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43rd international convention on
information, communication and
electronic technology

mipro
2020

HYBRID CONVENTION



PROGRAM

September 28 - October 2, 2020
Opatija, Croatia

Grand Hotel Adriatic &
Remisens Hotel Admiral



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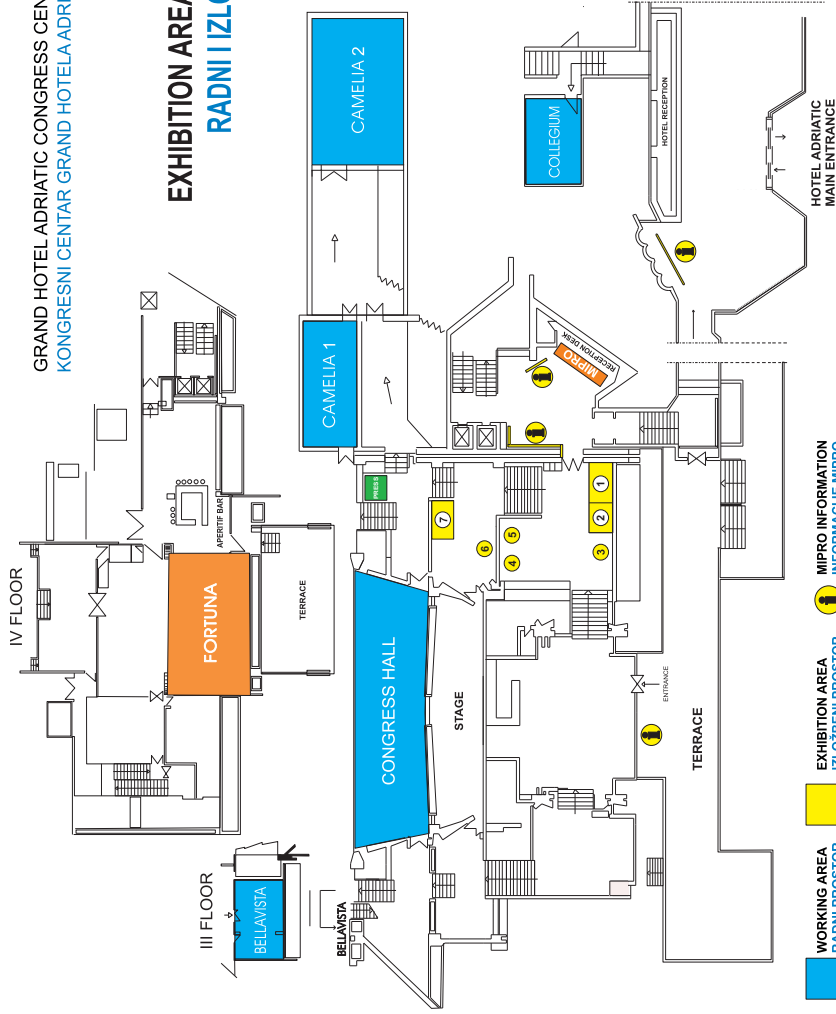
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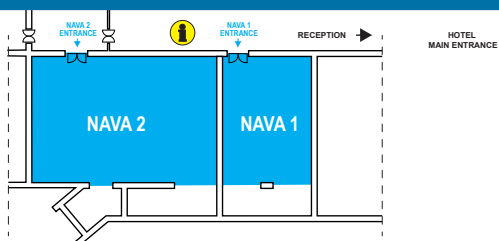


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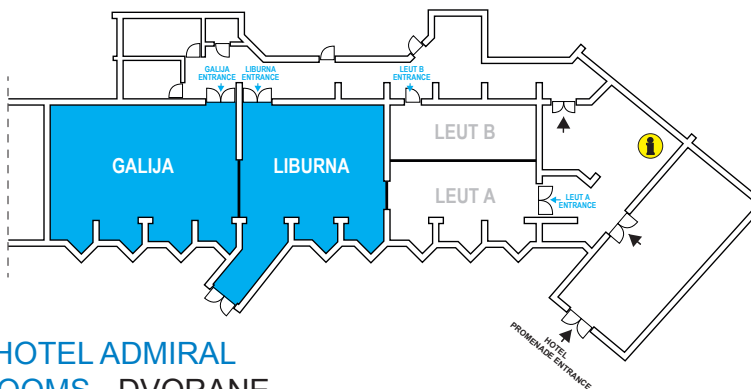
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REMISENS HOTEL ADMIRAL
LECTURE ROOMS - DVORANE

HOTEL OR INTERNET - ONLINE	HALL / DVORANA	28.09. MONDAY / PONEDELJAK		29.09. TUESDAY / UTORAK		30.09. WEDNESDAY / SRIJEDA		01.10. THURSDAY / ČETVRTAK		02.10. FRIDAY / PETAK	
		A.M. / DOPODNE	P.M. / POPODNE	A.M. / DOPODNE	P.M. / POPODNE	A.M. / DOPODNE	P.M. / POPODNE	A.M. / DOPODNE	P.M. / POPODNE	A.M. / DOPODNE	P.M. / POPODNE
GRAND HOTEL ADRIATIC CYBER SPACE	CONGRESS HALL KONGRESNA DVORANA	09.30-13.00 CE	15.00-19.00 CE	09.00-13.00 CE	14.30-17.00 WS2	10.00-13.00 OPENING CEREMONY	16.00-19.00 HAWAIIAN dan tržišta elektroničkih komunikacija	09.00-13.00 CE	15.00-19.00 CE	09.00-13.00 CE	
	BELLAVISTA		Last Minute Event	Last Minute Event			15.00-17.00 MEET OPHO	09.00-13.00 MEET	15.00-19.00 MEET	09.00-13.00 MEET	
	CAMELIA 1	09.30-13.00 IRP	15.00-17.00 IRP	10.00-12.30 WS1	15.00-18.00 WS3		15.00-19.00 CE	09.00-13.00 DE-DS	15.00-19.00 DE-DS		
	CAMELIA 2	09.30-12.30 HEP	15.30-19.00 HEP	10.30-12.30 Digitalna platforma Grupe KONCAR	15.00-19.00 CTI		15.00-17.00 DS-BE DEWCOM	09.00-13.00 DS-BE	15.00-19.00 DS-BE	09.00-13.00 DS-BE	
	COLLEGIUM		Last Minute Event	Last Minute Event	15.00-16.30 SE		15.00-19.00 SP	09.00-11.00 RTA	15.00-19.00 ISS		
REMISENS HOTEL ADMIRAL CYBER SPACE	FORTUNA						19.30-21.30 COCKTAIL	11.00-13.00 ICTLAW			
	NAVA 1						14.00-19.00 miproBIS	09.00-13.00 EE	15.00-19.00 EE		
	NAVA 2						15.00-19.00 CTI	09.00-13.00 CTI	15.00-19.00 CTI		
	LIBURNA						14.00-19.00 SSE	09.00-13.00 CIS	15.00-19.00 CIS		
	GALJA						17.30-19.00 GDPR – Jesmo li na pravom putu?	09.00-13.00 CTS	14.30-19.00 CTS Intelligent Production		

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Više od struje

MIPRO 2020 - Advanced physical and virtual, Hybrid Convention

Taking into account the threat from the COVID-19 pandemic MIPRO 2020 will be organized as a *Hybrid Convention*. This means that the implementation of all program elements is carried out physically and virtually (online), depending on the pandemic situation and the possibilities and requirements of the participants. MIPRO will ensure secure physical conditions and availability to virtual presence, through advanced communications, collaboration and interaction on hybrid conference platform that will ensure:

- obtaining sufficient information for participants regarding all relevant details of the event (access, programs and changes in static and dynamic form),
- the secure and quality transmission with interactive possibilities such as Q&A and voting,
- creating community in the form of augmented reality using modern ICT technological possibilities.

The final decision about program details of the MIPRO 2020 hybrid convention will be given depending on the pandemic situation, the standpoints of the conference chairs and the possibilities of the authors and other conference participants. A detailed program will be available on the MIPRO web portal (www.mipro.hr) in the second half of September. It will include information about time slots and in what way will each event and presentation be held.

MIPRO 2020 - Napredni fizički i virtualni, hibridni skup

Vodeći računa o svim činjenicama ugroze od COVID-19 pandemije MIPRO 2020 se organizira kao *hibridni skup*. To znači da se provedba svih programskih elemenata odvija fizički i virtualno, ovisno o pandemijskoj situaciji te mogućnostima i potrebama sudionika. Detaljan program u formi mikrosatnice dostavit će se u drugoj polovici rujna iz kojeg će biti vidljivo kada će se i na koji način održati određeni događaji i izlaganja. MIPRO će fizičku i virtualnu prisutnost osigurati pomoću naprednih komunikacija i suradničke interakcije preko hibridne konferencijske platforme koja će omogućiti:

- dobivanje dostatnih informacija za sudionike o svim bitnim detaljima događaja (pristup, program, promjene u statičkom i dinamičkom obliku),
- osiguranje sigurnog i kvalitetnog prijenosa s interaktivnim alatima kao što su pitanja i odgovori (Q&A) i glasanje,
- stvaranje zajedništva u formi proširene stvarnosti koristeći suvremene ICT tehnološke mogućnosti.

U drugoj polovici rujna objavit će se konačna odluka o programskim detaljima hibridnog skupa ovisno o pandemijskoj situaciji, stavovima voditelja te mogućnostima autora i ostalih sudionika skupa. Finalni program bit će dostupan na web portalu MIPRO-a (www.mipro.hr).

MIPRO 2020 Hybrid Convention on the path of the development of Information Society

The mission of our convention is to guide and upgrade technology and society as a whole. Technology is taking a major role in shaping society and life today. From the ICT's point of view, this year is especially important in this regard for several reasons. An important factor is the COVID-19 pandemic, which has opened up new dilemmas and threats that unite us. Research in natural, technical and social sciences is expected to make joint contributions to the development of an optimal turnover in the development of technologies and the environment towards a modern and steady state *Information Society*.

While being aware that the conditions of direct communication at MIPRO 2020 cannot be fully met, we decided that virtual technology must be a necessary part of our program implementation. Therefore we organize a *Hybrid Convention*, traditionally in Opatija, along with the possibility of virtual participation through an online conference platform. In this way, we increase the range of our Convention in line on EU development trends.

The EU Horizon 2020 Framework Development Program, which has given a great impact to the development of digitalization and shaped the digital society based on modern strategic documents and platforms, ends this year. With the accelerated development of ICT, we have expanded the scope of life activities and virtualized reality and processes, which is the most significant contribution of digitalization. These changes will impact a new industrial revolution based on AI and cooperative systems. The new *Horizon Europe* and *Digital Europe* Framework Programs starting next year will surely play a significant role.

In this respect, MIPRO continues to develop, oughts to build network with other associations and become a hub (MIPRO HUB). In this way, it expands its mission and creates a platform for communication and cooperation that should be an infrastructure to important stakeholders in society. Thus, we want to increase the impact and scope towards society as a whole.

This year's program, implemented in a Hybrid Convention form (physical and virtual), covers a wide range of ICT areas with expansion in the social sciences and humanities precisely with the intention of developing an optimized *Information Society* as a new imperative of emerging digitalization.

In the hope of further successful cooperation and joint progress, I wish everyone success, security and satisfaction, at this year's 43rd MIPRO 2020 Hybrid Convention.



Academician Karolj Skala, PhD
International Program
Committee General Chair

MIPRO 2020 hibridno savjetovanje na putu razvoja informacijskog društva

Misija naših savjetovanja je usmjeravanje i nadgradnja tehnologije i društva u cjelini. Tehnologija preuzima glavnu ulogu u oblikovanju društva i života danas. Sa stajališta ICT-a ova je godina u tom pogledu posebno značajna iz više razloga. Važan je čimbenik pandemije COVID-19 koja je otvorila nove dileme i ugroze koje nas ujedinjuju i usmjeravaju. Od istraživanja u prirodnim, tehničkim i društvenim znanostima očekuju se zajednički doprinosi u razvoju optimizirajućih preokreta u razvoju tehnologija i okoliša prema suvremenom i stabilnom *informacijskom društvu*. Svjesni da uvjete izravne komunikacije na skupu MIPRO 2020 ne možemo u potpunosti ostvariti, odlučili smo da virtualna tehnologija mora biti nužan dio naše programske provedbe. Organiziramo *hibridno savjetovanje*, tradicionalno u Opatiji, uz mogućnost

virtualnog sudjelovanja preko online konferencijske platforme. Na ovaj način povećavamo radijus dosegav savjetovanja u skladu s EU razvojnim tendencijama. Ove godine završava EU *Horizon 2020* okvirni razvojni program koji je dao velike poticaje razvoju digitalizacije i oblikovao digitalno društvo na temelju suvremenih strateških dokumenata i platformi. Ubrzanim razvojem ICT-a proširili smo opseg životnog djelovanja i virtualizirali stvarnost i procese što predstavlja najznačajniji doprinos digitalizacije. Te će promjene utjecati na novu industrijsku revoluciju koja će se temeljiti na umjetnoj inteligenciji i kooperativnim sustavima. Početkom sljedeće godine značajnu ulogu imat će novi *Horizon Europe* i *Digital Europe* okvirni programi. MIPRO se u tom pogledu i dalje prilagođava i razvija, želi izgraditi suradnju s drugim društvima i postati čvorište (MIPRO HUB). Na taj način proširuje svoju misiju i stvara platformu za komunikaciju i suradnju koja bi trebala biti infrastruktura prema važnim dionicima društva. Tako želimo povećati utjecaj i domet djelovanja prema društvu u cjelini. Ovogodišnji program koji se provodi u hibridnoj konferencijskoj formi, zbiljno i virtualno, pokriva široki spektar ICT područja s proširenjem u društveno humanističke znanosti upravo s namjerom razvoja optimiziranog *informacijskog društva* kao novog imperativa digitalizacije u usponu. U nadi daljnje uspješne suradnje i zajedničkog napretka, želim uspjeh, sigurnost i zadovoljstvo na 43. skupu MIPRO 2020, hibridnom multi-konferencijskom događaju.

