

# **PROCEEDINGS of IWSSIP 2008**

15th International Conference on Systems, Signals and Image Processing  
June 25 – June 28, 2008, Bratislava, Slovak Republic

Slovak University of Technology in Bratislava  
Faculty of Electrical Engineering and Information Technology  
Department of Telecommunications  
Ilkovičova 3  
812 19 Bratislava  
Slovak Republic

# Contents

<i>J. Kacur and J. Vojtko</i> <b>Efficient Adaptations of the SphinxTrain Procedure for Building a Robust ASR System in Slovak</b> .....	1
<i>A. D. Theodossi and G. A. Tsihrintzis</i> <b>Content-Based Image Retrieval using Feature Extraction &amp; Statistical Pattern Recognition techniques for Environmental Applications</b> .....	5
<i>Richard Pračko and Jaroslav Polec</i> <b>Correlation optimized scanning of segmented images</b> .....	9
<i>Mario Mustra, Mislav Grgic and Kresimir Delac</i> <b>Efficient Presentation of DICOM Mammography Images using Matlab</b> .....	13
<i>A. Treiber and G. Gruhler</i> <b>Psychoacoustic Evaluation of rotatory switches</b> .....	17
<i>J. Mohorko, A. Chowdhury and P. Planinšič</i> <b>Emulation of Mobile payment system</b> .....	21
<i>M. Neruda and R. Bešťák</i> <b>Evolution of 3GPP Core Network</b> .....	25
<i>Robert Bestak</i> <b>Evolution of Mobile Networks</b> .....	29
<i>J. Přibíl, B. Zaňko, I. Frollo, F. Dubecký and V. Juráš</i> <b>Experiments with Application of Image Reconstruction Method Based on Perspective Imaging Techniques in X-ray CT Mini System</b> .....	33
<i>Saša Klampfer, Gregor Globačnik, Jože Mohorko, Žarko Čučej</i> <b>Expert systems design for automatic analysis of communication network simulation results</b> .....	37
<i>Stanislav Dlháň</i> <b>Forward Error Correction Techniques Suitable for the Utilization in the PLC Technology</b> .....	41
<i>G. Ulača and R. Stasinski</i> <b>A New Simple Context Lossless Image Coding Algorithm Based on Adaptive Context Arithmetic Coder</b> .....	45
<i>Jaroslav Krejčí</i> <b>MDI measurement in the IPTV</b> .....	49
<i>Tomáš Prokop, Jiří Vodrážka</i> <b>Modeling of Transmission Lines for Digital Subscriber Lines Testing</b> .....	53

<i>P. Varchol, D. Levický and J. Juhár</i> <b>Multimodal biometric authentication using speech and hand geometry fusion .....</b>	<b>57</b>
<i>Pavel Mach and Robert Bestak and Zdenek Becvar</i> <b>Optimization of Network Entry Procedure in Relay Based WiMAX Networks .....</b>	<b>61</b>
<i>Rade Kutil</i> <b>Parallelization of IIR Filters Using SIMD Extensions .....</b>	<b>65</b>
<i>T. Kováčik, I. Kotuliak, P. Podhradský</i> <b>Real-time traffic analysis in Ethernet .....</b>	<b>69</b>
<i>A. Vrábel, F. Husák</i> <b>Security of Multimedia Services Using WLAN Access Technology .....</b>	<b>73</b>
<i>Jakub Slíva</i> <b>Technologies used in Wireless Sensor Networks .....</b>	<b>77</b>
<i>Michelle M. Horta, Nelson D. A. Mascarenhas, Alejandro C. Frery and Alexandre L. M. Levada</i> <b>Clustering of Fully Polarimetric SAR Data Using Finite <math>G_p^0</math> Mixture Model and SEM Algorithm.....</b>	<b>81</b>
<i>Yi Luo and Mehmet Celenk</i> <b>A Hybrid Block-Matching Approach to Motion Estimation with Adaptive Search Area.....</b>	<b>85</b>
<i>Yi Luo and Mehmet Celenk</i> <b>A New Adaptive Kalman Filtering Method for Block-Based Motion Estimation .....</b>	<b>89</b>
<i>R.F.P. Neves, C.A.B. Mello, M.S. Silva and B.L.D. Bezerra</i> <b>A New Technique to Threshold the Courtesy Amount of Brazilian Bank Checks .....</b>	<b>93</b>
<i>E. Roullot</i> <b>A Unifying Framework for Color Image Calibration .....</b>	<b>97</b>
<i>Navin Chatlani and John J. Soraghan</i> <b>Adaptive Empirical Mode Decomposition for Signal Enhancement with Application to Speech.....</b>	<b>101</b>
<i>V. Kitanovski, M. Kseneman, D. Gleich, D. Taskovski</i> <b>Adaptive Lifting Integer Wavelet Transform for Lossless Image Compression .....</b>	<b>105</b>
<i>M. Oskar van Deventer, Hans M. Stokking, Omar A. Niamut, Fabian A. Walraven, Victor B. Klos</i> <b>Advanced Interactive Television Services Require Content Synchronization.....</b>	<b>109</b>
<i>Reginaldo A. Gotardo, Cesar A. C. Teixeira, Sérgio D. Zorzo</i> <b>An Approach to Recommender System Applying Usage Mining to Predict Users' Interests .....</b>	<b>113</b>

