



VYSOKÉ UČENÍ FAKULTA ELEKTROTECHNIKY
TECHNICKÉ A KOMUNIKAČNÍCH
V BRNĚ TECHNOLOGIÍ



STUDENT
EEICT

Category: B1 – Biomedical Engineering

Room: SE4.166 (UBMI)

Chairman: Ing. Roman Jakubiček, Ph.D.

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Ing. Jiří Sekora, MBA, Ing. Nikola Papež, Ph.D.

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Ondřej Machek (Thermo Fisher Scientific Brno s.r.o.)

Time	Authors	Title
9:00	Adéla Fialová Karel Sedlář	BacSeqer: Read simulator for bacterial RNA-Seq
9:15	Lukáš Rišian Martin Vítek	Biometric fingerprint liveness detection
9:30	Martin Suriak Markéta Nykrýnová	NANOBLAST: Python tool for raw nanopore signal processing
9:45	Miriam Čurillová Michal Nohel	Deep learning model for segmentation of trabecular tissue on CT data of the lumbar spine
10:00	Jakub Lepik Michal Cícatka	Automating antibiotic susceptibility testing with machine learning for disk diffusion test analysis
10:15	David Podrazký	Laboratory database for bacterial sample data cataloguing in the hospital environment
10:30	Janigová, Weckwerth, Schwarzerová	Py/ExplorReg: Exploration of transcriptome for potential regulon structure detection
10:45	Veronika Šromová	Interconnection of three-dimensional printing, material science and bone tissue engineering for creating ideal bone scaffolds



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Category: B3 – Industrial Automation, Transmission, Consumption and Diagnostics

Room: SA6.32 (UEEN)

Chairman: Ing. Michal Ptáček, Ph.D.

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Streit Jakub (Eaton Elektrotechnika s.r.o.), Zdeněk Oborný (ABB s.r.o.)

Time	Authors	Title
9:00	Miloslav Kužela Tomáš Fryza	Detection of parking space availability based on video
9:15	Zdeněk Štěrba Václav Kaczmarczyk	Automatic production line efficiency evaluation and optimization
9:30	Vojtech Hollý Michal Husák	Digital twin education and training purpose
9:45	Roman Vaněk Jan Mikulka	Modular system for electrical impedance tomography
10:00	Luboš Chmelař Ondřej Baštán	AAS interpreter for the testbed Industry 4.0
10:15	Sebastián Orgoň	Device for galvanic plating of 3D printed parts
10:30	Michal Papež	Micromobility and their charging
10:45	Zdenek Novotny	Parking house as energy source



Category: B4 – Systems Modeling, Simulation, and Signal processing

Room: SA4.37 (UVEE)

Chairman: prof. Ing. Jiří Mišurec, CSc.

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Jakub Šťastný (ASICentrum spol. s r.o.)

Jaroslav Lepka (NXP Semiconductors Czech Republic s.r.o.)

Time	Authors	Title
9:00	Matej Grega	Design of the electronic target for shooting sports and sensor suitability analysis
9:15	Sebastian Šimanský	Enhancement of vehicle dynamics through adaptive torque vectoring control with PMSM powertrain
9:30	Martin Malatinec Ondrej Mihálik	Influence of the reference signals on the McRuer models
9:45	Adam Ondrejka Tomáš Kříž	Design of 90 degree phase shift hybrid coupler
10:00	Matyáš Telecký Ondrej Mihálik	A comparison of popular band-limited signal reconstruction methods
10:15	Karel Kvasnička	Experimental workplace for analysis of batteries
10:30	Radek Štěřba Stanislav Pikula	Shock severity comparison using shock response spectrum and pseudo-velocity shock spectrum in LabVIEW
10:45	Dominik Steiner	Comparison of vowel formants with string and wind instrument formants
11:00	Marek Pokorný Ondřej Jirásek	Spectral analysis of Streicher and Bosendorfer pianos in the works of J. Brahms and F. Liszt

Category: M1 – Biomedical Engineering

Room: SD4.111 (UBMI)

Chairman: Ing. Martin Mézl, Ph.D.

Vice-chairman: doc. Ing. Jana Kolářová, Ph.D.