Contents

Sadržaj

01

GENERAL INFORMATION OPĆE INFORMACIJE

Working Time · Radno vrijeme	7
Terms · Rokovi	7
Hotel Reservation · Rezervacija hotela	7
Program for Accompanying Persons	8
Registration Fees · Kotizacije	8
Registration · Prijava	9

02

GENERAL EVENTS ZAJEDNIČKI DOGAĐAJI

Formal Opening · Svečano otvaranje	11
Plenary Keynote Lectures · Plenarna istaknuta predavanja	11
• <i>Future of Robotics – From Challenges to Innovation</i>	
• <i>Combining Human and Robotic Motion Control for Medical Devices</i>	
Digitalna platforma Grupe KONČAR	12
Panels · Okrugli stolovi	
1. <i>GDPR – Jesmo li na pravom putu?</i>	12
2. <i>Intelligent Production</i>	12

03

WORKSHOPS RADIONICE

WS1 Digitalna transformacija obrazovnih institucija	13
WS2 Uloga računalnih igara u obrazovanju	14
WS3 Primjena podatkovne analitike u društvenim znanostima na primjerima podučavanja i poduzetništva	15

04

SOCIAL EXPERIMENT DRUŠTVENI EKSPERIMENT

SE Psihološki aspekti rizičnog online ponašanja	16
--	----

05

CONFERENCES SAVJETOVANJA

MEET Microelectronics, Electronics and Electronic Technology	17
Mikroelektronika, elektronika i elektronička tehnologija	
DS-BE Data Science and Biomedical Engineering	20
znanost o podacima i biomedicinsko inženjerstvo	
CTI Telecommunications & Information ..	23
Telekomunikacije i informacije	
CE Computers in Education	26
Računala u obrazovanju	
CTS Computers in Technical Systems	32
Računala u tehničkim sustavima	
CIS Intelligent Systems	34
Inteligentni sustavi	
RTA Robotics Technologies and Applications	36
Robot tehnologije i primjene	
ISS Information Systems Security	37
Sigurnost informacijskih sustava	
miproBIS Business Intelligence Systems ..	38
Poslovni inteligentni sustavi	
DE-DS Digital Economy and Digital Society ..	40
Digitalna ekonomija i digitalno društvo	
ICTLAW Information and Communication Technology Law.	42
Pravo informacijskih i komunikacijskih tehnologija	
EE - Engineering Education	43
Inženjersko obrazovanje	
SSE - Software and Systems Engineering ..	45
Inženjerstvo softvera i sustava	
SP MIPRO Junior - Student Papers	47
MIPRO Junior - radovi studenata	

06

SPECIAL SESSIONS SPECIJALNE SEKCIJE

OPHO Optoelectronics and Photonics ..	48
Optoelektronika i fotonika	
DewCom Dew Computing	49
Rosa računarstvo	



07

LIFELONG EDUCATION – TUTORIALS CJELOŽIVOTNO OBRAZOVANJE – SEMINARI

HEP Information and Communication Technology in the Electric Power Sector 50
Informacijska i komunikacijska tehnologija u elektroprivrednoj djelatnosti

IRP Implementation of Regulatory Policy 51
Implementacija regulatorne politike

08

GUEST EVENT GOSTUJUĆI DOGAĐAJ

HAKOM HAKOM's Electronic Communications Market Day 52
HAKOM-ov dan tržišta elektroničkih komunikacija

09

EXHIBITION IZLOŽBA

Exhibition of equipment, services, technical and technological solutions 53
Izložba opreme, usluga i tehničko-tehnoloških rješenja



PHYSICAL EVENT
FIZIČKI DOGAĐAJ



HYBRID EVENT
HIBRIDNI DOGAĐAJ



VIRTUAL EVENT
VIRTUALNI DOGAĐAJ

For all further information concerning the tutorial and conference programs, please contact the International Program Committee General Chair, Professor **Karolj Skala**, Ruđer Bošković Institute, Bijenička 54, HR-10000 Zagreb, Croatia, phone: +385 1 457 1218, +385 98 209 816, e-mail: skala@mipro.hr.

For organizational technical questions and general media inquiries, please contact **Office MIPRO**, Kružna 8/II, P.O. Box 303, HR-51001 Rijeka, Croatia, phone/fax: +385 51 423 984, e-mail: mipro@mipro.hr.

Za sve programske informacije kontaktirajte predsjednika Međunarodnog programskog odbora prof. dr. sc. **Karolja Skalu**, Institut Ruđer Bošković, Bijenička 54, HR-10000 Zagreb, tel.: +385 1 457 1218, +385 98 209 816, e-mail: skala@mipro.hr.

Za organizacijska, tehnička pitanja i informacije koje se tiču medija kontaktirajte **Ured MIPRO**, Kružna 8/II, p.p. 303, HR-51001 Rijeka, tel/fax: +385 51 423 984, e-mail: mipro@mipro.hr.

PRESS CENTER

Press center will be available from Tuesday, September 29 till Thursday, October 01, 2020 in Grand hotel Adriatic with all the benefits for accredited journalists. For detailed information please contact Office MIPRO, phone: +385 51 423 984; e-mail: mipro@mipro.hr.

TIMETABLE

All events will be regularly updated on MIPRO website and mobile assistant. Detailed information and timetables can be checked at www.mipro.hr and C4me application.

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Od utorka 29.9. do četvrtka 01.10.2020. u Grand hotelu Adriatic radit će Press Centar sa svim pogodnostima za akreditirane novinare. Detaljnije informacije daje Ured MIPRO, tel.: +385 51 423 984; e-mail: mipro@mipro.hr.

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MEDIA PARTNERS · MEDIJSKI POKROVITELJI

● OPEN infoTrend ● Vidi ● Ultra link ● Rep.hr

WORKING TIME · RADNO VRIJEME

DATE DATUM	RECEPTION PRIJEMNI URED	EXHIBITION IZLOŽBA
28.09.2020., Monday · ponedjeljak	08 ⁰⁰ – 18 ⁰⁰	–
29.09.2020., Tuesday · utorak	08 ⁰⁰ – 18 ⁰⁰	10 ⁰⁰ – 19 ⁰⁰
30.09.2020., Wednesday · srijeda	08 ⁰⁰ – 18 ⁰⁰	08 ⁰⁰ – 19 ⁰⁰
01.10.2020., Thursday · četvrtak	08 ⁰⁰ – 18 ⁰⁰	08 ⁰⁰ – 18 ⁰⁰
02.10.2020., Friday · petak	08 ⁰⁰ – 14 ⁰⁰	–

The detailed schedule for all MIPRO 2020 events will be placed on bulletin boards and at www.mipro.hr. All registered participants have free access to plenaries, panels, exhibition and program-professional presentations with obligatory badge carrying.

Mikrosatnica svih događanja na MIPRO 2020 bit će istaknuta na oglasnim pločama i na www.mipro.hr. Svim registriranim sudionicima slobodan je pristup plenarnom radu, okruglim stolovima, izložbi i programsko-stručnim prezentacijama uz obavezno nošenje bedževa.

TERMS · ROKOVI

- until / do 14.09.2020. Hotel reservation · **Rezervacija hotela**
- until / do 14.09.2020. Registration and fee payment · **Prijava i uplata kotizacije**
- 29.09.2020. Delivery of equipment/exhibits and booth setup
Doprema izložbenih eksponata i postavljanje izložbi
- 29.09.2020. Opening of the exhibition at 10⁰⁰ AM
Početak rada u 10⁰⁰ sati
- 01.10.2020. End of the exhibition at 6⁰⁰ PM
Završetak rada u 18⁰⁰ sati i otprema eksponata

HOTEL RESERVATION · REZERVACIJA HOTELA

Please arrange your accommodation in time, no later than September 14, 2020.
Molimo Vas da rezervirate hotel što prije, najkasnije do 14.09.2020.



For all information please contact:
Reservation office in Grand Hotel Adriatic d.d. Opatija, phone +385 (0)51 719 010, fax +385 (0)51 719

015 or e-mail: info@hotel-adriatic.hr. Parking ticket is cca EUR 14,00 per day.

Za sve potrebne informacije obratite se na Rezervacijski ured Grand hotela Adriatic d.d. Opatija, tel. +385 (0)51 719 010, fax +385 (0)51 719 015 ili e-mail info@hotel-adriatic.hr. Dnevna parkirališna karta iznosi 100,00 HRK.

Booking can be made over the following QRcode:
QR kod za rezervaciju smještaja



Accommodation booking in Remisens Hotel Admiral is made exclusively through the web portal www.liburnia.hr

with the obligatory entry of the reservation code **2233**. In case of difficulties with booking, please contact the **Liburnia Riviera Hotel Reservation Center** at tel. +385 (0) 51 710 444 or e-mail reservations@liburnia.hr.

Rezervacija smještaja u Remisens Hotelu Admiral vrši se isključivo putem web portala www.liburnia.hr uz obavezan upis rezervacijskog koda 2233. U slučaju poteškoća prilikom rezervacije, molimo kontaktirajte Rezervacijski centar Liburnia Riviera hotela na tel. +385 (0)51 710 444 ili e-mail reservations@liburnia.hr.

HOTELS HOTELI	BED & BREAKFAST NOĆENJE S DORUČKOM	
	1/1	1/2
ADRIATIC I ****	92	67
ADRIATIC II ***	84	55
ADMIRAL *****	83	53

All prices are in EUR. The daily tax is EUR 1,35 per person per day and it isn't included in the above prices.

Sve cijene su izražene u EUR, a plaća se u kunama prema važećem tečaju HNB-a na dan plaćanja. Boravišna pristojba nije uključena u cijenu i iznosi 1,35 EUR po osobi dnevno.

PROGRAM FOR ACCOMPANYING PERSONS

For accompanying persons we propose some of the many programmes offered by the tourist agencies of Opatija. For more information, please ask at Grand Hotel Adriatic Opatija (www.hotel-adriatic.hr) or send an e-mail to the address info@hotel-adriatic.hr. Shorter and longer excursions are offered to the nearby City of Rijeka, the picturesque Istrian Peninsula with a string of charming medieval small towns, the world-renown Brioni islands, the mountainous region of Gorski Kotar, or a bit further Venice with its lagoons. In any case, see the sights of Opatija, visit her beautiful parks, one of the oldest seafont promenades on the Mediterranean which links the settlements of Volosko, Ičići, Ika and Lovran with Opatija, the Croatian Museum of Tourism, numerous restaurants and Viennese cafes with a first-class offer.

Last but not least, experience Kvarner Bay and Opatija by taking a pleasant boat trip from Opatija's harbour or visit Učka Nature Park with magnificent views from the peek Vojak (1400m).

REGISTRATION FEES · KOTIZACIJE

EVENTS DOGAĐAJI	PRICES IN EUR · CIJENA U EUR (plaća se po srednjem tečaju Narodne banke Hrvatske na dan update)	
	FEES · KOTIZACIJE	
	up to / do 14.09.2020.	from / od 15.09.2020.
MEET	220	250
DS-BE	220	250
CTI	220	250
CE	220	250
CTS	220	250
CIS	220	250
RTA	220	250
ISS	220	250
miproBIS	220	250
DE-DS	220	250
ICTLAW	220	250
EE	220	250

SSE	220	250
SP	120	140
OPHO	220	250
DewCom	220	250
HEP	240	270
IRP	220	250
WS1	Free of charge · Ulaz slobodan	
WS2	Free of charge · Ulaz slobodan	
WS3	Free of charge · Ulaz slobodan	
SE	Free of charge · Ulaz slobodan	

All visitors have free access to the Formal Opening, panels, company presentations and visiting events. [Svim posjetiteljima slobodan je pristup svečanom otvaranju, okruglim stolovima, prezentacijama tvrtki i gostujućim događajima.](#)

Members of MIPRO or IEEE have a 20 EUR fee discount. The unique fee for students (undergraduate and graduate) and secondary school teachers is 120 EUR (without any additional discount).

Discount doesn't apply to PhD students. There will be a 10% discount for the registration fee to those participants who are attending more than one tutorial or conference.

[Članovi MIPRO i IEEE imaju popust od 20 eura. Preddiplomski i diplomski studenti te nastavnici osnovnih i srednjih škola plaćaju jedinstvenu kotizaciju od 120 eura bez prava na dodatni popust. **Popust se ne odnosi na studente doktorskog studija.** Sudionicima koji sudjeluju na više seminara ili savjetovanja, ukupna kotizacija umanjuje se za 10%.](#)

REGISTRATION · PRIJAVA

Conference fee payment can be done after the registration is processed.

Registration can be made online at www.mipro.hr or via e-mail mipro@mipro.hr.

The fee is payable in EUR to the following
IBAN of **MIPRO Croatian Society**
(MIPRO, Kružna 8/II, P.O. Box 303, HR-51001
Rijeka, Croatia):

HR9824020061100139672

at Erste & Steiermärkische Bank d.d.,
Jadranski trg 3a, HR-51000 Rijeka, Croatia
(SWIFT: ESBCHR22), with the name of the
person registered.

Note that bank charges are at the expense of the debtor.