<i>Ondrej Sluciak, Radoslav Vargic</i> <b>An Audio Watermarking Method Based on Wavelet Patchwork Algorithm .....</b>	<b>117</b>
<i>Glauco V. Pedrosa, Cristiane F. Santos, Marcos A. Batista, Henrique C. Fernandes, Celia A. Z. Barcelos</i> <b>An effective salience-based algorithm for shape retrieval .....</b>	<b>121</b>
<i>Kirill Sakhnov</i> <b>An Improved Proportionate Affine Projection Algorithm for Network Echo Cancellation .....</b>	<b>125</b>
<i>D. Faur, C. Vaduva, I. Gavat and M. Datcu</i> <b>An Information Theory Based Image Processing Chain for Change Detection in Earth Observation.....</b>	<b>129</b>
<i>G. Cámara-Chávez, F. Precioso, M. Cord, S. Phillip-Foliguet, A. de A. Araújo</i> <b>An interactive video content-based retrieval system .....</b>	<b>133</b>
<i>P. Trakadas, T. Zahariadis, H.C. Leligou, S. Voliotis, K. Papadopoulos</i> <b>Analyzing Energy and Time Overhead of Security Mechanisms in Wireless Sensor Networks .....</b>	<b>137</b>
<i>L. de O. Bastos, P. Liatsis and A. Conci</i> <b>Automatic Texture Segmentation Based on k-means Clustering and Efficient Calculation of Co-occurrence Features .....</b>	<b>141</b>
<i>T. W. Rauber, A. Conci, T. Braun and K. Berns</i> <b>Bhattacharyya Probabilistic Distance of the Dirichlet Density and its Application to Split-And-Merge Image Segmentation .....</b>	<b>145</b>
<i>Mio Musashi, Ken'ichi Fujimoto, Tetsuya Yoshinaga and Kazuyuki Aihara</i> <b>Bifurcations in a coupled system of chaotic neurons generating oscillatory responses .....</b>	<b>149</b>
<i>L. Mandić, I. Majnarić, A. Poljičak and D. Agić</i> <b>Case Study: Digital offset printing- Resolution and Color Reproduction.....</b>	<b>153</b>
<i>A. Pujol and L. Chen</i> <b>Coarse Adaptive Color Image Segmentation for Visual Object Classification .....</b>	<b>157</b>
<i>Matej Grašič, Marko Kos, Andrej Žgank, Zdravko Kačič</i> <b>Comparison of Speaker Segmentation Methods Based on the Bayesian Information Criterion and Adapted Gaussian Mixture Models .....</b>	<b>161</b>
<i>Nadeem Khan and Nida Khalid</i> <b>Warping and LSTM Neural Network Supervised Classification.....</b>	<b>165</b>
<i>V. G. Ashamol, G. Sreelekha, P. S. Sathidevi</i> <b>Diffusion-Based Image Denoising Combining Curvelet and Wavelet .....</b>	<b>169</b>