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 Petr Walek (Thermo Fisher Scientific Brno s.r.o.)**

Time	Authors	Title
9:00	V. Hrtonova, M. Filipenska, P. Klimes	Graph neural networks in epilepsy surgery
9:15	Ingrova, Chmelikova Zumberg	Quantitative analysis of scratch assay and colony formation assay data using MATLAB
9:30	Petra Polakovičová	The overlooked fact: the critical role of bioinformatics pipeline in microbiome analysis
9:45	Pavel Gálík Michal Nohel	Implementation of a deep learning model for segmentation of multiple myeloma patients in CT data
10:00	Špaková, Pankaj, Bhogal, Roy	Probing natural molecules with PPAR- γ to reveal potent agonist against cancer
10:15	Tobiáš Goldschmidt Oto Janoušek	Training zones estimation
10:30	Kristýna Heřmánková Karel Sedlář	Co-expression analysis of small RNAs and untranslated regions in <i>Rhodospirillum rubrum</i>
10:45	Julie Nejezchlebová	Bacterial identifier: Accelerating bacterial genome detection

Category: M5 – Sensors and Measurement Systems and Technology I.

Room: SE6.121 (UREL)

Chairman: doc. Mgr. Dinara Sobola, Ph.D.

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 Libor Gajdoš (Honeywell, spol. s r.o.), Dušan Zošiak (ABB s.r.o.)
 Milan Snížek (Thermo Fisher Scientific Brno s.r.o.)**

Time	Authors	Title
9:00	Ondřej Skalský	Capacitance measurement of building materials
9:15	Havránek, et al.	Development of beta-NMR detection electronics for VITO beamline at ISOLDE facility at CERN
9:30	David Leitgeb	Experimental audio effect based on dynamic signal filtering
9:45	Alžbeta Kostelanská Norbert Herencsár	Bioimpedance measuring unit for smart agriculture
10:00	Patrik Staroň	Electrical characterization of graphene sensors
10:15	Ivo Žaludek Jakub Arm	Test benches for microcontroller kits
10:30	J. Jarušek, J. Brodský, I. Gablech	Transparent materials for planar microelectrode arrays
10:45	Pavel Kopřiva Alexandr Otáhal	Design of a device for measuring the electrical resistance of soldered joints during fatigue tests
11:00	Šimon Prokop	The innovation of oscillators in Rhodes pianos

Category: M6 – Sensors and Measurement Systems and Technology II.

Room: SA7.10 (UEEN)

Chairman: doc. Ing. Vilém Kledrowetz, Ph.D.

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 Bohumil Janík (SCG CZECH DESIGN CENTER, s.r.o.)
 Jan Galia (Garrett Motion Czech Republic s.r.o.)**

Time	Authors	Title
9:00	Lukas Hamrik Peter Mician	Accident Tolerant Fuel simulation loaded in advanced nuclear power reactor during severe accident conditions
9:15	Jakub Vašíček	Estimating the equivalent circuit of Lithium-Ion batteries during operation
9:30	Václav Kutnar Kamil Jaššo	LCA of different types of cars in Czech Republic
9:45	Enas al Halabi	Parking Areas at BUT for energy use
10:00	Radim Dvořák Daniel Janík	Data acquisition, visualisation and data processing of measuring of electrical energy consumption in BUT buildings
10:15	Silvia Bátorová Miroslav Zatloukal	Corrosion potential analysis of iron-magnesium alloys
10:30	Petra Slotová Marie Sedlaříková	Corrosion of sintered materials based on iron
10:45	S. Zemiti, C. Aloph, J. Mikulka	Training set generation system for reconstruction of electrical impedance tomography images



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Category: D1 – Biomedical Engineering

Room: SD4.111 (UBMI)

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Ayan Ray (VALEO AUTOKLIMATIZACE k.s.)

Time	Authors	Title
13:00	Minoo Partovi Nasr, et al.	3D-bioprinted gelatin/alginate loaded with carbon nanotubes for tissue engineering application
13:15	Michal Čičatka Radim Burget	Deep learning for agar plate analysis: Predicting microbial cluster counts
13:30	Mohammad Umair, et al.	Bioinformatics study of the third generation sequencing platforms applied on a thermophile
13:45	Laxmipriya Rajasekaran, et al.	In silico analysis of rutin from ruta chalepensis.L for NF-X1 inhibition in cervical cancer: Insights from HPTLC studies
14:00	Michal Gavenčiak	LSTM based autoencoders in handwriting data augmentation and preprocessing
14:15	Jana Schwarzerová, et al.	Optimizing of pre-processing analysis for Illumina RNA-Seq data in Arabidopsis thaliana
14:30	Dávid Kampo	Assessing diversity in predictive equations for body compartment estimation
14:45	Michal Nohel Jiri Chmelik	Calculation of bone mineral density from dual-energy CT and its application on patient with multiple myeloma



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Category: D3 – Communication and Inf. Systems, Network Services and Security

Room: SC7.53 (UTKO)

Chairman: doc. Ing. Petr Mlýnek, Ph.D.

