



18TH INTERNATIONAL CONFERENCE
ON NEW TRENDS
IN SIGNAL PROCESSING 2026

NTSP 2026 Conference Program

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ADVANCES IN ELECTRICAL
AND ELECTRONIC ENGINEERING

14. 10. 2026		Time
Registration		08:00-08:50
Opening speeches and organizing instructions		08:50-09:00
Session 1: Applied Electronics, Chairman: Ján OCHODNICKÝ		
1	<i>A Generalized Impedance Model for Asymmetric Nyquist Plots in Bioelectrical Impedance Analysis</i> <u>Dalibor Bielek</u> , Viera Biolkova, Rostislav Vychodil, David Grasev, Zdenek Kolka	09:00
2	<i>Fractional-N PLL-Based Waveform Synthesis for FMCW SAR</i> Thomas Gwasira, Stephen Paine, Michael Raymond Inggs, Vaclav Vlasak, <u>Jan Pidanic</u>	09:20
3	<i>Development of a Centralized System for Optimizing the Use of Excess Solar Energy in Industrial Facilities</i> <u>Roman Ďurikovič</u> , Tomáš Hruškovíc	09:40
4	<i>Automated Interface Tracking Algorithm for GPR Bathymetry</i> <u>David Liška</u> , Jiří Veselý, Marian Rybanský	<i>PhD Paper</i> 10:00
5	<i>A Binary-Counting PWDM Modulator on FPGA: Implementation and Measurements</i> <u>Vitor Viegas</u> , Bruno Damas	10:20
Coffee break		10:40-11:00
Session 2: Signal Processing, Chairman: Jozef PERĎOCH		
6	<i>Evaluating Lossy Compression Techniques for CW Radar in Traffic Applications</i> Ryan Jones, Stephen Paine, Christian Herglotz, <u>Jan Pidanic</u>	11:00
7	<i>Machine Learning in Over-The-Horizon Radar Bearing Estimation</i> <u>Miroslav Pacek</u> , Zdeněk Matoušek, Jozef Perďoch, Jozef Puttera, Zdeno Baráni	11:20
8	<i>Detection of LFM Signals Using CNN-BiLSTM Recognition Algorithm</i> <u>Jan Virgala</u> , Marie Richterova	<i>PhD Paper</i> 11:40
9	<i>A Controlled Study of RVQ Embedding Fusion for Neural Audio Codec Decoders</i> <u>Hendrik Bothe</u> , Michaela Geierhos	<i>PhD Paper</i> 12:00
10	<i>Non-Uniform Doppler Filter Bank Design for MTD Processing with Controlled Channel Overlap</i> <u>Vaclav Hendrych</u> , Lukas Lastuvka, Tomas Zalabsky, Tomas Krejci, Karel Juryca, Tomas Muller	<i>PhD Paper</i> 12:20
11	<i>A Multichannel Spaceborne SAR Simulator</i> <u>Giuseppe Catalano</u> , Massimo Rosamilia, Augusto Aubry, Filippo Biondi, Antonio De Maio	<i>PhD Paper</i> 12:40
12	<i>Directional Vibration Analysis from Video Sequences</i> <u>Anton Fediushin</u> , Miroslav Hagara, Alexander Šatka, Peter Kubinec, Andrej Štafura	<i>PhD Paper</i> 13:00
Lunch		13:20-14:20
Session 3: Signal Processing in Military Applications, Chairman: Ján KURTY		
13	<i>Design and Implementation of Tracking Filters for a Passive Radar System</i> Itumeleng Malemela, Stephen Paine, Francois Schonken, <u>Jan Pidanic</u>	14:20
14	<i>Limited Transferability of IMU-Based Pothole Detection under Domain Shift</i> Vishnu Singh Sapaharam, Ayush Kumar, Hanumant Singh Shekhawat, <u>Asfaw Tariku Abebe</u> , Mukesh Kumar Saini, Tomas Boruvka, <u>Jan Pidanic</u>	14:40
15	<i>Simulation-Based Analysis of Shifted-Notch Adaptive MTI for Non-Stationary Clutter Suppression</i> <u>Lukas Lastuvka</u> , Vaclav Hendrych, Tomas Zalabsky, Tomas Krejci, Karel Juryca, Tomas Muller	<i>PhD Paper</i> 15:00