<i>C.-M. Pun and I.-K. Kong</i> <b>Digital Image Watermarking by Adaptive Quantization of Wavelet Packet Coefficients .....</b>	<b>173</b>
<i>R. Kountchev, Vl. Todorov, R. Kountcheva</i> <b>Efficient Sign Language Video Representation .....</b>	<b>177</b>
<i>Michal Ries, Philipp Svoboda, Markus Rupp</i> <b>Empirical Study of Subjective Quality for Massive Multiplayer Games .....</b>	<b>181</b>
<i>Vijaya. P. Bhute and Urmila N. Shrawankar</i> <b>Error Concealment Schemes For Speech Packet Transmission over IP network.....</b>	<b>185</b>
<i>Huma Noor, Fraz Anjum and Nadeem Khan</i> <b>Evaluation of Scalable and Multi-Descriptive Coding Techniques for Video Services over Next Generation Broadband Wireless Networks .....</b>	<b>189</b>
<i>Heydar Toossian Shandiz, Seyed Mostafa Mirhassani, Bardia Yousefi</i> <b>Hierarchical Method for Building Extraction in Urban Area's Images using UnSharp Masking [USM] and Bayesian classifier .....</b>	<b>193</b>
<i>Levente Hunyadi, István Vajk</i> <b>Identification of Errors-in-variables Systems Using Data Clustering .....</b>	<b>197</b>
<i>A. Sadri , A. Beheshti</i> <b>Image Registration Based on Physical Forces.....</b>	<b>201</b>
<i>M. Fras, S. Klampfer, Ž. Čučej</i> <b>Impact of P2P Traffic on IP Communication Networks' Performances.....</b>	<b>205</b>
<i>Eduardo F. Ribeiro, Celia A. Z. Barcelos, Marcos A. Batista</i> <b>Intelligent Image Characterization .....</b>	<b>209</b>
<i>Miran Gosta, Danijel Vlahović, Branka Zovko Cihlar</i> <b>Interference conditions on Croatian coast in DVB-T planning.....</b>	<b>213</b>
<i>T. Fryza</i> <b>Introduction to Implementation of Real Time Video Compression Method .....</b>	<b>217</b>
<i>P. Dymarski and S. Wydra</i> <b>Large Margin Hidden Markov Models in command recognition and speaker verification problems .....</b>	<b>221</b>
<i>Mozart L. de Siqueira and Daniel Nehme Müller and Philippe O. A. Navaux</i> <b>LOCALIZATION OF CARDIAC CAVITIES USING HIERARCHICALLY SEARCH IN 2D GRAYSCALE ULTRASOUND IMAGES.....</b>	<b>225</b>
<i>M. Fulton and John. J. Soraghan</i> <b>Modelling The I.M.F's Produced By The E.M.D Of Musical Audio For Synthesis and Manipulation .....</b>	<b>229</b>

<i>Hsin C. Fu, Yeong. Y. Xu and Hsiao T. Pao</i> <b>Multimodal Search for Effective Image Retrieval</b> .....	233
<i>J. Polec, T. Karlubíková, S. Ondrušová and K. Kotuliaková</i> <b>New Objective Criterion for Error Evaluation of Video Object Contour</b> .....	237
<i>Alexandre L. M. Levada, Débora C. Correa, Denis H. P. Salvadeo, José H. Saito and Nelson D. A. Mascarenhas</i> <b>Novel Approaches for Face Recognition: Template-Matching using Dynamic Time Warping and LSTM Neural Network Supervised Classification</b> .....	241
<i>R. Parys, G. Knittel</i> <b>On Residual Vector Quantization for Texture Mapping</b> .....	245
<i>J. P. Papa, A. A. Spadotto, A. X. Falcao, J. C. Pereira</i> <b>Optimum Path Forest Classifier Applied to Laryngeal Pathology Detection</b> .....	249
<i>M. Fras, J. Mohorko, Ž. Čučej</i> <b>Packet Size Process Modeling of Measured Self-similar Network Traffic with Defragmentation Method</b> .....	253
<i>A. Peulic, U. Pesovic, K. Benkic and Z. Cucej</i> <b>Performance Analysis of Improved ZigBee Wireless Network by Simulation</b> .....	257
<i>Peter Bajcsy, Miles Johnson, Suk-Kyu Lee and Rob Kooper</i> <b>Real Time Localization and 3D Depth Estimation Across Disparate Sensing Systems: Toward Hazard Aware and Tele-Immersive Spaces</b> .....	261
<i>Winton Afric, Branka Zovko-Cihlar, Mislav Grgic</i> <b>Relative Surface Variation as a Function of Base Station Antenna Heights at WiMAX Cell</b> .....	265
<i>I. Stojanovic, S. Bogdanova and M. Bogdanov</i> <b>Retrieving Images Using Content-Based Followed by Pixel-Based Search</b> .....	271
<i>E. E. Vale, A. A. Cunha and A. Alcaim</i> <b>Robust Text-Independent Speaker Identification Using Multiple Subband-Classifiers in Colored Noise Environment</b> .....	275
<i>Juan Rafael Nunez and Jacques Facon and Alceu de Souza Brito Junior</i> <b>Soccer Video Segmentation: referee and player detection</b> .....	279
<i>Marko Kos, Matej Grašič, Bojan Kotnik, Zdravko Kačič</i> <b>Speech Bandwidth Classification for Broadcast News Domain Using Artificial Neural Network and Gaussian Mixture Models</b> .....	283
<i>M. Vranješ, S. Rimac-Drlje, D. Žagar</i> <b>Subjective and Objective Quality Evaluation of the H.264/AVC Coded Video</b> .....	287
<i>R. H. C. de Melo and A. Conci</i> <b>Succolarity: Defining a Method to Calculate this Fractal Measure</b> .....	291

