

XVII INTERNATIONAL CONFERENCE

ETAI 2026 ETAM

26-28 SEPTEMBER, OHRID NORTH MACEDONIA

Date	Time	Hall 1	Hall 2	Hall 3
Saturday, September 26th	08:30 - 10:30	REGISTRATION *		
	10:30 - 12:00	Session 1	Session 2	
	12:00 - 13:00	Lunch** break		
	13:00 - 13:30	CONFERENCE OPENING		
	13:30 - 14:30	PLENARY LECTURE 1 prof. Bojan Mavkov		
	14:30 - 15:00	Coffee break		
	15:00 - 16:30	Session 3	Session 4	
	16:30 - 18:00	Session 5	Session 6	
	18:00 - 19:30	Session 7	Session 8	
	20:00 -	Welcome cocktail		

Date	Time	Hall 1	Hall 2	Hall 3
Sunday, September 27th	09:00 - 10:00			Hackathon: Cybersecurity in action: simulated cyber attacks and vulnerabilities in a CTF challenge
	10:00 - 11:30	Projects session		
	11:30 - 13:00	ROUND TABLE		
	13:00 - 14:00	Lunch** break		
	14:00 - 15:00	PLENARY LECTURE 2 prof. Alessandro Ferrero		
	15:00 - 15:30	Coffee break		Project meeting PEMS-ML
	15:30 - 17:00	Session 9	Session 10	
	18:00 -	Boat tour on Lake Ohrid*** and dinner		

Date	Time	Hall 1	Hall 2	Hall 3
Monday, Sept. 28th	11:00 - 12:30	Session 11	Session 12	Hackathon: 5G SA FutureLab: Beyond 5G. Innovate. Build Connect.
	12:30 - 13:00	CLOSING CEREMONY		
	13:00 - 14:00			

* The registration desk will be open all days from 08:30 - 15:30.