16	Experimental Evaluation of UAV Propeller Micro-Doppler Signatures in Ka-Band Radar Measurements <u>Denis Duda</u> , Stanislav Vaněk	15:20
17	A Real-Time Decision Support System for Situational Awareness Using Physiological Sensing and Augmented Reality Martin Révay, <u>Marek Benčík</u> , Michal Turčaník	15:40
Coffee break		16:00-16:20
Session 4: Communication Engineering, Chairman: Marián BABJAK		
18	Impact of IPsec on Security and Performance in Private 5G Standalone Networks <u>Zdenek Vylezich</u> , Marketa Vrsecka, Martin Kyselak	<i>PhD. Paper</i> 16:20
19	Independence Testing of Binary Random Sequences <u>Robert Wicik</u> , Piotr Komorowski	16:40
20	Reliability, Latency, and Complexity Tradeoffs of Short Block Channel Codes for Narrowband Radio Channels <u>Rastislav Ledaj</u> , Marián Babjak, Ján Kurty, Zdeno Baráni	17:00
21	Private 5G Communication Infrastructure for Armed Forces <u>Marketa Vrsecka</u> , Zdenek Vylezich, Sarka Fridrichova	17:20
22	Performance Analysis of LoRa CSS Modulation and FHSS Implementation in Urban and Rural Environments <u>Radovan Pekar</u> , Miroslav Matejček, Marián Babjak	<i>PhD. Paper</i> 17:40
15. 10. 2026		Time
Registration		08:00-09:00
Imrich Petruf : The Digital Battlefield: Limits and Solutions Advertising partner Presentation		 09:00
Session 5: Microwave Engineering and Signal Processing in Military Applications, Chairman: Miroslav PACEK		
23	UAV Communication Protocols Database and Measurement <u>Dalibor Pertlík</u> , Ondřej Šimon	<i>PhD. Paper</i> 09:20
24	Comparison of STAP and CNN Radar Target Detection in Clutter Environment <u>Jana L'oncová</u> , Stanislava Gažovová, Jan Ochodnický, Ján Virgala	<i>PhD. Paper</i> 09:40
25	GLRT-Based Eigenvalue Ratio Detector versus Covariance-Based STAP Detector for Radar UAV Detection Stanislava Gažovová, <u>Marián Babjak</u> , Jana L'oncová, Ján Ochodnický	10:00
26	Robustness of Additively Manufactured Horn Antennas under HIRF Exposure in the X-Band <u>Jana Olivová</u> , René Križan, Markéta Vršecká	10:20
27	Experimental Analysis of Mutual Coupling and Array Factor Correction Using Measured S-Parameters in a 2-by-2 Helical Array <u>Daniel Pospíšil</u> , Jiří Veselý	<i>PhD. Paper</i> 10:40
28	Signal Processing Using a Probabilistic Model for a Laser Communication System Radoslav Masnica, <u>Imrich Petruf</u> , Aurel Sabó, Dušan Fraňo, Jozef Štulrajter	11:00
Coffee break		11:00-11:20
Session 6: Informatics, Chairman: Miroslav MATEJČEK		
29	Experimental Evaluation of Join Ordering Strategies in Relational Databases Using a Hospital Information System Dataset <u>Jakub Rapšík</u>	<i>PhD. Paper</i> 11:20

30	Performance Evaluation of Database Partitioning Strategies on Large-Scale Traffic Accident Data <u>Alexandra Voitasová</u> , Michal Kvet	PhD Paper 11:40
31	Chatbots Capabilities in Classifying SQL Statements Robustness to SQL Injection <u>Juraj Komorník</u> , Michal Turčaník	PhD Paper 12:00
32	Scaling, Quantization, and Rank: A QLoRA Study for Local Python Code Generation with Qwen3 <u>Matúš Janok</u> , Radoslav Forgáč, Miloš Očkay, Martin Javurek	PhD Paper 12:20
33	Aggregation Semantics and Optimization in SQL: GROUP BY Clause Extension in Oracle Database 26ai <u>Michal Kvet</u>	12:40
Lunch		13:00-14:00
Tomáš Müller: ELDIS – product portfolio Advertising partner Presentation		 14:00
Session 7: Informatics, Chairman: Gabriel CIBIRA		
34	Information System for Police Force - Analytical Tool for Monitoring Traffic Accidents with Animals <u>Miroslav Bušik</u> , Michal Kvet	14:20
35	Relationship-Owned Imported Attributes and Cascade-Aware Deltas in Entity-Relationship Modelers <u>Erik Zemčík</u> , Michal Kvet	14:40
36	Hospital Information System <u>Juraj Beňo</u> , Marko Krstič, Radoslav Bajza, Sarah Zúbeková, Martina Hrínová Durneková	15:00
37	Hospital Information System for Administration of Doctors <u>Radoslav Bajza</u> , Juraj Beňo, Marko Krstič, Sarah Zúbeková, Martina Hrínová Durneková	15:20
Coffee break		15:40-16:00
Session 8: Applied Electronics, Chairman: Jozef PUTTERA		
38	ESP32-S3-Based Multiband Spectral Signal Processing for Improving Voice Command Recognition in Low-Cost Embedded Systems Zdeno Baráni, <u>Mikuláš Šostronek</u> , Aurel Sabó, Miroslav Matejček	16:00
39	Evaluation of GPS Positioning Accuracy Using Embedded Systems in the MATLAB Environment <u>Miroslav Matejček</u> , Mikuláš Šostronek, Marek Šurka, Zdeno Baráni, Ján Kurty	16:20
40	Design and Pilot Deployment of a Multi-Interface Air-Quality Sensor with Autonomous NB-IoT Data Collection <u>Jan Tomlain</u> , Ondrej Teren, Juraj Tomlain	16:40
Session 9: Informatics, Chairman: Mikuláš ŠOSTRONEK		
41	Comparison of On-Premises Large Language Models Using Retrieval-Augmented Generation in Academic and Military Environments <u>Adam Šustek</u> , Martin Javurek, Matúš Janok, Miloš Očkay, Radoslav Forgáč	17:00
42	Multi-Layer Monitoring of a Docker-based High-Interaction Honeypots <u>Dalibor Doša</u> , <u>Matuš Mikuláš</u> , Pavol Helebrandt	17:20
43	Automated Tempered Glass Fragmentation Testing Using Density Estimation Tomáš Matovič, Tomáš Zenka, <u>Ladislav Zemko</u> , Pavel Čičák, Ján Čulík, Adrián Kopáč	17:40
44	Vulnerability Scanner for Internal Networks <u>Adrián Fáber</u> , Martin Pavelka	18:00
Conference Banquet - NTSP 2026 PhD Student Prize Award, Closing of the Conference		19:00



16. 10. 2026 (Post Conference Day)

Session 10: Technical Program Committee final meeting

10:00–11:30

Outdoor activities in vicinity of the Demänovská Dolina and West Tatras
Warm cloths, waterproof jacket and outdoor boots are highly recommended.