The fee includes:

- MIPRO 2020 Proceedings on digital medium
- Official opening program (plenary session) with a cocktail party on Wednesday, 30.09.2020 from 7³⁰ PM until 9³⁰ PM. (Grand hotel Adriatic)

Kotizacija se plaća na temelju Prijave za MIPRO 2020. Prijava se vrši on-line preko portala www.mipro.hr ili putem e-maila mipro@mipro.hr.

OIB/porezni broj udruge je **67645105540**.
Sudionici iz Hrvatske plaćaju u kunama (HRK) po srednjem tečaju Hrvatske narodne banke na dan uplate na IBAN MIPRO-a

HR9824020061100139672

kod Erste & Steiermärkische Bank d.d. Rijeka s naznakom "ime i prezime osobe za koju se uplaćuje + kratica odabranog događaja".

Kotizacija uključuje:

- PDV 25% - porez na dodanu vrijednost
- Zbornik radova skupa MIPRO 2020 na digitalnom mediju
- svečani program (plenarni rad) s koktelom u srijedu 30.09.2020. s početkom od 19³⁰ do 21³⁰ sati (Grand Hotel Adriatic)

Uplate se, kao i prijave, rade za svaku osobu pojedinačno. Budući da banka u izvodu dostavlja MIPRO-u samo uplaćeni iznos, molimo vas da nam e-mailom ili faksom pošaljete kopiju o obavljenoj uplati.

VAŽNO!

Sudionici plenarnih tema, okruglih stolova i pratećih aktivnosti, koji nisu registrirani putem seminara ili savjetovanja, obavezni su se po dolasku registrirati na Prijemnom uredu MIPRO, gdje će dobiti bedževe i sve potrebne informacije. Nošenje bedževa je **obavezno** u svim prostorima odvijanja aktivnosti MIPRO-a. Osobe bez bedževa nemaju pravo pristupa niti jednom događaju.

■ LAST MINUTE EVENT!

Even after receiving this booklet you have a possibility to organize an event in the agreement with Karolj Skala, Program Committee General Chair (skala@mipro.hr). Available time-slots can be found in a timetable with an overview of conferences, tutorials and other associated activities.

MIPRO 2020 certificate of attendance is beeng issued upon request.

U dogovoru s Karoljem Skalom, (skala@mipro.hr), možete i nakon primitka tiskanog Programa organizirati svoj događaj u **Last Minute Event** terminima označenima u tablici *Prikaz rada savjetovanja, seminara i stručnih pratećih sadržaja* skupa MIPRO 2020.

MIPRO izdaje potvrde obveznicima stručnog usavršavanja na njihov zahtjev.

02. GENERAL EVENTS

ZAJEDNIČKI DOGAĐAJI ZA SVE SUDIONIKE



FORMAL OPENING · SVEČANO OTVARANJE

(Formal Opening and Plenary session will be simultaneously translated)

EN

HR

30.09.20. 10⁰⁰-13⁰⁰ Congress Hall · [Kongresna dvorana](#), Grand hotel Adriatic

Event managers · [Voditelji](#): Iva Šulentić & Zorislav Šojat

Opening Addresses of Sponsors, Patrons and Guests

[Pozdravne riječi sponzora, pokrovitelja i gostiju](#)

PLENARY KEYNOTE LECTURES · PLENARNA ISTAKNUTA PREDAVANJA

30.09.20. 11³⁰-13⁰⁰ Congress Hall · [Kongresna dvorana](#), Grand hotel Adriatic

● Future of Robotics – From Challenges to Innovation



Rainer Bischoff (KUKA Robotics, Augsburg, Germany)

SHORT BIOGRAPHY: Dr. Rainer Bischoff is Vice President for Corporate Research of KUKA based in Augsburg, Germany. In this position he is responsible for group-wide research and technology development for future robotics products, solutions and services. Dr. Bischoff received his Dr.-Ing. degree from KIT, Karlsruhe, in 2010. Since 2008 he is driving European robotics in leading roles, since 2012 as Vice President Industry of euRobotics aisbl – the European Robotics Association. In this capacity he has been setting the Strategic Research Agenda for European robotics in a public-private partnership with the European Commission and successfully establishing closer links between academia

and industry. Dr. Bischoff received three prestigious international awards: IEEE/IFR IERA Award (2006), IEEE RAS Early Career Award (2012) and IROS Toshio Fukuda Young Professional Award (2015).

● Combining Human and Robotic Motion Control for Medical Devices



Guillaume Morel (ISIR – Sorbonne University, Paris, France)

SHORT BIOGRAPHY: Guillaume Morel received the Ph.D. degree in control engineering from University of Paris 6, Paris, France, in 1994. From 1995 to 1996, he was a Postdoctoral Research Assistant with Massachusetts Institute of Technology, Cambridge, MA, USA, and, from 1997 to 2001 he was an Assistant Professor with University of Strasbourg, Strasbourg, France. From 2001 to 2006, he was an Assistant Professor of mechanical engineering with University Pierre and Marie Curie, Paris, where he is currently a Professor of robotics and leads the research team AGATHE (INSERM U1150) within the Institute of Intelligent Systems and Robotics (UMR UPMC/NRS 7222). His research

interests include sensor-based control of robots, with a particular focus on force feedback control and visual servoing. His research targets applications to assistance for surgery and rehabilitation systems.



30.09.20. 7³⁰-9³⁰ PM - Grand Hotel Adriatic
COCKTAIL FOR PARTICIPANTS AND GUESTS

30.09.20. 19³⁰-21³⁰ sati - Grand hotel Adriatic
KOKTEL ZA SUDIONIKE, GOSTE I UZVANIKE

Digitalna platforma Grupe KONČAR

29.09.20., 10³⁰-12³⁰ Hall · Dvorana Camelia 2, Grand Hotel Adriatic

Nova digitalna rješenja Grupe Končar

PANELS · OKRUGLI STOLOVI



1

GDPR – Jesmo li na pravom putu?

● 30.09.20., 17³⁰-19⁰⁰ Hall · Dvorana Galija, Remisens Hotel Admiral

Organizatori: MIPRO i Pragmatekh

Kontakt osoba: Igor Barlek, igor.barlek@pragmatekh.hr (Pragmatekh Zagreb, Croatia)

Uvodničari: Profesionalci u području zaštite podataka i privatnosti, službenici za zaštitu podataka iz poslovnog svijeta, predstavnici nadzornih tijela

Tema okruglog stola: Uz pregled stanja u Hrvatskoj i svijetu dvije i pol godine nakon početka primjene Opće uredbe o zaštiti podataka, kroz otvorenu diskusiju sudionici panela prenijet će svoje poglede i iskustva u primjeni i izazovima koji tek slijede.

The panel will be held in Croatian.



2

Intelligent Production

● 01.10.20., 14³⁰-16⁰⁰ Hall · Dvorana Galija, Remisens Hotel Admiral

Organizers: MIPRO, Danieli Automation, Buttrio (UD) Italy, Faculty of Electrical Engineering and Computing, Zagreb, Croatia and Nomen, Rijeka, Croatia

Contact: Vlado Sruk, vlado.sruk@fer.hr (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)

Panel details will be announced at www.mipro.hr

03. WORKSHOPS RADIONICE



WS1

DIGITALNA TRANSFORMACIJA OBRAZOVNIH INSTITUCIJA

HR

29.09.20. 10⁰⁰-12³⁰

Hall - **Dvorana** Camelia 1, Grand Hotel Adriatic

Organizatori: MIPRO i Fakultet organizacije i informatike Sveučilišta u Zagrebu

Kontakt: Katarina Tomičić-Pupek, ktomicic@foi.hr (Fakultet organizacije i informatike, Varaždin)

Voditeljica projekta: Nina Begičević Ređep (Fakultet organizacije i informatike, Varaždin)

Voditeljice radionice: Nina Begičević Ređep, Katarina Tomičić-Pupek (Fakultet organizacije i informatike, Varaždin)

O radionici: Digitalne tehnologije su među glavnim akceleratorima promjena koji mogu značajno transformirati obrazovne sustave. Suvremene obrazovne institucije prepoznaju značaj inovativnosti i strateškog upravljanja te načina na koji ovaj pristup doprinosi ispunjenju misije institucije u okruženju koje je pod utjecajem kontinuiranih promjena i digitalne transformacije. Provedba donošenja odluka utemeljenih na dokazima pitanje je najvišeg prioriteta potrebnog za digitalnu transformaciju. Čvrsto vodstvo i strateško planiranje, kao i sustavna primjena digitalnih tehnologija preduvjet su za digitalnu transformaciju obrazovnih sustava i institucija.

Digitalne tehnologije u obrazovnim institucijama obećavaju osnažiti transformaciju poslovnih procesa i procesa učenja i podučavanja te podržati razvoj kompetencija i vještina učenika i nastavnika u kontekstu digitalne pismenosti i šire, a sve kako bi se povećala spremnost za suočavanje s izazovima na tržištu rada. Razvoj tehnologija omogućava i samu provedbu transformacije kroz implementaciju grupnog učenja, učenja temeljenog na projektima, hibridnog učenja, primjeni Massive Open Online Course (MOOC), globalnoj razmjeni materijala, interakciji učenika, transformiranju zajednica učenja digitalnom pedagogijom. Upotreba digitalnih tehnologija i otvoreni obrazovni resursi omogućavaju samostalno učenje i učenje temeljeno na izboru. Korištenjem digitalnih tehnologija kao instrumenta za podršku obrazovnom učenju i poučavanju, strateško planiranje transformacije svih procesa obrazovnih institucija igra presudnu ulogu – prijelaz na digitalno postaje nužnost, a ne izbor.

Predviđeni rezultati:

1. predstaviti trendove i izazove obrazovnih sustava i njegov utjecaj na strateško planiranje i odlučivanje o digitalnoj transformaciji obrazovnih institucija
2. istražiti i predstaviti aspekte digitalne transformacije obrazovnog sustava i obrazovnih institucija
3. ilustrirati primjenu digitalnih tehnologija kao odrednice digitalne transformacije obrazovnih sustava i obrazovnih institucija na studijama slučajeva.

Kome je radionica namijenjena: Radionica je namijenjena predstavnicima obrazovnih institucija kao donositeljima politika i strateških odluka, voditeljima Zavoda, Katedri, Odjela, nastavnicima i istraživačima, kao i administrativnom osoblju te studentima. Na radionici mogu sudjelovati svi dionici u sustavu obrazovanja koji žele unaprijediti svoje strateško odlučivanje.

The workshop will be held in Croatian.

29.09.20. 14³⁰-17⁰⁰

Congress Hall · Kongresna Dvorana, Grand Hotel Adriatic

Organizatori: MIPRO i Laboratorij za dizajn programskih sučelja, internetske servise i videoigre (Fakultet organizacije i informatike Sveučilišta u Zagrebu)

Kontakt: Mario Konecki, mkonecki@foi.hr (Fakultet organizacije i informatike, Varaždin)

Voditelji radionice: Mario Konecki, Mladen Konecki (Fakultet organizacije i informatike, Varaždin), Davor Švaić (Akademija dramske umjetnosti, Zagreb)

O radionici: Industrija računalnih igara postala je jedna od najznačajnijih industrija zabave, vrijednija od filmske i glazbene industrije. Iako je glavni fokus industrije računalnih igara zabava, postoje mnoga druga područja u kojima se računalne igre mogu koristiti. Jedno od ovih područja je upravo obrazovanje. Gemifikacija i primjena računalnih igara u nastavnom procesu mogu pozitivno utjecati na brzinu usvajanja nastavnog sadržaja i na motivaciju učenika i studenata. Cilj ove radionice je dati osvrt na važnost i mogućnosti korištenja računalnih igara u obrazovanju.

U okviru radionice bit će prezentirana dva informatička proizvoda za pomoć učenicima i studentima u procesu obrazovanja: adaptabilni sustav za poučavanje sviranja seta bubnjeva i inteligentni asistent za pomoć studentima u procesu učenja programiranja, ali i drugih predmeta od interesa. Prokomentirat će se trenutačno stanje industrije računalnih igara u Hrvatskoj i raspraviti će se o aktualnim i nadolazećim projektima vezanima za obrazovanje u području razvoja računalnih igara. Bit će prikazano i nekoliko izrađenih računalnih igara, u kontekstu obrazovnog procesa.

Tijekom radionice bit će organizirana i nagrada igra za sve sudionike (prva nagrada: pametni telefon).

Radionica "Uloga računalnih igara u obrazovanju" održat će se u okviru savjetovanja "Računala u obrazovanju".

Kome je radionica namijenjena: Radionica je namijenjena nastavnicima, studentima i ostalim pojedincima zainteresiranim za industriju računalnih igara i primjenu računalnih igara u obrazovanju.

Preliminarni program:

Neka od pitanja na koja će biti odgovoreno tijekom održavanja radionice su:

1. Koliko vrijedi industrija računalnih igara?
2. Kakvo je stanje industrije računalnih igara u Hrvatskoj?
3. Koje su mogućnosti primjene računalnih igara u obrazovanju?
4. Što je u Hrvatskoj napravljeno po pitanju popularizacije korištenja računalnih igara u obrazovanju?
5. Koje su mogućnosti obrazovanja u području razvoja računalnih igara u Hrvatskoj?
6. Koje su aktualne inicijative i projekti u području razvoja računalnih igara i obrazovanja u Hrvatskoj?
7. Koji su primjeri dobre prakse i kako razviti edukativnu računalnu igru?

The workshop will be held in Croatian.