** If included with room.

*** Depending on weather conditions.

ETAI 2026 Conference Session Schedule

SESSION NAME AND TIME	ID	TITLE	AUTHORS
Session 1 Telecommunications and Networks TeleNet Saturday, September 26th 10:30 - 12:00 Hall 1	4	Data Modeling and Graph-Based Analysis for Intelligent Optimization of Telecommunications Networks	Zlate Bogoevski; Ana Cholakoska Cilakova; Sanja Atanasova; Marija Kalendar; Danijela Efnusheva
	19	Network Slicing in 5G: A Simulation-Based QoS Analysis	Hristina Stojkovska; Toni Janevski
	21	Cross-Platform Human Activity Recognition: The Role of Signal Harmonization	Anastasija Kostovska; Ana Pletvarec; Hristijan Gjoreski
	48	Analysis of Modern NVMe over Fabrics Technologies: NVMe/FC, NVMe/TCP, and NVMe/RoCEv2	Tomislav Nestorovski; Simon Bojadzievski; Aleksandar Risteski
	56	Cryptographic Work Integral	Damjan Zlatanovski; Vladimir Atanasovski
Session 2 Machine Learning and Data Analytics MLData Saturday, September 26th 10:30 - 12:00 Hall 2	2	From Photo Metadata to Tourism Insights: Clustering Visitor-Generated Data in a Heritage Landscape	Cvetko Andreeski; Biljana Petrevska
	6	Comparative Analysis of Neural Network Based Algorithms Against Tree Ensemble Algorithms on Tabular Data	Kristijan Milosheski; Hristijan Gjoreski
	14	Quality-Related Financial Risks Modeling in the Automotive Industry: A Monte Carlo Simulation Approach	Nikola Uzunski; Sonja Gegovska-Zajkova
	20	Evaluating Classical Machine Learning Models in Sports Forecasting Under Chronological Constraints and Class Imbalance	Filip Bojadjevski; Simon Bojadjevski; Hristijan Gjoreski
	35	A Stochastic Decision-Support Model for Financial Risk Assessment in Forest Management	Kristina Buzharoska; Sonja Gegovska-Zajkova
	37	Interpretable Shape-Based Clustering: A Framework for Smart Meter Anomaly Analysis	Daniela Stojcheska; Marija Markovska; Dimitar Taskovski; Branislav Gerazov
Session 3 Metrology and Instrumentation MetInst Saturday, September 26th 15:00 - 16:30 Hall 1	3	Development and Validation of Digital Learning Resources for Personalized Measurement Science Education	Mare Srbinovska; Vladimir Dimčev; Marija Markovska Dimitrovska; Milan Dinčić; Christian Laurano; Jelena Jovanović; Živko Kokolanski; Kiril Demerdžiev; Marco Faifer; Loredana Cristaldi; Sina Ronaghi; Dragan Denić
	25	A Modular Virtual Instrumentation Framework for Electrical Measurement Education	Zivko Kokolanski; Mare Srbinovska; Kiril Demerdžiev; Vladimir Dimcev; Marco Faifer; Loredana Cristaldi; Christian Laurano; Sina Ronaghi; Milan Dinčić; Jelena Jovanović; Dragan Denić
	34	Automated Thermoluminescence Glow Curve Analysis Using LabVIEW and Chen's Peak Shape Method	Marija Shterjova; Zivko Kokolanski; Ivana Fabijanikj Sandeva; Hristina Spasevska
	51	Development and Validation of a Laboratory Procedure for Oscilloscope Calibration	Anamarija Ilieva; Marija Cundeva-Blajer; Kiril Demerdžiev
	64	Measurement Uncertainty Budget and Data Analysis: A Weather Station Case Study	Martin Markoski; Zivko Kokolanski
	65	Analysis of Occupational Radiation Exposure Using Personal Thermoluminescent Dosimetry	Ivona Todorova; Aleksandar Kreski; Ivana Fabijanikj Sandeva; Lihnida Stojanovska-Georgievska; Margarita Ginovska; Hristina Spasevska
Session 4 Computer Vision and Recognition CompVis Saturday, September 26th 15:00 - 16:30 Hall 2	8	Multi-Label Ocular Disease Recognition from Fundus Images Using Transfer Learning	Tiana Paunoska; Hristijan Gjoreski
	22	Detection and Localization of Driver Behavior Using a Fine-Tuned YOLO Model	Petar Trajkovski; Zoran Ivanovski
	23	Detecting Food and Drinks in Smart-Glasses Images with a Fine-Tuned YOLO Model	Ilijana Simonovska; Petar Trajkovski; Viktorija Projkova; Bojan Sofronievski; Mia Darkovska; Hristijan Gjoreski
	24	A Comparative Review of YOLO-Based Models for Armed Person and Military Vehicle Detection	Rexhep Mustafovski; Tomislav Shuminoski; Aleksandar Risteski
	47	Comparative Evaluation of YOLOv8 Models for Food Object Detection	Viktorija Projkova; David Naumovski; Mihajlo Naumoski; Hristijan Gjoreski
	68	Scrap Trailer Content Extraction Using YOLOv8 and SAM2	Jovan Kamchev; Zoran Ivanovski
Session 5 AI, LLMs and Software Engineering AI-SE Saturday, September 26th 16:30 - 18:00 Hall 1	15	Evaluating Retrieval Methods and Architectures for Macedonian Legal Question Answering	Natasha Mladenovska; Borjan Sazdov; Hristijan Gjoreski
	16	The Role of MCP in Enterprise Requirement Engineering	Aneta Trajkovska; Kostandina Veljanovska; Trajche Trajkov
	33	Evaluating LLMs as Personal Lifestyle Coaches Using Multimodal Behavioral Data	Ana Sofronievska; Daniela Stojceska; Ognen Pendarovski; Borjan Sazdov; Marko Vukovikj; Hristijan Gjoreski
	45	Development of Models for Detection of Texts Generated by Artificial Intelligence	Hristijan Minovski; Petar Trajkovski; Hristijan Gjoreski
	57	Specification-Driven Agentic Software Engineering: Enabling Role-Based Claude Code Implementation, Testing, and Validation	Emire Kërhanaj-Jakupi; Ilija Jolevski
	66	Evaluating Attribute-Based Versus Direct LLM Generation of Personalized Learning Feedback	Marija Markovska; Mare Srbinovska; Zivko Kokolanski; Vladimir Dimchev; Kiril Demerdžiev; Ema Mishevska; Marco Faifer; Loredana Cristaldi; Christian Laurano; Sina Ronaghi; Milan Dincic; Jelena Jovanovic; Dragan Denic; Goran Miljkovic
Session 6 Applied AI and Smart Services AppliedAI Saturday, September 26th 16:30 - 18:00 Hall 2	13	Use Cases of Artificial Intelligence in Existing and Future Internet and Telecoms	Dario Janevski; Aleksandar Risteski; Tomislav Shuminoski
	52	Using Multimodal Wrist-Worn Sensor Data to Detect and Differentiate Body-Focused Repetitive Behaviors (BFRBs) from Non-BFRB Gestures	Marija Kochovska; Teodora Kochovska; Hristijan Gjoreski
	67	Virtual Reality-Based Simulation of an Industrial Automation Laboratory Environment	Simona Manoleva; Dushko Stavrov; Gorjan Nadzinski; Vesna O. Latkoska
	69	A Product-Specific Strategy for Implementing Deep Learning in Automated Vision-Based Point-of-Sale Systems: Top-View Bottle Detection	Dean Petreski; Zoran Ivanovski
	73	Vulnerability Assessment of NFC Parking Credentials: A Case Study of MIFARE Classic-Compatible Card	Mila Mehandziska; Despina Mojsova; Stefan Zlatinov; Filip Donchevski
	74	AI-Enhanced Interoperability in Medical Networks: A Review of HL7 and FHIR-Based Data Exchange Protocols	Marija Miloshevska; Marija Kalendar; Danijela Efnusheva