<i>Tino Haderlein, Tobias Bocklet, Elmar Nöth, Frank Rosanowski</i> <b>Text-based vs. Vowel-based Automatic Evaluation of Tracheoesophageal Substitute Voice.....</b>	<b>295</b>
<i>Rastislav Róka</i> <b>The Utilization of the Vektored DMT for the FEXT-free signal transmission by means of the VDSL technology .....</b>	<b>299</b>
<i>K. Benkič, M. Malajner, P. Planinšič, Ž. Čučej</i> <b>Using RSSI value for distance estimation in Wireless sensor networks based on ZigBee.....</b>	<b>303</b>
<i>Jin Heo and Yo-Sung Ho</i> <b>VLC Table Prediction Algorithm for CAVLC in H.264 using Correlation and Statistics of Mode Information .....</b>	<b>307</b>
<i>M. Sadooghi Yazdi and Mohsen Ebrahimi Moghaddam</i> <b>A Fast Indexing and Retrieval Method for Image Databases .....</b>	<b>311</b>
<i>M.R Bonyadi, E. Deghani, and Mohsen Ebrahimi Moghaddam</i> <b>A Non-uniform Image Compression Using Genetic Algorithm .....</b>	<b>315</b>
<i>Hamed Habibi Aghdam and Ali Asghar Pourhaji Kazem</i> <b>A Novel Corner Detector with Integrated Corner Angle Computation .....</b>	<b>319</b>
<i>K. Kotuliaková and J. Polec</i> <b>Analysis of HARQ Schemes Using Reed-Solomon Codes.....</b>	<b>323</b>
<i>Matej Kseneman, Dušan Gleich, Peter Planinšič, Vlado Kitanovski and Dimitar Taskovski</i> <b>Comparison Between Different Lifting Scheme Algorithms .....</b>	<b>327</b>
<i>Fabiana R. Leta, Flávio F. Feliciano</i> <b>Computational System to Detect Defects in Mounted and Bare PCB Based on Connectivity and Image Correlation .....</b>	<b>331</b>
<i>M. Castellano and G. Mastronardi and D. Daleno and L. Cariello and G. Decataldo</i> <b>Computing the 3D Face Recognition based on Pseudo 2D Hidden Markov Models using Geodesic Distances.....</b>	<b>335</b>
<i>E. Clua, M. S. Fonseca, A. Conci and A. Montenegro</i> <b>Detecting Shot Transitions Based on Video Content.....</b>	<b>339</b>
<i>T. Kratochvíl</i> <b>DVB-T/H Laboratory Transmission Using Fading Channel Profiles .....</b>	<b>343</b>
<i>Abdussamad U. Jibia, Momoh-Jimoh E. Salami and Othman O. Khalifa</i> <b>Effect of Multiple Deconvolution Parameters on the Resolvability of Decay Rates of Multiexponential Signals .....</b>	<b>347</b>