29.09.20. 15⁰⁰-18⁰⁰

Hall · Dvorana Camelia 1, Grand Hotel Adriatic

Organizatori: MIPRO i Sveučilište u Zagrebu, Fakultet organizacije i informatike**Kontakt:** Dijana Oreški, dijana.oreski@foi.hr, Irena Kedmenec, irena.kedmenec@foi.unizg.hr, Nikola Kadoić, nikola.kadoic@foi.unizg.hr (Fakultet organizacije i informatike, Varaždin)**Voditelji radionice:** Dijana Oreški, Irena Kedmenec, Nikola Kadoić (Fakultet organizacije i informatike, Varaždin)**O radionici:** Organizacije sve više prepoznaju podatke kao potencijal koji daje veliku korist za poslovanje i društvo. Algoritmi podatkovne analitike mogu učinkovito analizirati velike količine podataka. Svrha ove radionice je dati pregled metode stabla odlučivanja kao tehnike prediktivnog modeliranja i objasniti proces razvoja i interpretacije prediktivnog modela koristeći algoritam stabla odlučivanja. U sklopu radionice radit će se na projektima s društvenim utjecajem te će se prikazati studije slučaja u obrazovanju (Moodle logovi podataka) i poduzetništvu.**Predviđeni rezultati:** Sudionici će naučiti razviti prediktivne modele na podacima iz stvarnog života primjenom BigML alata za rješavanje stvarnih problema u obrazovanju i/ili poduzetništvu. Sudionici će naučiti kako pripremiti podatke, razviti, analizirati, vrednovati, razumijeti i interpretirati prediktivni model primjenom CRISP DM metodologije u šest koraka: razumijevanje domene, razumijevanje podataka, priprema podataka, modeliranje, vrednovanje i implementacija.**Kome je radionica namijenjena:** Radionica je namijenjena svima zainteresiranim za učenje osnovna podatkovne analitike na realnim podacima.**Preliminarni program:**

Uvodni dio: Koraci CRISP DM metodologije za razvoj prediktivnih modela.

Radni dio: Primjer analize Moodle logova (priprema podataka i modeliranje).

Završni dio: Evaluacija i interpretacija modela

The workshop will be held in Croatian.

04. SOCIAL EXPERIMENT DRUŠTVENI EKSPERIMENT



SE

PSIHOLOŠKI ASPEKTI RIZIČNOG ONLINE PONAŠANJA

HR

29.09.20. 15⁰⁰-16³⁰

Hall · Dvorana Collegium, Grand Hotel Adriatic

Organizator: MIPRO

Kontakt: Krešimir Šolić, kresimir@mefos.hr

Voditelji: Tena Velki (Fakultet za odgojne i obrazovne znanosti, Osijek, Hrvatska), Krešimir Šolić (Medicinski fakultet, Osijek, Hrvatska)

O eksperimentu: Eksperimentom se žele ispitati stvarna rizična online ponašanja korisnika komunikacijsko-informacijskih sustava. Korisnici će dobiti povratnu informaciju o svojem potencijalno rizičnom ponašanju za vrijeme eksperimenta. Na temelju vlastitog primjera i iskustva iz prakse kratkom edukacijom povećati će se svjesnost o postojećim rizicima pri korištenju Interneta.

Cilj eksperimenta: Osvijestiti polaznike o potencijalnim online rizicima s kojima se korisnici često susreću.

Kome je eksperiment namijenjen: Eksperiment je namijenjen svim aktivnim korisnicima informacijsko-komunikacijskih sustava.

Preliminarni program: U prvom dijelu društvenog eksperimenta pomoću validiranog mjernog instrumenta (upitnik) simulirat će se rizično ponašanje korisnika informacijsko-komunikacijskih računalnih sustava te će se ispitati njihova postojeća razina znanja i svjesnosti o aspektima informacijske sigurnosti i zaštite privatnosti.

U drugom će dijelu sudionicima biti prezentirani rezultati dosadašnjih studija u Hrvatskoj i svijetu čiji je fokus informacijska sigurnost. Prezentirat će se razlike između različitih dobrih, spolnih i obrazovnih skupina korisnika o rizičnim online ponašanjima, razini znanja i svjesnosti, kršenju sigurnosnih protokola i sl.

U središnjem dijelu sudionici će sudjelovati u raspravi koja će se temeljiti na rezultatima ispitivanja rizičnog online ponašanja prisutnih sudionika te usporedbom dobivenih rezultata sa prijašnjim studijama u Hrvatskoj i svijetu. Također će se sudionicima prezentirati aktualni primjeri socijalnog inženjeringa te će sami biti potaknuti iznijeti svoje primjere socijalnog inženjeringa iz privatnog i poslovnog sektora.

U završnom dijelu društvenog eksperimenta zajednički će se donijeti zaključci te kreirati preporuke korisnicima za sigurnije ponašanje na Internetu.

Tehnički preduvjeti: Pametni telefoni, prijenosna računala ili tableti koje sudionici donose sa sobom, te dostupan Internet za sve sudionike. Projektor i računalo za predavače.

Social experiment will be held in Croatian.

05. CONFERENCES SAVJETOVANJA



Accepted papers will be published in the ISSN registered conference proceedings. Presented papers in English will be submitted for inclusion in the IEEE Xplore Digital Library.

Prihvaćeni radovi bit će objavljeni u zborniku radova s ISSN brojem. Prezentirani radovi na engleskom jeziku bit će poslani za uključenje u digitalnu bazu IEEE Xplore.

Prema Ministarstvu znanosti i obrazovanja RH i Matičnom odboru za područje elektrotehnike i računarstva, radovi na konferencijama pisani na engleskom jeziku i razvrstani u kategoriju znanstvenih radova priznaju se u postupku izbora u znanstveno nastavna zvanja.

Note: The exact schedule of paper presentations will be published on MIPRO web pages.

Važno: Točan raspored predavanja bit će objavljen na portalu MIPRO.



MEET

MICROELECTRONICS, ELECTRONICS AND ELECTRONIC TECHNOLOGY
MIKROELEKTRONIKA, ELEKTRONIKA I ELEKTRONIČKA TEHNOLOGIJA

EN

30.09.20. 15⁰⁰-17⁰⁰

01.10.20. 09⁰⁰-13⁰⁰ 15⁰⁰-19⁰⁰

02.10.20. 09⁰⁰-13⁰⁰

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INVITED LECTURE · POZVANO PREDAVANJE

D. Grubišić, D. Babić (Laser Components DG, Inc., Tempe, United States)
Infrared Quantum Detectors

PAPERS · RADOVI

1. M. Wanitzek, M. Oehme, D. Schwarz, K. Guguieva, J. Schulze (Institute of Semiconductor Engineering, Stuttgart, Germany)
Ge-on-Si Avalanche Photodiodes for LIDAR Applications
2. A. Čaušević, H.S. Funk, D. Schwarz, K. Guguieva, J. Schulze (Institute of Semiconductor Engineering, Stuttgart, Germany)
Processing Sequence for a PureB Bipolar Junction Transistor
3. M.M. Dettling, D. Weißhaupt, H.S. Funk (Institute of Semiconductor Engineering, Stuttgart, Germany), M. Kern (Institute of Physical Chemistry, Stuttgart, Germany), F. Berkmann, C. Clausen, M. Oehme, D. Schwarz (Institute of Semiconductor Engineering, Stuttgart, Germany), J. v. Slageren (Institute of Physical Chemistry, Stuttgart, Germany), J. Schulze (Institute of Semiconductor Engineering, Stuttgart, Germany)
Carrier Mobilities in Heavily Doped Pseudomorphic Ge_{1-x}Sn_x-epilayers
4. I. Berdalović, M. Poljak, T. Suligoj (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
On the Modelling of Interface Roughness Scattering in AlGaN/GaN Heterostructures

5. L. Marković, T. Knežević, T. Suligoj (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Modeling of Electrical Properties of Al-on-Ge-on-Si Schottky Barrier Diode
6. M. Poljak (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Material and Device Properties of Bismuthene Nanoribbons from Multi-orbital Quantum Transport Simulations
7. M. Mihaljević, M. Širić, M. Poljak (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Single-Band Quantum Transport Study of Resonant Tunneling Diodes Based on Silicene Nanoribbons
8. T. Župančić, I. Stresec, M. Poljak (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Predicting the Transport Properties of Silicene Nanoribbons Using a Neural Network
9. G. Lemire, B. Pejčinović (Portland State University, Portland, United States)
Introduction to the Design and Simulation of Reflectionless Filters
10. M. Zhang (University of Leuven, Department of Electrical Engineering, Belgium), T. Marković (imec, Heverlee, Belgium), B. Nauwelaers (University of Leuven, Department of Electrical Engineering, Belgium)
Microwave Interferometry Measurements of Yeast Cell Suspension and Sediment Process
11. I. Škalic, I. Marinović (Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, Croatia)
Energy Harvesting on Power Amplifiers Based on Application of Thermoelectric Generators
12. Ž. Osrečki, J. Žilak, M. Koričić, T. Suligoj (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Doherty Power Amplifier in Horizontal Current Bipolar Transistor (HCBT) Technology
13. D. Vinko, D. Bilandžija I. Biondić (Faculty of Electrical Engineering, Computer Science and Information Technology Osijek, Croatia)
Design Considerations for Mid-Power Receiver in Resonant Wireless Power Transfer System
14. I. Brezovec, J. Mikulić, G. Schatzberger (ams AG, Premstaetten, Austria), A. Barić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Semi-Analytical Estimation of On-Chip Intertwined Rectangular Transformer Parameters in 180 nm CMOS Technology
15. M. Kováč, D. Arbet, L. Nagy, M. Šovčík, V. Stopjaková (Institute of Electronics and Photonics, Bratislava, Slovakia)
Multi-Topology DC-DC Converter for Low-Voltage Energy Harvesting Systems
16. I. Kuljak, I. Tomić, R. Bertolan (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), J. Mikulić, G. Schatzberger, J. Fellner (ams AG, Premstaetten, Austria), A. Barić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Design and Measurements of Low Power 32-kHz Oscillators and a Test Interface in 180-nm CMOS Technology
17. D. Tomić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), J. Mikulić, G. Schatzberger, J. Fellner (ams AG, Premstaetten, Austria), A. Barić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Programmable Low-Frequency Divider in 180-nm CMOS Technology
18. D. Osmanović, I. Skeledžija, K. Špoljarić, D. Tomić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), J. Mikulić, G. Schatzberger, J. Fellner (ams AG, Premstaetten, Austria), A. Barić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Design of a Tunable Temperature Coefficient Voltage Reference with Low-Dropout Voltage Regulator in 180-nm CMOS Technology
19. M. Haberler, I. Siegl, C. Steffan (Infineon Technologies Austria AG, Graz, Austria), M. Auer (Institute of Electronics, Graz, Austria)
Mismatch Reduction Techniques for Current-Mirror Based Potentiostats
20. I. Porin Tolić, J. Mikulić, G. Schatzberger (ams AG, Premstaetten, Austria), A. Barić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)

Design of CMOS Temperature Sensors Based on Ring Oscillators in 180-nm and 110-nm Technology

21. D. Spasov (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
A Circuit for Identifying Oldest Ready Instructions in Reservation Stations
22. D. Spasov (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
An Improvement in the Convergence of Superscalar Processors
23. D. Spasov (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Sequential Register Renaming
24. M. Batelić, M. Stipčević (Faculty of Science, Zagreb, Croatia)
Improved Circuits for a Random Pulse Computer
25. E. Baručija, A. Akagić, S. Ribić, Ž. Jurić (Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)
Two Approaches for Solving Rubik's Cube with Hardware-Software Codesign
26. A.N. Serov (National Research University "Moscow Power Engineering Institute", Moscow, Russia)
A Methodology for Frequency-Measurement Characterization Based on Increment of Input Signal Phase
27. A.N. Serov, A.A. Shatokhin, N.A. Serov (National Research University "Moscow Power Engineering Institute", Moscow, Russia)
Comparative Analysis of the Active Power Measurement Methods in Time Domain
28. J. Kundrata (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), D. Fujimoto, Y. Hayashi (Nara Institute of Science and Technology, Japan), A. Barić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Comparison of Pearson Correlation Coefficient and Distance Correlation in Correlation Power Analysis on Digital Multiplier
29. K. Sever (Ericsson Nikola Tesla d.d., Zagreb, Croatia), T. Vlašić, D. Seršić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
A Realization of Adaptive Compressive Sensing System
30. Z. Šverko, S. Vlahinić, M. Vrankić, I. Markovinović (Faculty of Engineering, Rijeka, Croatia)
Delta/Alpha Ratio for Diagnosis of Autism Spectrum Disorder
31. A. Čoza, V. Županović, D. Vlah, D. Jurišić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Group Delay of Fractional $n+\alpha$ -Order Bessel Filters

Special session **Optoelectronics and Photonics / OPHO**
is an integral part of **MEET** conference (page 48)

Sastavni dio savjetovanja **MEET** je specijalna sekcija
Optoelektronika i fotonika / OPHO (str. 48)



30.09.20. 15⁰⁰-17⁰⁰
01.10.20. 09⁰⁰-13⁰⁰ 15⁰⁰-19⁰⁰
02.10.20. 09⁰⁰-13⁰⁰

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INVITED LECTURES · POZVANA PREDAVANJA

1. Elaine Åstrand (Mälardalen University, Västerås, Sweden)
Insights into Multivariate Decoding for Estimating the Temporal Dynamics of Representations Encoded in the Brain
2. Z. Šojat (Ruđer Bošković Institute, Zagreb, Croatia)
Information Communication Society - a Possible Ecology of the Future