Session 7 Quantum Computing, Optimization and Autonomous Learning EmergingAI Saturday, September 26th 18:00 - 19:30 Hall 1	7	Trapped Ion Shuttling Controller for Quantum Computing	Aleksandar Simevski; Michael Hartmann
	27	Quantum circuits for basic modular exponentiation	Pedro Juan Roig; Cristina Bernad; Salvador Alcaraz; Blas Trigueros; Katja Gilly; Anastas Mishev
	9	A Proactive Service Migration Algorithm for Mobility-Aware MEC Resource Management	Cristina Bernad; Pedro J. Roig; Salvador Alcaraz; Sonja Filiposka; Katja Gilly; Roksana Wilk
	72	Autonomous Biomarker-Guided Nanorobot Target Navigation Using Reinforcement Learning	Ana Marija Tendzerevska; Gorjan Nadzinski
	46	Comparative Performance of Metaheuristic Algorithms for the Travelling Salesman Problem	Viktorija Projkova; David Naumovski; Hristijan Gjoreski
	75	Modern Reinforcement Learning Algorithms for Intelligent Autonomous Robots: An Experimental Study of Actor Critic and Proximal Policy Optimization in CartPole	Marija Kochovska; Teodora Kochovska; Marija Kalendar
	36	Dual-Aware Experience Replay in Primal-Dual Q-Learning	Ana Sofronievska; Naum Dimitrieski
Session 8 Edge, IoT and Distributed Systems EdgeIoT Saturday, September 26th 18:00 - 19:30 Hall 2	53	Intelligent Management of Large Cluster Infrastructures Using Machine Learning and Google Borg: Workload Analysis and Predictive Classification from Google Borg Traces	Marija Kochovska; Teodora Kochovska; Ana Cholakoska Cilakova; Danijela Efnusheva
	54	Real-Time Human Activity and Fall Detection Using Human Pose Estimation and MQTT: A lightweight computer vision and IoT approach for edge-based monitoring	Marija Kochovska; Teodora Kochovska; Ana Cilakova Cholakoska; Danijela Efnusheva
	32	Empirical Modeling of Low-Power Edge Video Management Systems	Teodor Todorovski; Ana Sofronievska; Zhivko Kokolanski
	26	Development of a Digital Twin Framework for Monitoring and Analytics of Hydropower Plants	Zivko Kokolanski; Anton Caushevski; Mare Srbinovska; Daniel Denkovski; Vladimir Dimchev
	62	Lightweight and Scalable Heterogeneous Grid Computing Framework for Automated Large-Scale Scientific Parametric Analysis	Blagoja Markovski; Bojana Velichkovska; Leonid Greev
	71	Experimental Evaluation of the A2DAPT Framework for Adaptive Resource Optimization in Lightweight Intrusion Detection Systems	Goce Stevanoski; Monika Kachurova; Aleksandar Risteski; Marko Porjazoski; Aleksandra Atanasoska
Session 9 Cybersecurity and Governance CybSec Sunday, September 27th 15:30 - 17:00 Hall 1	41	A Containerized Multi-Tenant Capture-the-Flag Platform for Practical Cybersecurity Education	Filip Bojadzievski; Marko Kraljev; Boris Chaushevski; Dragan Donchevski; Timotej Risteski; Leonid Petrushevski; Emilija Chona; Ana Cholakoska Cilakova; Danijela Efnusheva
	30	From Severity to Exploitability: An Empirical Study of EPSS-Enhanced Vulnerability Prioritization in CI/CD Pipelines	Marija Mirchevska; Daniel Denkovski
	40	Evaluating the Environmental Footprint of Modern Cybersecurity Architectures via a Unified Green-Cyber Simulator	Verica Spaskovska; Simon Bojadzievski; Aleksandar Risteski
	5	Beyond Deep Packet Inspection: A Lightweight, Physics-Driven Intrusion Detection System Using Unsupervised Machine Learning	Damjan Zlatanovski; Toni Janevski
	42	Cybersecurity Architecture for NIS2-Compliant Entities: Mapping Regulatory Requirements to Security Technologies and Managed Services	Verica Spaskovska; Simon Bojadzievski; Valentina Angelkoska; Aleksandar Risteski
	43	AI-Driven Microservice Framework for Autonomous NIST Compliance Mapping and Macedonian Cyber Security Legislation Auditing	Verica Spaskovska; Simon Bojadzievski; Aleksandar Risteski
