Andreas G.K. Janecek, and Robert Neymayer. Spam Filtering Based on Latent Semantic Indexing. In *5th International Text Mining Workshop 2007 in conjunction with the 7th SIAM Conference of Data Mining*. SIAM, 2007.

Andreas G.K. Janecek and Helmut Hlavacs. Programming Interactive Real-time Games over WLAN for Pocket PCs with J2ME and .NET CF. In *NetGames '05: 4th ACM SIGCOMM Workshop on Network and System Support for Games*, pages 1–8. ACM, 2005.

PhD Thesis

Andreas G.K. Janecek. Efficient Feature Reduction and Classification Methods: Applications in Email Categorization and Drug Discovery. *PhD thesis*, University of Vienna, 2010. Available on-line: <http://homepage.univie.ac.at/andreas.janecek>.

Poster Presentations

Andreas G.K. Janecek, Michael A. Demel, Rita Schwaha, Wilfried N. Gansterer, and Gerhard F. Ecker. Applying Web Search Algorithms for ADME/TOX Profiling of ABCB1 (P-GP) and hERG Ligands. 20th International Symposium of Medicinal Chemistry (EFMC-ISMC), 2008.

Michael A. Demel, O. Kraemer, P. Ettmayer, E. Haaksma, Andreas G.K. Janecek, Wilfried N. Gansterer, and Gerhard F. Ecker. Comparison of Contemporary Feature Selection Algorithms: Application to the Classification of Substrates for ABC-Transporter. 17th European Symposium on QSAR in "omics" and System Biology (EUROQSAR), 2008.

Michael A. Demel, O. Kraemer, P. Ettmayer, E. Haaksma, Andreas G.K. Janecek, Wilfried N. Gansterer, and Gerhard F. Ecker. Predictive Models for the Classification of ABCG2 and ABCC1 Substrates /Non-substrates. 20th International Symposium of Medicinal Chemistry (EFMC-ISMC), 2008.

Technical Reports

Wilfried Gansterer and Andreas G.K. Janecek Andreas and Peter Lechner. Phase 2 of project 'spamabwehr ii': A three-component architecture for spam defense. Technical report, Distributed Systems, 2006.

Wilfried Gansterer and Michael Ilger Michael and Andreas G.K. Janecek Andreas and Peter Lechner and Juergen Strausz. Phase 1 of project 'spamabwehr ii'. Technical report, Department of Distributed and Multimedia Systems, University of Vienna, 2005.

Wilfried Gansterer and Michael Ilger Michael and Andreas G.K. Janecek Andreas and Peter Lechner and Juergen Strausz. Final report project 'spamabwehr ii'. Technical report, Department of Distributed and Multimedia Systems, 2006.