PAPERS · RADOVI

DATA SCIENCE

1. I. Kinder, K. Friganović (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), J. Vukojević, D. Mulc, T. Slukan, D. Vidović, P. Brečić (University Psychiatric Hospital Vrapče, Zagreb, Croatia), M. Cifrek (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Comparison of Machine Learning Methods in Classification of Affective Disorders
2. V. Videnović (Institute for Information Management, Balwyn East, Australia)
Using Semantic Analysis and Deep Learning to Automatically Derive the Significance of an Information Asset
3. M. Marjanović, T. Kramberger, R. Kramberger, I. Cesar (Zagreb University of Applied Sciences, Croatia)

- Evaluating Microsoft Face API in the Context of Student Classroom Attendance**
4. A. Sagdić, C. Tekinbas, E. Arslan, T. Kucukyilmaz (TED University, Computer Engineering Department, Ankara, Turkey)
- A Scalable K-Nearest Neighbor Algorithm for Recommendation System Problems**
5. M. Melinščak, S. Lončarić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
- Retinal OCT Image Segmentation: How Well do Algorithms Generalize or How Transferable are the Data?**
6. M. Njirjak, E. Otović (Faculty of Engineering, Rijeka, Croatia), M. Budimir (Faculty of Medicine, Rijeka, Croatia), H. Vlahović (Faculty of Health Studies, Rijeka, Croatia), M. Tomić (Faculty of Engineering, Rijeka, Croatia), V. Marijančić (Faculty of Health Studies, Rijeka, Croatia)
- Smartphone Based Range of Motion Measurement in Physiotherapy**
7. I. Ivanoska, E. Petreska, B.R. Stojkoska, S. Kalajdziski, K. Trivodaliev (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
- Comparative Analysis of Network Embeddings for Functional Annotation in Protein Interaction Networks**
8. D. Tomić, D. Davidović, (Ruđer Bošković Institute, Zagreb, Croatia), V. Janđel (University Hospital Centre Zagreb, Croatia), J. Mesarić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), K. Skala, T. Lipić (Ruđer Bošković Institute, Zagreb, Croatia)
- Drug Screening with the Autodock Vina on a Set of Kinases without Experimentally Established Structures**
9. I. Vasileška, P. Tomšič, L. Kos (Faculty of Mechanical Engineering, Ljubljana, Slovenia)
- Modernization of the PIC Codes for Exascale Plasma Simulation**
10. M. Jančič, J. Slak, G. Kosec (Jožef Stefan Institute, Ljubljana, Slovenia)
- GPU Accelerated RBF-FD Solution of Poisson's Equation**
11. U. Duh, M. Depolli, J. Slak, G. Kosec (Jožef Stefan Institute, Ljubljana, Slovenia)
- Parallel Point Sampling for 3D Bodies**
12. I. Prazina, I. Ivković-Kihić, T. A. Chahin, A. Jajčanin, S. Rizvić, V. Okanović (Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)
- Sarajevo War Tunnel - Mobile Virtual Cultural Heritage Application**
13. T. Kovačević, L. Mrčela, A. Mercep, Z. Kostanjčar (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
- Modeling Agricultural Production Activities Using Weather and Soil Parameters**
14. D. Tomić, D. Davidović (Ruđer Bošković Institute, Zagreb, Croatia), T. Šubić (Arctur d.o.o, Nova Gorica, Slovenia), J. Mesarić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), K. Skala (Ruđer Bošković Institute, Zagreb, Croatia)
- Improving 3D Printing of Garments by Using HPC Cloud**
15. I. Vlahović, M. Glunčić, K. Dekanić (Faculty of Science, Zagreb, Croatia), L. Mršić, H. Jerković (Algebra University College, Zagreb, Croatia), I. Martinjak, V. Paar (Faculty of Science, Zagreb, Croatia)
- Global Repeat Map Algorithm (GRM) Reveals Differences in Alpha Satellite Number of Tandem and Higher Order Repeats (HORs) in Human, Neanderthal and Chimpanzee Genomes – Novel Tandem Repeat Database**
16. I. Kesedžić, J. Božek (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), M. Radoš (Croatian Institute for Brain Research, Zagreb, Croatia), S. Popović, K. Čosić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
- Air Traffic Control Competencies Measurements based on Functional Near-Infrared Spectroscopy**
17. M. Babić (Faculty of Information Studies, Novo Mesto, Slovenia), B. Soldo (University North, Varaždin, Croatia,), J. Povrh (Faculty of Mechanical Engineering, Ljubljana, Slovenia)
- Public Transport Analyzing Using Bee Colony**
18. L. Tišljarić, Ž. Majstorović, T. Erdelić, T. Carić (Faculty of Transport and Traffic Sciences, Zagreb, Croatia)
- Measure for Traffic Anomaly Detection on the Urban Roads Using Speed Transition Matrices**
19. J. Kuzmanova, M. Gusev, V. Zdraveski (Faculty of Computer Science and Engineering Skopje, North Macedonia)
- Calculating the Fire Weather Index for US Wildfires Using a GPU**

20. H. Nitz Petterson, J. Rehnholm, S. Vikström, M. Åslund, E. Åstrand, I. Tomašić (Mälardalen University, Västerås, Sweden)
Iris Identification Using Wavelet Wecomposition and Gabor Filter
21. M. Zanin, E. Menasalvas, A. Rodriguez González (Centre for Biomedical Technology, Madrid, Spain), P. Smrz (Brno University of Technology, Czech Republic)
An Analytics Toolbox for Cyber-Physical Systems Data Analysis: Requirements and Challenges
22. C. Attard, (Faculty of ICT, Msida, Malta), A. Naudi (University College London, United Kingdom), S. Mallia, D. Gauci, R. Farrugia (Faculty of ICT, Msida, Malta)
Assisting Motorists Using Parking Prediction through a Car App

BIOMEDICAL ENGINEERING

1. T. Smolčić (School of Medicine, Zagreb, Croatia), T. Petković (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), S. Škokić (School of Medicine, Zagreb, Croatia)
Automatic Brain Extraction in Nissl-Stained Histological Sections
2. F. Salgueiro, P.A. Assunção, R. Fonseca-Pinto (Institute of Telecommunications, Leiria, Portugal)
Laser Speckle Stereo System in Biomedical Imaging
3. J. Nuhić, J. Kevrić (International Burch University, Sarajevo, Bosnia and Herzegovina)
Lung Cancer Typology Classification Based on Biochemical Markers Using Machine Learning Techniques
4. B. Širaiy, U.J. Stanič, Z. Katkič, N. Grishin (School of Health Society, Domžale, Slovenia)
Self-Help for Elderly Individuals with Morning Gymnastics "1000 Movements" and "Method 23+5"
5. M. Gusev (Faculty of Computer Science and Engineering, Skopje, North Macedonia), E. Guseva (Innovation Dooel, Skopje, North Macedonia), L. Poposka (University Clinic of Cardiology, Skopje, North Macedonia)
Design of a Non-invasive ECG-based Glucose Measurement System
6. L. Beqiri, A. Velinov (Faculty of Computer Science, Štip, North Macedonia), B. Fetaji, L. Loku (Mother Teresa University, Skopje, North Macedonia), A. Bučkuku, Z. Zdravov (Faculty of Computer Science, Štip, North Macedonia)
Analysis of Diabetes Dataset
7. M. Gusev (Faculty of Computer Science and Engineering, Skopje, North Macedonia), L. Poposka (University Clinic of Cardiology, Skopje, North Macedonia), E. Guseva (Innovation Dooel, Skopje, North Macedonia), M. Kostoska, B. Koteska, M. Simjanoska, N. Ackovska, A. Stojmenski (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Trends from Minimally Invasive to Non-invasive Glucose Measurements
8. E. Merdjanovska, A. Rashkovska (Jožef Stefan Institute, Ljubljana, Slovenia)
Respiration Extraction from Single-Channel ECG using Signal-Processing Methods and Deep Learning
9. V. Kadunc Kos, M. Brložnik, A. Domanjko Petrič (Veterinary Faculty, Ljubljana, Slovenia), V. Avbelj (Jožef Stefan Institute, Ljubljana, Slovenia)
Simultaneous Phonocardiography and Electrocardiography Using Smartphone in Dogs, Cats and Horses
10. V. Avbelj (Jožef Stefan Institute, Ljubljana, Slovenia), M. Brložnik (Veterinary Faculty, Ljubljana, Slovenia)
Phonocardiography and Electrocardiography with a Smartphone
11. E. Ajdaraga Krluku, M. Gusev (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Detection of Uninterpretable ECG Signal Segments
12. E. Shagiri (Innovation Dooel, Skopje, North Macedonia), M. Gusev (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
A Programmatic Approach for Development of the ViewHRV Service Platform with Accurate and Reliable Results

13. R. Trobec (Jožef Stefan Institute, Ljubljana, Slovenia), M. Lindén (Mälardalen University, Västerås, Sweden), M. Šinkovec (University Medical Centre, Ljubljana, Slovenia)
Impact of Subthreshold Transcutaneous Auricular Vagus Nerve Stimulation on the Heart Rate Variability and Atrial Arrhythmias
14. A. Jović, I. Stančin, K. Friganović, M. Cifrek (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Clinical Decision Support Systems in Practice: Current Status and Challenges
15. R. Fonseca-Pinto, E. Silva, R. Martinho, R. Rijo (Polytechnic Institute of Leiria, Portugal), F. Januário, A. Antunes (Leiria Hospital Center, Portugal)
MOVIDA.eros : an eHealth Solution for Cardiac Rehabilitation Programs
16. A. Abugabah, N. Nizamuddin (Zayed University, Abu Dhabi, United Arab Emirates)
Smart Healthcare Ecosystem for Elderly Patient Care
17. V. Miletić, M. Ašenbrener Katić (University of Rijeka, Department of Informatics, Croatia), Ž. Svedružić (University of Rijeka, Department of Biotechnology, Croatia)
High-Throughput Virtual Screening Web Service Development and its Applications to SARS-CoV-2 Target Protein Inhibitors Drug Design

Special session **Dew Computing / DewCom** is an integral part of DS-BE conference (page 49)
Sastavni dio savjetovanja DS-BE je specijalna sekcija Rosa računarstvo / DewCom (str. 49)



CTI

TELECOMMUNICATIONS & INFORMATION
 TELEKOMUNIKACIJE I INFORMACIJE



29.09.20. 15⁰⁰-19⁰⁰

Hall · Dvorana Camelia 2, Grand Hotel Adriatic

30.09.20. 15⁰⁰-19⁰⁰

Hall · Dvorana Nava 2, Remisens Hotel Admiral

01.10.20. 09⁰⁰-13⁰⁰ 15⁰⁰-19⁰⁰



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1. Biljana Cerin (Ostendo Consulting, Zagreb, Croatia)
Cybersecurity Risk is a Board-Level Issue
2. Vlado Delić (Faculty of Technical Sciences, Novi Sad, Serbia)
Human-Machine Speech Communication X & Y vs. Z & α Generation

PAPERS · RADOVI

1. T.B. Iliev (University of Ruse, Department of Telecommunication, Bulgaria), G.Y. Mihaylov (University of Telecommunications and Post, Sofia, Bulgaria), I.S. Stoyanov (University of Ruse, Department of Electrical and Electronic Engineering, Bulgaria), E.P. Ivanova (University of Ruse, Department of Telecommunication, Bulgaria)
LTE and 5G NR – Coexistence and Collaboration
2. D. Spasov (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Decoding of LTE Turbo Codes Initialized with the Two Recursive Convolutional Codes
3. K. Kainrath, H. Flühr (Institute of Aviation, Graz, Austria), W. Stocksreiter, R. Findenig (Institute of Electrical Engineering, Graz, Austria), E. Leitgeb (Institute of Microwave and Photonic Engineering, Graz, Austria), M. Gruber (Institute of Aviation, Graz, Austria)
Evaluation of Commercial Off-The-Shelf LTE Antennas for Use on Unmanned Aerial Vehicles
4. M. Bongard (Deutsche Telekom Technik GmbH, Cologne, Germany), K. Grunert (Detecon International GmbH, Cologne, Germany), S. Aleksić (Leipzig University of Technology (HTL), Germany)
Techno-Economic Analysis of Deployment Options for Converged 5G Wireless-Optical Access Networks
5. S. Demirović, P. Kiš, J. Janković, Ž. Ilić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Resource Utilization – QoS Isolation Trade-Off in 5G Networks Considering Network Slicing Reconfiguration Interval
6. O. Jukić, I. Heđi, E. Ciriković (Virovitica College, Croatia)
IoT Cloud-Based sServices in Network Management Solutions
7. A. Rista, J. Ajdari, X. Zenuni (Faculty of Contemporary Sciences and Technologies, Tetovo, North Macedonia)
Cloud Computing Virtualization: A Comprehensive Survey
8. N. Soni, R. Malekian (Department of Electrical, Electronic and Computer Engineering, University of Pretoria, South Africa), D.C. Bogatinoska (University of Information Science and Technology “St. Paul the Apostle”, Ohrid, North Macedonia)
Algorithms for Computing in Fog Systems: Principles, Algorithms, and Challenges
9. M. Bensalem, J. Dizdarević, A. Jukan (Institute of Computer and Network Engineering, Braunschweig, Germany)
DNN Placement and Inference in Edge Computing
10. A. Rista, J. Ajdari, X. Zenuni (Faculty of Contemporary Sciences and Technologies, Tetovo, North Macedonia)
Predicting and Analyzing Absenteeism at Workplace Using Machine Learning Algorithms
11. R. Haluška, L. Ovseník, P. Šulaj (Technical University of Košice, Slovakia)
Example of Using Algorithms for Switching Hybrid FSO/RF Systems
12. O. Llahi (Faculty of Contemporary Sciences and Technologies, Tetovo, North Macedonia)
Crime Analysis and Prediction Using Machine Learning
13. Z. Limani Fazliu, H. Maloku, M. Ibrani, M. Limani, B. Gashi (Faculty of Electrical and Computer Engineering, Prishtina, Kosovo)
A Machine Learning Approach for Analysis of Spectrum Availability in Kosovo Based on Experimental Measurements
14. T.B. Iliev (University of Ruse, Department of Telecommunication, Bulgaria), I.S. Stoyanov (University of Ruse, Department of Electrical and Electronic Engineering, Bulgaria), S.A. Sokolov (University of Telecommunications and Post, Sofia, Bulgaria), I.H. Beloiev (University of Ruse, Department of Transport, Bulgaria)