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Ing. Nabhan Khatib, Ph.D. (AT&T Global Network Services Czech Republic s.r.o.)

Time	Authors	Title
13:00	E. Holasova, K. Kuchar, R. Fudjak	Comparative analysis of physical polygon model scaling for cyber ranges
13:15	Michal Mahút, et al.	Design of broadband over powerline modem
13:30	Pavel Paluřík Radim Dvořák	Hardware design of mobile probe for validating 5G-IoT technologies
13:45	M. Mikulášek, L. Jablončík, P. Mašek	Using 5G-IoT networks for portable electric vehicle charging stations
14:00	Aneta Koláčková Jan Jeřábek	Strategic capacity planning and optimization in communication networks: A case study
14:15	Patrik Dobiáš Lukáš Malina	Optimizing components for Dilithium and Kyber unified hardware implementation
14:30	P. Cibik, M. Ruzek, M. Dvorak	Low-latency AES encryption for high-frequency trading on FPGA
14:45	Ondřej Klíčník Petr Münster	Security analysis of a commercial quantum key distribution system
15:00	Jakub Michálek	Android tracking application based on LTE timing advance



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Category: D4 – Microelectronics and Technology

Room: SC4.81 (UTEE)

Chairman: doc. Ing. Tomáš Kazda, Ph.D.

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Libor Gajdoš (Honeywell, spol. s r.o.)

Time	Authors	Title
13:00	Jan Horky	Reliability of WBG transistors
13:15	Antonín Šimek	Investigating alternative carbonaceous materials for cost-effective anodes for sodium-ion batteries
13:30	Martin Šedina Tomáš Kazda	Understanding the impact of temperature on Li-ion batteries
13:45	D. Trochta, O. Klvač, T. Kazda	A Review of the Li-ion battery in-situ experiments in scanning electron microscope
14:00	M. Sedlařík, T. Kazda, P. Vyroubal	Lithium-ion battery SOH analysis
14:15	J. Báňa, T. Kazda, A. Šimek, O. Čech	Recovery Of Lithium from waste water by sodium carbonate
14:30	H. Hálová, L. Chladil, L. Preisler	Synthesizing submicron particles for Li-ion batteries: Spray-drying & electrostatic precipitation
14:45	Wala' Al-Qaisi	Sol-Gel processing of Silica Nanoparticles as Solid Sorbents for Uranyl Ion
15:00	Mohammad Allaham, et al.	An enhanced theoretical approach for accurate measurements of the optical and energy characteristics of semiconducting materials
15:15	Daradkeh, Recalde, Mousa, Sobola	Overdoping effect with Zr and Hf on the oxidation behavior of FeCrAl-Hf by means of atom probe tomography
15:30	Jan Kuchařík Antonin Šimek	Impact of the number of measurements on result distortion



Category: D7 – Numerical Modelling, Simulation and Measurement

Room: SA7.10 (UEEN)

Chairman: doc. Ing. Petr Drexler, Ph.D.

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Zbyněk Raida (NXP Semiconductors Czech Republic s.r.o.)

Time	Authors	Title
13:00	Marie Hartmanová Josef Diblík	General solution of a planar linear discrete system with a weak single delay in the case of single zero eigenvalue of the matrix of nondelayed terms
13:15	Vitaliy Sizonenko	Steady-state thermal analysis of fault-tolerant PMSM during the open-phase mode of operation
13:30	Marek Šťastný, et al.	Feasibility study and comparative study of air breathing electric propulsion systems operating in very low Earth orbit conditions
13:45	Jakub Súkeník Marek Toman	Analysis of heat transfer in the air gap of electrical machines using empirical equations and computational fluid dynamics
14:00	Vladimír Bílek	Comparative analysis of gaussian process regression modeling of an induction machine: Continuous vs. mixed-input approaches
14:15	Denis Misiurev Vladimír Holcman	Modelling of magnetic films: A scientific perspectives
14:30	Thao Dinh Le Pavel Masek	Machine learning-based fingerprinting localization in 5G cellular networks
14:45	Jan Virgala Marie Richterová	Intra-pulse modulation recognition by using the ambiguity function