Session 10 Embedded Hardware, Electronic Devices and FPGA Systems EmbHW Sunday, September 27th 15:30 - 17:00 Hall 2	70	Design and Implementation of a Portable PSoC 6-Based Platform for LIN-Based Automotive Actuator Control and Monitoring	Maxim Panovski; Ognen Sekuloski; Ilina Krstevska; Katerina Raleva
	38	Speech Command Recognition in Serbian on Embedded Edge Devices	Danilo Todorović; Jovan Galić; Boris Malčić; Branko Marković
	55	RTL Design and FPGA Implementation of a 3x3 Systolic Array Matrix Multiplication Hardware Accelerator	Cvetanka Bilbiloska; Katerina Raleva
	60	Datasheet-Driven Modeling of Commercial GaN HEMT Power Devices Using SPICE Macromodels	Marko Kamilovski; Elena Todorova; Katerina Raleva
	1	Hardware-Software Co-Design for Real-Time Aerial Object Tracking: C++ Based Architectural Profiling and FPGA Implementation Proposal	Damjan Sokolovski; Kristijan Nelkovski; Bojana Velichkovska; Goran Jakimovski; Ana Cholakoska Cilakova; Danijela Efnusheva
	76	Implementation of a BEAM Based Energy Harvesting Solar Powered Batteryless Crawling Robot	Kristijan Nelkovski; Danijela Efnusheva; Marija Kalendar
Session 11 Smart Biomedicine and Assistive Technologies SmartBio Monday, September 28th 11:00 - 12:30 Hall 1	28	Closed-Loop Delay Margin Analysis for Functional Electrical Stimulation Suppression of Essential Tremor in Fixed-Gain and Spiking Controllers	Blagoj Hristov; Ilija Mizhimakoski; Dushko Stavrov; Vesna Ojleska Latkoska
	29	Multi-Label Output Heads for Combinatorial Finger Decoding from Low-Density sEMG	Blagoj Hristov; Branislav Gerazov; Gorjan Nadzinski; Vesna Ojleska Latkoska
	10	Multimodal Stress Prediction using Cardiac, Electrodermal and Accelerometer Signals	Dona Mitovska; Tomislav Kartalov; Nikola Jovanovski; Branislav Gerazov
	17	EEG Biomarkers and Classification of Autism and ADHD	Danche Papuchieva; Silvana Markovska-Simoska; Tomislav Kartalov; Zoran Ivanovski; Dimitar Taskovski; Branislav Gerazov
	49	Impact of Segmentation Resolution on Numerically Computed Electric Potential Around Biomedical Electrode in an Anisotropic and Dispersive Tissue	Bojan Glushica; Andrijana Kuhar
	44	Alternative Communication Device for People with Speech Disabilities: Assistive Technology as a Tool for Hands-On STEM Learning	Angel Zaturoski; Eva Kraus; Anamaria Ilieva; Sashka Dukilj; Anastasija Petreska; Andrej Kalanoski; Andrej Trendafilov; Branislav Gerazov; Dimitar Taskovski; Jasna Pajkovska; Nikola Jovanovski
	50	Gyromouse: An Assistive Device for Using a Computer or Mobile Device Without a Keyboard or Mouse	Martin Milchevski; Luka Damjanov; Nikola Jovanovski; Danche Todorovska; Margarita Guleska; Branislav Gerazov
Session 12 Industrial Automation and Robotics IndAuto Monday, Septeber 28th 11:00 - 12:30 Hall 2	18	Digital Twins for Techno-Economic Throughput Optimization in Smart Production Lines with Established Measurement Traceability	Tamara Nikolova; Marija Cundeva-Blajer; Kiril Demerdziev; Rick Li; Ryan O'Connor
	31	Tracking Feasibility Analysis of a Two-DOF Robotic Arm Under Payload Variation and Torque Saturation	Yusuf Coşkun; Lale Özyılmaz
	58	Adaptive Coverage Planning for Robotic Spot-Weld Inspection and Rework	Furkan Bayram; Serenay Çalışır; Yunus Furkan Öztürk; Dilek (Bilgin) Tükel; Michael Peschl; Veronica Campana
	61	PLC-Based Modernization of a Synchronous Motor Excitation System - An Industrial Case Study	Nevenka Disheva; Gorjan Nadzinski
	63	Reference Architecture for the Integration of Modular Robotic Furniture Production Lines in Economically Constrained Environments	Oliver Velichkovski; Dushko Stavrov; Gorjan Nadzinski; Vesna O. Latkoska; Blagoj Hristov