The Influence of Multipath Propagation of the Signal on the Accuracy of the GNSS Receiver

15. C.V. Phung, A. Engelmann, A. Jukan (Institute of Computer and Network Engineering, Braunschweig, Germany)
Error Correction with Systematic RLNC in Multi-Channel THz Communication Systems
16. H. Maloku, Z. Limani Fazliu, M. Ibrani, M. Limani, B. Gashi (Faculty of Electrical and Computer Engineering, Prishtina, Kosovo)
Measurement-Based Optimized Propagation Model for Urban, Suburban and Rural Environments for UHF Bands in Kosovo
17. J. Lorincz (Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, Croatia), V. Huljić (Kron d.o.o., Split, Croatia), D. Begušić (Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, Croatia)
Transforming Product Catalogue Relational into Graph Database: a Performance Comparison
18. M. Spahić, A. Šečerbegović, V. Mesić, H. Hadžić, A. Hasanbašić, O. Jahić (Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina)
Smart Home IVR-Based System with South Slavic Language Integration
19. D. Švelec (Croatian Telecom Inc., Osijek, Croatia), N. Bjelčić (Croatian Telecom Inc., Zagreb, Croatia), M. Blažeković (Croatian Telecom Inc., Osijek, Croatia)
Smart Cities as an Opportunity and Challenge for People with Disabilities
20. A. Višković (Energy Platform Living Lab, Zagreb, Croatia), D. Šimunić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), V. Franki (Faculty of Engineering, Rijeka, Croatia)
Innovation Platform – A Novel Energy Service Utility
21. F. Tsvetanov (South-West University, Department of Communication and Computer Technic and Technology, Blagoevgrad, Bulgaria), I. Georgieva (South-West University/Department of Electrotechnic, Electronic and Automation, Blagoevgrad, Bulgaria)
Modeling of Energy Consumption of Sensor Nodes
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Bounding Reliability in Service Function Chaining
23. M. Begić, M. Cirimotić, I. Farkaš, I. Skorić, Ž. Car, I. Rašan, M. Žilak (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Software Prototype Based on Augmented Reality for Mastering Vocabulary
24. L. Prelog, Lj. Bakić-Tomić (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
The Perception of the Fake News Phenomenon on the Internet by Members of Generation Z
25. D. Valenčić (University of Applied Sciences Velika Gorica, Croatia)
Implementation of NETCONF Standard by Major Customers in Croatia
26. D. Valenčić (University of Applied Sciences Velika Gorica, Croatia)
Vendors' Implementation of NETCONF Standard on Routers and Switches
27. V. Mihoković, L. Zalović, V. Zalović (Geo-centar d.o.o., Čakovec, Croatia)
Establishing the Utility Charges Spatial Database Using Digital Twin Technology
28. D. Švelec, M. Blažeković (Croatian Telecom Inc., Osijek, Croatia)
Čimbenici adresiranja i povezivanja za IoT usluge i aplikacije
29. K. Brodnjak, R. Barišić (Algebra University College, Zagreb, Croatia)
Uvođenje usluge bežičnog pristupa internetu pomoću ITIL smjernica
30. D. Markulin, K. Musa, A. Mršić (Croatian Telecom Inc., Zagreb, Croatia)
Značajka analitičkog pristupa u dizajnu, optimizaciji i održavanju poslovnih procesa
31. D. Korent (Faculty of Organization and Informatics, Varaždin, Croatia)
Komparativna analiza upravljanja obrtnim kapitalom u odjeljcima područja djelatnosti Informacije i komunikacije u Republici Hrvatskoj
32. M. Bubanić (Faculty of Organization and Informatics, Varaždin, Croatia)
Pregled performansi djelatnosti J61 Telekomunikacije u Republici Hrvatskoj
33. D. Muratović, R. Barišić (Algebra University College, Zagreb, Croatia)
Dohvat novih ključeva za mobilnu aplikaciju na bankomatu prema ITIL najboljoj praksi



28.09.20. 09³⁰-13⁰⁰ 15⁰⁰-19⁰⁰
29.09.20. 09⁰⁰-13⁰⁰ 17⁰⁰-19⁰⁰

Congress Hall · **Kongresna dvorana**, Grand Hotel Adriatic

30.09.20. 15⁰⁰-19⁰⁰

Hall · **Dvorana** Camelia 1, Grand Hotel Adriatic



01.10.20. 09⁰⁰-13⁰⁰ 15⁰⁰-19⁰⁰
02.10.20. 09⁰⁰-13⁰⁰

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PAPERS · RADOVI

1. A. Papić, I. Ćosić (Faculty of Humanities and Social Sciences, Osijek, Croatia)
Parents' Attitudes Toward Programming in Elementary Schools in City of Osijek
2. H. Jaakkola (Tampere University, Pori, Finland), J. Henno (Tallinn University of Technology, Estonia), A. Lahti (University of Turku, Finland), J.-P. Järvinen, J. Mäkelä (University of Lapland, Rovaniemi, Finland)
Artificial Intelligence and Education
3. R. Repnik, P. Bernad (Faculty of Natural Sciences and Mathematics, Maribor, Slovenia), M. Krašna (Faculty of Arts, Maribor, Slovenia)
Teaching Physics Using Programming of Simulations
4. D. Paľová, M. Vejačka (Faculty of Economics, Košice, Slovakia)
Improving the Quality of Entrepreneurial Education by ICT Education of HEI Pedagogical Staff
5. L. Révészová (Faculty of Economics, Košice, Slovakia)
How to Educate Students for the Future?
6. M. Bevčič, J. Rugelj (University of Ljubljana, Slovenia)
Game Design Based Learning of Programming for Girls
7. D. Paľová, M. Vejačka (Faculty of Economics, Košice, Slovakia)
Gamification Tools Improving University Students' Involvement in the Education Process
8. G. Đurović (University of Rijeka, Croatia)
Continuous Summative Assessment Sessions as a Motivational Tool for STEM students: a Case Study
9. N. Kadoić, B. Šlibar (Faculty of Organization and Informatics, Varaždin, Croatia)
Increasing the Learning Efficiency in Decision-Making Field Using the Workshop Activity in Moodle

10. I.V. Shishenko, V.H. Shamonina, V.S. Loboda, V.V. Punko, Yu.V. Khvorostina, A.A. Voitenko (Sumy State A.S. Makarenko Pedagogical University, Ukraine)
Studying Dynamic Mathematics Software in the Professional Training of Teachers of Computer Science, Mathematics, and IT Specialists
11. M.G. Drushlyak, O.V. Semenikhina, S.M. Kondratiuk (Sumy State A.S. Makarenko Pedagogical University, Ukraine), T.M. Kryvosheya (Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ukraine), A.V. Vertel, N.M. Pavlushchenko (Sumy State A.S. Makarenko Pedagogical University, Ukraine)
The Automated Control of Students Achievements by Using Paper Clicker Plickers
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The Use of Electronic Textbooks in the Learning Process: a Statistical Analysis
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Influence of Moodle and MS Teams on Teaching-Learning-Studying (TLS) Processes
14. M. Sokele, T. Alajbeg, F. Brkić (Zagreb University of Applied Sciences, Croatia)
The Impact of Distance Learning on Student Success for Electrical Engineering Professional Courses
15. T. Hryhorova, V.P. Lyashenko (Kremenchuk Mykhailo Ostohradykyi National University, Ukraine), I. Hvozdeva (Odessa National Maritime Academy, Ukraine), I. Getman (Kremenchuk Mykhailo Ostohradykyi National University, Ukraine)
Use of Open Training Portals to Host Developed STEM Courses
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Internationalization and Student Mobility: STEAM Students Case Study
17. A. Jaklič (Faculty of Computer and Information Science, Ljubljana, Slovenia)
Educating the Educators for Introducing Internet of Things to Primary and Secondary Schools' Curriculums
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An Algorithm for Assessment of Students Using Gamification
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Effective Decision Making: the Added Value of Including Humanities in STEM Studies
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Using BBC Micro:bit in Primary and Secondary Schools for Creating Simple Smart Home
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Using mBot Robots for the Motivation of Studying Computer Science
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Investment of European Enterprises in ICT Education of Their Employees: Relationship with Country Competitiveness and Digital Economy Development
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Project Based Teaching with Digital Tools in Primary Education
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University Teachers' Needs for the Efficient Use of ICT in the Pedagogical Process
25. M. Lončar, M. Kermek (Faculty of Organization and Informatics, Varaždin, Croatia)
Analysis of Social Networks Usage Among Students
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Digital Technologies in Education of Preschool Children – Preparing for Future
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Impact of Education on Communication Etiquette
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Harmonization of Curriculum with Needs and Requests of Fourth Industrial Revolution: Case of Faculty of Economics and Business Rijeka

29. M. Schatten (Dugo Selo High School, Croatia), M. Schatten (Faculty of Organization and Informatics, Varaždin, Croatia)
A Comparative Study of Gamification in Programming Education in a Croatian High School
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Computer-Based Education in the Course "Digital Electronics" Teaching the Topic "Adders-Subtractors"
31. W. Werth, L. Faller, H. Liechteneker, C. Ungermanns (Carinthia University of Applied Sciences, Villach, Austria)
Low Cost Rapid Control Prototyping – a Useful Method in Control Engineering Education
32. R. Vrana (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
Digital Literacy as a Part of Continuing Education Library Efforts
33. G. Zlodi, T. Ivanjko, P. Štefičar, M. Marochini (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
The Model of Collaborative Terminology Contribution to the Art & Architecture Thesaurus: Application and Improvement of Crowdsourcing Methods in an Educational Context
34. V. Omelyanenko, O. Kudrina (Sumy State A.S. Makarenko Pedagogical University, Ukraine), H. Shevtsova (Institute of Industrial Economics of NAS of Ukraine, Kyiv, Ukraine), O. Prokopenko (Teadmus OÜ, Tallinn, Estonia), V. Petrenko (Melitopol Bohdan Khmelnytsky State Pedagogical University, Ukraine)
ICT for Innovative Education and Science: Smart Environment for Networked Strategies
35. V. Vidaček Hainš (Faculty of Organization and Informatics, Varaždin, Croatia), M. Kučar, R. Kovačić (Electromechanical School, Varaždin, Croatia)
Student Social Media Usage and Its Relation to Free-recall Memory Tasks
36. I. Kaštelan, B. Pavković (Faculty of Technical Sciences, Novi Sad, Serbia), M. Vranješ (Faculty of Electrical Engineering, Computer Science and Information Technology, Osijek, Croatia), M. Popović (Faculty of Technical Sciences, Novi Sad, Serbia)
Modernized Courses in Automotive Software Engineering
37. I. Mikšić (Elementary school Popovača, Croatia), Lj. Bakić-Tomić (Baltazar Zaprešić University of Applied Sciences, Croatia), T. Babić (Algebra University College, Zagreb, Croatia)
Intuitive and Rational Information Management
38. Z. Tkáčová, L. Šnajder, J. Guniš (Faculty of Science, Košice, Slovakia)
Artificial Intelligence – a New Topic in Computer Science Curriculum at Primary and Secondary Schools: Challenges, Opportunities, Tools and Approaches
39. J. Guniš, L. Šnajder, Z. Tkáčová (Faculty of Science, Košice, Slovakia), V. Gunišová (Secondary Grammar School of Ján Adam Rayman, Prešov, Slovakia)
Inquiry-Based Python Programming at Secondary Schools
40. T. Hynninen (South-Eastern Finland University of Applied Sciences, Mikkeli, Finland), A. Knutas (LUT School of Engineering Science, Lappeenranta, Finland), M. Hujala (LUT School of Business and Management, Lappeenranta, Finland)
Sentiment Analysis of Open-Ended Student Feedback
41. K. Pavlina, A. Pongrac Pavlina, V. Juričić (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
Comparative Analysis of Students' Attitudes on Teaching Quality in Higher Education
42. A.M. Jadanec, T. Babić (Algebra University College, Zagreb, Croatia)
Students' Attitudes Toward Value-Driven Digital Marketing
43. O.S. Fomichova (State Budget Professional Educational Institution "Sparrow Hills", Moscow, Russia), V.A. Fomichov (Moscow Aviation Institute, Russia)
The Web-based Lectures as Leverage for Developing the Sense of Belonging in the All-Russian Creative School-Contest "Say Thank You"
44. Y. Borysiuk, T. Babić (Algebra University College, Zagreb, Croatia)
STEAM Students and Their Expectations from Future Business Life: a Values-driven Workplace