<i>Muhammad Asif and John. Soraghan</i> <b>Efficient Video Analytics to overcome Command Latency for Mega-Pixel Video Transmission over Ethernet .....</b>	<b>351</b>
<i>Rehan Jamshaid Nemati, Muhammad Younus Javed and Athar. M. Zaidi</i> <b>Enhanced Fingerprint Verification through Novel Matching Modality .....</b>	<b>355</b>
<i>Martin Wolf, Climent Nadeu</i> <b>Evaluation of Different Feature Extraction Methods for Speech Recognition in Car Environment .....</b>	<b>359</b>
<i>Rehan Jamshaid Nemati and Muhammad Younus Javed</i> <b>Fingerprint Verification using Filter-bank of Gabor and Log Gabor Filters .....</b>	<b>363</b>
<i>Emil Dumic, Sonja Grgic and Mislav Grgic</i> <b>Hidden Influences on Image Quality when Comparing Interpolation Methods .....</b>	<b>367</b>
<i>Peter Farkaš, Ahmad Yassine and Van Phuong Tran</i> <b>Hybrid ARQ Error Control for Broadcast or Multicast in Wireless Networks.....</b>	<b>373</b>
<i>A. Makedonas, D. Besiris, G. Economou and S. Fotopoulos</i> <b>Image Database Organization Based on Membership Values and Connectivity Graph.....</b>	<b>377</b>
<i>Z. Becvar, J. Zelenka and M. Brada</i> <b>Impact of Saturation on Speech Quality in VoIP .....</b>	<b>381</b>
<i>Alexandre L. M. Levada, Nelson D. A. Mascarenhas, Alberto Tannús</i> <b>Improving Potts MRF Model Parameter Estimation using Higher-Order Neighborhood Systems on Stochastic Image Modeling.....</b>	<b>385</b>
<i>A. Montenegro, E. P. Calixto, A. Conci and E. Clua</i> <b>Introducing a New Metric for Automatic True Color Images Granulometry .....</b>	<b>389</b>
<i>Carsten Wittenberg</i> <b>Is Multimedia always the solution for Human-Machine Interfaces? - a case study in the service &amp; maintenance domain .....</b>	<b>393</b>
<i>S. Onis, H. Sanson, C. Garcia</i> <b>Iterative Unsupervised Object Detection System .....</b>	<b>397</b>
<i>Olim Hidayov, Hakimjon Zaynuddinov, Hyung Chul Park, Kondekar Pravin, Sang- Gug Lee</i> <b>Method of Computing Spectral Factors in Piecewise-Quadratic Bases and its Application in Problems of Digital Signal Processing.....</b>	<b>401</b>
<i>R. Khemakhem, A. Ben Hamida, A. Ahmed-Taleb and P. Derambure</i> <b>New Hybrid Method for the 3D Reconstruction of Neuronal Activity in the Brain .....</b>	<b>405</b>
<i>Milos Cernak and Sakhia Darjaa</i> <b>Noisy Speech Recognition Failure Diagnosis Using Minimum Message Length Decision Trees.....</b>	<b>409</b>



<i>D. Bakker, M. Stoufs, J. Barbarien, M. Jacobs, P. Schelkens and A. Munteanu</i> <b>Optimized Erasure-Resilient Streaming of SVC using Unequal Error Protection .....</b>	<b>413</b>
<i>Mohsen Ebrahimi Moghaddam</i> <b>OUT OF FOCUS BLUR ESTIMATION USING GENETIC ALGORITHM.....</b>	<b>417</b>
<i>Adem Alpaslan Altun</i> <b>Recognition of Selected Fingerprints and Iris Features Enhanced by Curvelet Transform with Artificial Neural Networks .....</b>	<b>421</b>
<i>R. Ridzoň and D. Levický</i> <b>Robust Digital Watermarking in Color Images.....</b>	<b>425</b>
<i>A. Sabov and J. Krüger</i> <b>Segmentation of 3D Points from Range Camera Data using Scanlines.....</b>	<b>429</b>
<i>Jung-Ah Choi and Yo-Sung Ho</i> <b>Simple and Efficient Deblocking Algorithm for H.264/AVC Decoder .....</b>	<b>433</b>
<i>H. Larbi Beklaouz, M. Hamadouch, M. Mimi, A. Taleb Ahmed</i> <b>Study and Analysis of a New Detector of Radar Targets Using CFAR with Gabor Transform .....</b>	<b>437</b>
<i>J. Turán, M. Fifik, L. Ovseník and J. Turán, Jr.</i> <b>Transform Based System for Traffic Sign Recognition .....</b>	<b>441</b>
<i>Ákos Utasi and László Czúni</i> <b>Visual Analysis of Urban Road Traffic.....</b>	<b>445</b>
<i>Sandra E. F. de Avila, Antonio da Luz Jr. and Arnaldo de A. Araújo</i> <b>VSUMM: A Simple and Efficient Approach for Automatic Video Summarization .....</b>	<b>449</b>
<i>M. Turi Nagy and G. Rozinaj</i> <b>A Residual Modeling Extension of HNM Model for Prosodic Modification of Slovak Speech .....</b>	<b>453</b>
<i>W. Zouch, A. Taleb-Ahmed, A. Ben Hamida, J.L. Bourriez, P. Derambure</i> <b>Smooth WMN-FOCUSS Method for EEG Dipoles Localisation .....</b>	<b>457</b>
<i>Stephan Massner</i> <b>Dynamic expansion of IBCF entities in IMS interconnection scenarios .....</b>	<b>461</b>
<i>Alexander I. Iliev, Michael S. Scordilis</i> <b>Emotion Recognition in Speech using Inter-Sentence Glottal Statistics .....</b>	<b>465</b>
<i>Pamela Begović, Narcis Behlilović, Aleksandar Mastilović</i> <b>Comparison of QoS Parameters of Received IPTV Signals, Using Different Compression Algorithms for Streaming Live or Stored AV Materials.....</b>	<b>469</b>
<i>M. Beniak, J. Pavlovičová and M. Oravec</i> <b>Automatic Face Detection Based on Chrominance Components Analysis .....</b>	<b>475</b>