45. A. Knežević, T. Babić, Z. Musa (Algebra University College, Zagreb, Croatia)
Cryptocurrency as the Currency of the Future: a Case Study Among Algebra University College Students
46. K. Aleksić-Maslač, P. Vranešić, B. Debić (Zagreb School of Economics and Management, Croatia)
"Best Practice" Course – Management of Information Systems
47. J. Henno (Tallinn University of Technology, Estonia), H. Jaakkola (Tampere University of Technology, Pori), J. Mäkelä (University of Lapland, Rovaniemi, Finland)
Non-Determinism in Nowadays Computing and IT Education
48. N. Caporusso (Northern Kentucky University, Highland Height, United States)
An Experiential Learning Approach to Research Methods in Computer Science based on SMART Goals
49. M. Konecki (Faculty of Organization and Informatics, Varaždin, Croatia)
Adaptive Drum Kit Learning System: Impact on Students' Motivation
50. M. Konecki (Faculty of Organization and Informatics, Varaždin, Croatia)
Impact of Distance Learning on Motivation and Success Rate of Students During the COVID-19 Pandemic
51. F. Koefer, M. Edlinger, N. Jausz, W. Egger, W. Werth, L.M. Faller (Carinthia University of Applied Sciences, Villach, Austria)
Analysis and Development of a Robotic Disk Mounting Stand
52. R. Fatoohi, S. Ehrman, L. Francesca, C. Chong, J. Khoury, A. Minaise, D. Pham, M. Abhyankar, J. Chen, R. Chen, A. Corona-Sanchez (San Jose State University, United States)
SJSU GO
53. F. Urem (Polytechnic of Šibenik, Croatia), D. Jureković (Oracle Hrvatska d.o.o., Zagreb, Croatia), E. Ban (Education and Teacher Training Agency, Rijeka, Croatia)
Online and In-Class Computer Science Teacher Training - Oracle Academy Program Experiences
54. M. Fabijanić, G. Đambić, B. Fulanović (Algebra University College, Zagreb, Croatia)
A Novel System for Automatic, Configurable and Partial Assessment of Student SQL Queries
55. M. Pokorný (Faculty of Education, Trnava, Slovakia)
Experience with E-learning in Teaching Combinatorics and Data Processing
56. E. Gürbüz (Graduate School of Educational Sciences, Nicosia, Cyprus), G. Dağlı (Faculty of Education, Kyrenia, Cyprus), F. Altınay, Z. Altınay (Graduate School of Educational Sciences, Nicosia, Cyprus)
Assessment of The Role of Technology in the Process of Tolerance
57. M. Mačinko (Elementary School Ivan Cankar, Zagreb, Croatia), A. Sović Kržić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), I. Mudri (Elementary School Ivan Cankar, Zagreb, Croatia)
Distance Learning: Examples of Good Practice, Analysis and Experience
58. S. Babić (Polytechnic of Rijeka, Croatia), S. Križan Sučić, G. Sinković (Faculty of Informatics, Pula, Croatia)
Understanding the Factors that Influence Secondary Teachers' Intention to Use e-Learning Technologies for Teaching After the COVID-19 Pandemic
59. M. Kuzelj, K. Šamija (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
Distance Learning Caused by the COVID-19 Pandemic in Croatia: What do Newspaper Portals Actually Deliver to Readers?
60. T. Babić, Z. Musa (Algebra University College, Zagreb, Croatia)
The Significance of Transformational Team Members
61. I. Radoš, T. Babić (Algebra University College, Zagreb, Croatia)
Digital Transformation as a Process of Using Digital Technologies for Monitoring and Designing the User Experience
62. A. Hartikainen (University of Turku, Finland), M. Ahola (LAB University of Applied Sciences, Lahti, Finland), M. Apiola, E. Sutinen (University of Turku, Finland)
The Immigrant Integration Online Training Program in Finland
63. M. Fetaji, E. Kajtazi (South East European University, Tetovo, North Macedonia), B. Fetaji (Mother Teresa University, Skopje, North Macedonia), H. Snopce (South East European University,

Tetovo, North Macedonia)

Assessing the Impact of Mobile Educational Games on Student's Success within Mathematics Subject In Primary Schools

64. G. Atanasova, P. Hristova (University of Ruse „Angel Kanchev“, IIT Department, Bulgaria)
The Teacher's Role in Discovery, Preparation, and Development of Gifted Students in the Field of Informatics
65. L. Abazi-Bexheti, A. Kadriu, M. Apostolova (Faculty of Contemporary Sciences and Technologies, Tetovo, North Macedonia)
Word Cloud Analytics of the Computer Science Research Publications' Titles over the Past Half Century
66. M. Mesihović, V. Ljubović, I. Muharemović (Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)
Using WebIDE as a Distance Learning Tool for High School Programming
67. J. Žufić (Faculty of Educational Sciences, Pula, Croatia), A. Žufić (Elementary School Veli Vrh Pula, Croatia)
Ability of the Information Science Teachers to Teach Programing in the Lower Grades of Primary School
68. I. Lucić, S. Babić (Polytechnic of Rijeka, Rijeka, Croatia), D. Vučkov (Croatian Football Federation, Rijeka, Croatia)
Perception of Using VAR Technology in Football After Completion of Training and Education and Experiences of Croatian Video Assistant Referees (VARs) and Assistant VARs (AVARs)
69. B. Fulanović, A. Lacković, D. Bele (Algebra University College, Zagreb, Croatia)
Implementacija sustava za automatsko praćenje prisutnosti na Visokom učilištu Algebra
70. T. Redep, T. Pavičić Zajec (First Elementary School Varaždin, Croatia), B. Marčinković (Elementary School Bistrica ob Sotri, Slovenia)
Nauci me igrati - igrifikacijom do boljih rezultata
71. M. Mirković (School of Technical Sciences, Požega, Croatia)
Vrednovanje digitalnih kompetencija putem CRISS projekta
72. P. Dobrić (Elementary School Julije Klović, Zagreb, Croatia), M. Mačinko (Elementary School Ivan Cankar, Zagreb, Croatia), D. Kager (Elementary School Eugen Kvaternik, Velika Gorica, Croatia)
Implementacija različitih robotskih modela u nastavi tehničke kulture i informatike
73. N. Boj, A. Tonković (III. Elementary School Čakovec, Croatia), E. Glavaš (County Hospital Čakovec, Croatia)
Suvremen pristup učenju putem projektne nastave
74. D. Vrbanc (Railway Technical School Moravice, Vrbovsko, Croatia)
Raspberry PI mini računalno kroz nastavnu cjelinu
75. T. Adamović (Bjelovar University of Applied Sciences, Croatia)
Sustav upravljanja zadacima iz područja micro:bit
76. H. Kovač, I. Nađ (Algebra University College, Zagreb, Croatia)
Aplikacije za fotografsko prepoznavanje i rješavanje matematičkih zadataka
77. B. Raičković, B. Musović (IV. Elementary School Bjelovar, Croatia)
Micro:bit-na biometrija
78. I. Britvić, F. Meštrović (College of Information Technologies, Zagreb, Croatia)
Glazba2Go, mobilna aplikacija za promoviranje glazbene kulture
79. J. Pažanin (School of Economics and Management, Split, Croatia), M. Rosić (Faculty of Science, Split, Croatia)
Mobilne aplikacije u obrazovnom okruženju
80. M. Verdonik (Faculty of Teacher Education, Rijeka, Croatia), V. Vitas (Kindergarten Sušak, Rijeka, Croatia)
Intermedijalnost autorskih slikovnica Ivane Guljašević Kuman
81. D. Šimić, J. Gusić (Faculty of Organization and Informatics, Varaždin, Croatia)
Predikcija uspjeha u studiranju primjenom Bayesovih mreža
82. I. Franković, M. Ivašić-Kos (University of Rijeka, Department of Informatics, Croatia)
Modifikacija arkadnih igara Space Invaders i Super Mario u edukativne inačice za učenje matematike i hrvatskog jezika
83. K. Blažeka (Technical school Ruđer Bošković, Zagreb, Croatia)

Izazovi poučavanja o računalnim mrežama

84. K. Kačapor, Z. Lagumdžija (University of Sarajevo, Bosnia and Herzegovina)
Rudarenje edukacijskih podataka: korištenje klasteriranja za predikciju studentskog uspjeha
85. I. Ružić (I. Elementary School Čakovec, Croatia)
Robotika u funkciji razvoja vještina 21. stoljeća
86. M. Božurić, R. Bogut, M. Tretinjak (School of Electrical Engineering, Zagreb, Croatia)
Informacijska i komunikacijska tehnologija (ICT) – ključna karika između različitih oblika obrazovanja
87. M. Lučan, I. Vlašić, G. Malčić (Zagreb University of Applied Sciences, Croatia)
Laboratorijski 3-osni model realiziran pomoću servo sustava
88. A. Omrčen, M. Lučan, G. Malčić (Zagreb University of Applied Sciences, Croatia)
Laboratorijska maketa redundantnog sustava upravljanja
89. R. Soldo (Mechanical Engineering School Faust Vrančić, Zagreb, Croatia), J. Domac (Elementary School Stjepan Antolović, Privlaka, Croatia), I. Olujić (Ministry of Science and Education, Zagreb, Croatia)
Samoregulacija učenika u virtualnoj učionici nastave matematike
90. I. Krpan, I. Capan, M. Davidović (College of Information Technologies, Zagreb, Croatia)
Primjena alata Xmpl za brzo pokretanje naredbi u podučavanju Linuxa
91. J. Domac (Elementary School Stjepan Antolović, Privlaka, Croatia)
Održivi razvoj ruralnog područja – razvoj digitalnih kompetencija (Croduino setovi i dronovi)
92. N. Tatković (Juraj Dobrila University of Pula, Croatia), P. Radulović (High School of Economics Pula, Croatia), S. Tatković (Juraj Dobrila University of Pula, Croatia)
Stavovi studenata o računalnom načinu razmišljanja i vještine rješavanja testa računalnog načina razmišljanja
93. T. Orehovački (Faculty of Informatics, Pula, Croatia), S. Babić (Polytechnic of Rijeka, Croatia), D. Etinger (Faculty of Informatics, Pula, Croatia)
Percipirana kvaliteta sustava za upravljanje verzijama programskog koda od strane studenata informatike
94. S. Deljac (V Gymnasium, Zagreb, Croatia), M. Berović (High School for Traffic and Transportation, Šibenik, Croatia)
Usporedba nastave na daljinu i učioničke nastave iz predmeta Informatika i Računalstvo

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Intelligent Production

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1. A. Karadimce, D. Capeska Bogatinoska, M. Sefidanoski, N. Paunkoska Dimoska, N. Marina (University of Information Science and Technology "St. Paul the Apostle", Ohrid, North Macedonia)
Tools for Analytics and Cognition Framework for a Car-Sharing Use Case
2. T. Špoljarić (Zagreb University of Applied Sciences, Croatia), I. Pavić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
AVR and PSS Coordination Strategy by Using Multi-Objective Ant Lion Optimizer
3. V.G. Bogdanova, S.A. Gorsky, A.A. Pashinin (Matrosov Institute for System Dynamics and Control Theory of SB RAS, Irkutsk, Russia)
HPC-Based Parallel Software for Solving Applied Boolean Satisfiability Problems
4. M. Saari, J. Grönman, J. Soini, P. Rantanen, T. Mäkinen (Faculty of Information Technology and Communication Sciences, Pori, Finland)
Experimenting with Means to Store and Monitor IoT Based Measurement Results for Energy Saving
5. J. Grönman, J. Viljanen, J. Vihervaara, M. Saari (Tampere University, Pori, Finland)
An Open-Source Solution for Mobile Robot Based Environmental Sensing
6. M. Ullah, A. Hekmatmanesh, D. Savchenko (LUT University, Lappeenranta, Finland), R. Moioili (Federal University of Rio Grande do Norte, Natal, Brazil), P. Nardelli, H. Handroos, H. Wu (LUT University, Lappeenranta, Finland)
Providing Facilities in Health Care via Brain-Computer Interface and Internet of Things
7. D. Četković (HEP - Croatian Electricity Company, Rijeka, Croatia), S. Vlahinić (Faculty of Engineering, Rijeka, Croatia), V. Komen (HEP - Croatian Electricity Company, Rijeka, Croatia)
Analysis of Justification for Using Capacitor Banks for Power Loss Reduction in the Distribution Network Based on Monitoring of Daily Electric Power Consumption
8. N. Bogunović (HEP - Croatian Electricity Company, Rijeka, Croatia), S. Vlahinić, D. Franković (Faculty of Engineering, Rijeka, Croatia), V. Komen (HEP - Croatian Electricity Company, Rijeka, Croatia)
Application of PandaPower Tool in Evaluating the Potential of Using PV Distributed Generation for Voltage Regulation in Electrical Power Networks
9. M. Trkman, S. Bajrić (Jožef Stefan Institute, Ljubljana, Slovenia), R. Malkoč (Better, Ljubljana, Slovenia)
The Success Factors of a National Healthcare Ecosystems Maturation: Preliminary Results
10. J. Fulir, Ž. Mihajlović, M. Sede (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
A Simulator for Training Human Operators of a Remote Controlled Anti-Terrorism Ground Vehicle