<i>Bojan Bakmaz, Miodrag Bakmaz and Zoran Bojkovic</i> <b>Security Aspects in Future Mobile Networks.....</b>	<b>479</b>
<i>S. M. Tran, M. Preda and F. Preteux</i> <b>Low Computation Method for Fast Mode Decision in H.264/MPEG-4 AVC.....</b>	<b>483</b>
<i>Luciana L. Silva, Mário L. Tronco, Henrique A. Vian, Rogéria C. G. Souza and Arthur J. V. Porto</i> <b>Classification and Characterization of Places for Mapping of Environment Using Hierarchical Neural Network and Omnivision .....</b>	<b>487</b>
<i>A. Cazan, C. Bratu, R. Varbanescu</i> <b>E-training System for Operators, Technological Engineers and Maintenance Automation Systems, Safety and Security .....</b>	<b>491</b>
<i>J. Bioucas-Dias and G. Valadao</i> <b>Phase Unwrapping via Diversity and Graph Cuts .....</b>	<b>495</b>
<i>Ahmad Almhdie, Christophe Léger, Mohamed Deriche, Long-Dang Nguyen and Roger Lédée</i> <b>The Comprehensive ICP (CICP) Algorithm and its Application to the Multidmoal Registration of 3D Surfaces of the Heart .....</b>	<b>499</b>
<i>J. Čepko, R. Talafová and J. Vrabec</i> <b>Indexing Join Costs for Faster Unit Selection Synthesis.....</b>	<b>503</b>
<i>J. Kovač, P. Peer, F. Solina</i> <b>Automatic Natural and Man-made Scene Differentiation Using Perspective Geometrical Properties of the Scenes .....</b>	<b>507</b>
<i>D. Besiris, F. Fotopoulou, G. Economou and S. Fotopoulos</i> <b>Video Summarization by a Graph-Theoretic FCM based algorithm.....</b>	<b>511</b>
<i>Trúchly Peter, Marek Ocel'</i> <b>End-to-End Packet Delays in LEO Satellite Constellations.....</b>	<b>515</b>
<i>Ján Gamec</i> <b>Various Filtering Methods of Motion Vector Fields .....</b>	<b>519</b>
<i>Eugen Mikoczy</i> <b>Next Generation of Multimedia Services – NGN based IPTV architecture.....</b>	<b>523</b>
<i>Ladislav Chmela, Jaroslav Burčík</i> <b>Meteorological Image Processing in Automated Systems.....</b>	<b>527</b>
<i>Yelena Chaiko</i> <b>Effect of Lossy Links on Wireless Sensor Networks .....</b>	<b>531</b>
<i>J.Vojtko and J. Korosi and G. Rozinaj</i> <b>Comparison of Automatic Speech Recognizer SPHINX 3.6 and SPHINX 4.0 for Creating Systems in Slovak Language.....</b>	<b>537</b>