11. D. Miljković (HEP - Croatian Electricity Company, Zagreb, Croatia)
Sample Based Synthesis of Car Engine Noise
12. D. Miljković (HEP - Croatian Electricity Company, Zagreb, Croatia)
Fault Detection of Aircraft Piston Engine Based on Exhaustive Database Search
13. B. Žeželj, Ž. Frkin (Plavi Tim d.o.o., Zagreb, Croatia), F. Beznea (FIA Integra, Bucharest, Romania), M. Gojić (IoT Net Adria d.o.o., Zagreb, Croatia)
Integrated Production Optimization at INA d.d. Upstream Supported by Osisoft PI
14. P. Makarun, Š. Ileš, J. Matuško (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Predictive Lane-Keeping System for an Autonomous Vehicle
15. M. Švec, Š. Ileš, J. Matuško (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Sliding Mode Control of Custom Built Rotary Inverted Pendulum
16. N. Caporusso, N. Elleman, S. S. Cho (Northern Kentucky University, Department of Computer Science, Highland Heights, United States)
Interface Digital Twins: Rendering Physical Devices Accessible to People who are Blind
17. Y. Watashiba, Y. Matsui, S. Date (Osaka University, Japan)
Evaluation of Resource Management System for InfaaS-adaptive Disaster Management Application Platform
18. Z. Sičanica (Končar – Power Plant and Electric Traction Engineering Inc. Zagreb, Croatia), I. Vujaklija (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Resilience to Cascading Failures: a Complex Network Approach for Analysing the Croatian Power Grid
19. M. Ullah (LUT University, Lappeenranta, Finland), S.R. Ullah Kakakhel, T. Westerlund (University of Turku, Finland), A. Wolff, D. Carillo (LUT University, Lappeenranta, Finland), J. Plosila (University of Turku, Finland), P.H.J. Nardelli (LUT University, Lappeenranta, Finland)
IoT Protocol Selection for Smart Grid Applications: Merging Qualitative and Quantitative Metrics
20. B. Pervan, J. Knezović (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
A Survey on Parallel Architectures and Programming Models
21. M. Ilijanić (PIK Vrbovec – Meat Industry Inc., Zagreb, Croatia), M. Lučan, G. Malčić (Zagreb University of Applied Sciences, Croatia)
Automatizacija pročištača otpadnih voda

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PAPERS · RADOVI

1. S.S. Sosinskaya, R.S. Dorofeev, A.S. Dorofeev, T.R. Usenko (National Research Technical University, Irkutsk, Russia)
Automation of a Decision Tree Conversion into a Fuzzy Inference System Using ANTLR
2. P. Choudhary, P. Thota (National Institute of Technology Hamirpur, Himachal Pradesh, India)
A Randomized Load Balancing Criteria using Traffic flow in SDN
3. P. Georgieva, E. Nikolova, D. Orozova (Faculty of Computer Science and Engineering, Burgas, Bulgaria)
Data Cleaning Techniques in Detecting Tendencies in Software Engineering
4. I. Dunder, S. Seljan, M. Pavlovski (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
Automatic Machine Translation of Poetry and a Low-Resource Language Pair
5. S. Seljan, I. Dunder, M. Pavlovski (Faculty of Humanities and Social Sciences, Zagreb, Croatia)
Human Quality Evaluation of Machine-Translated Poetry
6. V. Kondratiev, I. Otpuschennikov, A. Semenov (Matrosov Institute for System Dynamics and Control Theory SB RAS, Irkutsk, Russia)
Using Decision Diagrams of Special Kind for Compactification of Conflict Data Bases Generated by CDCL SAT Solvers
7. S. Sambolek (High School Tin Ujević, Kutina, Croatia), M. Ivašić-Kos (University of Rijeka, Department of Informatics, Croatia)
Detecting Objects in Drone Imagery: a Brief Overview of Recent Progress
8. T. Bronzin, B. Prole, A. Stipić (CITUS, Zagreb, Croatia), K. Pap (Faculty of Graphic Arts, Zagreb, Croatia)
Individualization of Anonymous Identities Using Artificial Intelligence (AI)
9. S. Boriratr, N. Khunsaeng, P. Taecharoenchai (Information System Development and Support Department Provincial Electricity Authority, Bangkok, Thailand)
Analysis the Distribution Electricity by Consumer Behavior Data in Thailand via Harmonic Extreme Learning Machine
10. I. Tomičić, P. Grd (Faculty of Organization and Informatics, Varaždin, Croatia)
Towards the Open Ontology for IoT Ecosystem's
11. I. Šulekić, T. Špoljarić (Zagreb University of Applied Sciences, Croatia), D. Milinković (Ekoner d.o.o., Zagreb, Croatia)
Decision Tree Algorithm for Control of Compressor Multiset in Refrigeration Industry
12. N. Stojanova, R. Vignjević, A. Naumoski (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
GIS Analysis of Basketball Courts and Healthy Stores Relationship for Young Population in the City of Skopje

13. R. Šajina, N. Tanković, D. Etinger (Faculty of Informatics, Pula, Croatia)
Decentralized Trustless Gossip Training of Deep Neural Networks
14. D. Martini, M. Migliardi (University of Padova, Department of Information Engineering, Italy), M. Guerar, L. Verderame, A. Merlo (University of Genova, Department of Informatics, Bioengineering, Robotics and Systems Engineering, Italy)
A Distributed Content Management System for Micro Enterprises Aggregation
15. S. Delalić, A. Alihodžić (Faculty of Science, Sarajevo, Bosnia and Herzegovina), M. Tuba (Singidunum University, Belgrade, Serbia), E. Selmanović, D. Hasić (Faculty of Science, Sarajevo, Bosnia and Herzegovina)
Discrete Bat Algorithm for Event Planning Optimization
16. I. Tomičić, M. Schatten (Faculty of Organization and Informatics, Varaždin, Croatia)
A Conceptual Network Analysis of Gamification Practices in Primary and Secondary Education
17. B. Gašperov, F. Šarić, S. Begušić, Z. Kostanjčar (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Adaptive Rolling Window Selection for Minimum Variance Portfolio Estimation Based on Reinforcement Learning
18. A. Gribli, D. Petrinović (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Synthetic Astronomical Image Sequence Generation
19. R. Šajina, N. Tanković, D. Etinger (Faculty of Informatics, Pula, Croatia)
Novel Class Detection in Non-stationary Streaming Environment with a Discriminative Classifier
20. A. Naumoski, G. Mirceva, K. Mitreski (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Evaluation of Diatoms Biodiversity Models by Applying Different Discretization on the Class Attribute
21. G. Mirceva, A. Naumoski, A. Kulakov (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Classifying Protein Structures by Using Protein Ray Based Descriptor, KNN and FuzzyKNN Classification Methods
22. B. Dalbelo Bašić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), M.P. di Buono (UNIOR NLP Research Group, Naples, Italy)
An Analysis of Early Use of Deep Learning Terms in Natural Language Processing
23. I. Cherepanov, A. Mikhailov, A. Shigarov, V. Paramonov (Matrosov Institute for System Dynamics and Control Theory of SB RAS, Irkutsk, Russia)
On Automated Workflow for Fine-Tuning Deepneural Network Models for Table Detection In Document Images
24. M. Horvat (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
StimSeqOnt: An Ontology for Formal Description of Multimedia Stimuli Sequences
25. Đ. Pašić, D. Kučak (Algebra University College, Zagreb, Croatia)
Machine Learning Model for Detecting High School Students as Candidates for Drop-Out from a Study Program
26. M. Frković (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), N. Čerkez (College of Information Technologies, Zagreb, Croatia), B. Vrdoljak (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), S. Skansi (Faculty of Croatian Studies, Zagreb, Croatia)
Evaluation of Structural Hyperparameters for Text Classification with LSTM Networks
27. A. Davydov, A. Larionov, N. Nagul (Matrosov Institute for System Dynamics and Control Theory of SB RAS, Irkutsk, Russia)
On Checking Controllability of Specification Languages for DES
28. T. Petković (Faculty of Electrical Engineering and Computing, Zagreb, Croatia), S. Gasparini (Toulouse Research Institute in Computer Science, France), T. Pribanić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
A Note on Geometric Calibration of Multiple Cameras and Projectors

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PLENARY KEYNOTE LECTURES · PLENARNA ISTAKNUTA PREDAVANJA

1. Rainer Bischoff (KUKA Robotics, Augsburg, Germany)
Future of Robotics – From Challenges to Innovation
2. Guillaume Morel (ISIR – Sorbonne University, Paris, France)
Combining Human and Robotic Motion Control for Medical Devices

PAPERS · RADOVI

1. S. Kružić, J. Musić (Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, Croatia), R. Kamnik (Faculty of Electrical Engineering, Ljubljana, Slovenia), V. Papić (Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, Croatia)
Estimating Robot Manipulator End-effector Forces Using Deep Learning
2. E. Kamenar, N. Črnjarić-Žic (Faculty of Engineering, Rijeka, Croatia), D. Haggerty (UC Santa Barbara, Department of Mechanical Engineering, United States), S. Zelenika (Faculty of Engineering, Rijeka, Croatia), E.W. Hawkes, I. Mezić (UC Santa Barbara, Department of Mechanical Engineering, United States)
Prediction of the Behavior of a Pneumatic Soft Robot Based on Koopman Operator Theory
3. P. Linna (Faculty of Information Technology and Communication Sciences, Pori, Finland), T. Aaltonen (Satakunta University of Applied Sciences, Pori, Finland), A. Halla, J. Grönman, N. Narra (Faculty of Information Technology and Communication Sciences, Pori, Finland)
Conceptual Design of an Autonomous Rover with Ground Penetrating Radar: Application in Characterizing Soils Using Deep Learning
4. L. Drobilo, M. Švaco, B. Jerbić (Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia)
Increasing the Accuracy of Robotic Neurosurgical Procedures through Robot Calibration
5. T. Aaltonen (Satakunta University of Applied Sciences, Pori, Finland), M. Saarivirta (Faculty of Information Technology and Communication Sciences, Pori, Finland), T. Kerminen (Satakunta University of Applied Sciences, Pori, Finland), J. Grönman (Faculty of Information Technology and Communication Sciences, Pori, Finland)
Implementation of a Low-Cost Autonomous Underwater Vehicle Using Open Source ROS Components with Consumer Class Sonar Technologies

6. A. Žgaljić, M. Švaco, B. Jerbić (Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia)
Improving Markerless Registration Accuracy by Mapping Facial Deformation
7. D. Vrbanc (IV Elementary School, Varaždin, Croatia)
Programiranje robota u učionici budućnosti



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1. D. Oreški, D. Andročec (Faculty of Organization and Informatics, Varaždin, Croatia)
Genetic Algorithm and Artificial Neural Network for Network Forensic Analytics
2. M. Dujmić, D. Delija, G. Sirovatka, M. Žagar (Zagreb University of Applied Sciences, Croatia)
Using FireEye Endpoint Security for Educational Purposes
3. I. Gribanova, A. Semenov (Matrosov Institute for System Dynamics and Control Theory of SB RAS, Irkutsk, Russia)
Constructing a Set of Weak Values for Full-Round MD4 Hash Function
4. J. Vijtiuk, L. Perkovic, A. Krog (Sartura, Zagreb, Croatia)
Bug Detection in Embedded Environments by Fuzzing and Symbolic Execution
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Forensic Analysis of Windows 10 Sandbox
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Linux Forensic Triage: Overview of Process and Tools
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Overview of Mac System Security and Its Impact on Digital Forensics Process
8. I. Kovačević, S. Groš (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Red Teams - Pentesters, APTs, or Neither
9. K. Skračić (Ericsson Nikola Tesla d.d., Zagreb, Croatia), F. Rukavina, K. Miličić, J. Petrović, P. Pale (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
File Fragment Classification with Focus on OLE and OOXML Classes
10. M. Jurić, A. Sandić, M. Brčić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
AI Safety: State of the Field through Quantitative Lens

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The Linked Data Enterprise as Enabler for Both Intra – and Inter- Organizational Business Data Integration and Usage

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ERP Solutions in Cloud Technologies as a Driver for Digital Transformation of Businesses
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01.10.20. 09⁰⁰-13⁰⁰, 15⁰⁰-19⁰⁰

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01.10.20. 11⁰⁰-13⁰⁰

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IoT Devices and the Need to Inform Utility Users of Collecting, Controlling and Processing of Personal Data
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Use of Security Settings on Social Networks of Elementary and High School Students in the Split-Dalmatia County
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Visual Analysis of Similarity and Relationships between Legal Texts
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STEM Motivation, Interest, Gender Differences

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Closing the Gender Gap in Engineering: Students Role Model Program
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Integrating Industry Seminars within a Software Engineering Module to Enhance Student Motivation
3. W. Brenner, N. Adamović (TU Wien, Institute of Sensor and Actuator Systems, Austria)
From Framework Programs to Teaching: Integrating Experience from European Research Projects in Teaching Engineering
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Teamwork Challenges and Solution Strategies of First-Semester Engineering Students
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Differences in the Students' Achievements Between Traditional and Project-Based Learning of Basic Engineering Competencies: A Quasi-experimental Study
6. S. Tomić, V. Paunović, I. Bosnić (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Computer-Based Question and Exam Evaluation in Summative Knowledge Assessment
7. L. Zrnić, L. Korov, J. Petrović, P. Pale (Faculty of Electrical Engineering and Computing, Zagreb, Croatia)
Students' Perception of Summative Peer Review Grading
8. G. Tuparov, D. Keremedchiev (New Bulgarian University, Department of Informatics, Sofia, Bulgaria)
Assessing Students' SQL Knowledge and Skills in Gamification Manner
9. P.V. Georgieva, E.P. Nikolova (Faculty of Computer Science and Engineering, Burgas, Bulgaria)
Changing the Assessment Process in Mathematics for Students in Engineering
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Design of Rubrics for Student Outcomes in 2019-2020 ABET Criteria

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Electronic Learning Experience Setup: Power Electronics and Electrical Drive Education
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Study of Switching Forward Single-Ended DC/DC Converter in the Course "Power Supplies"
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Integrated Laboratory Complex
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Elastic Collisions Visualization Using OpenCV Object Motion Tracking
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Educational Computer Games and Gamification at the Higher Education – Students' Points of View
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Using Moodle e-Learning Platform in Mechanical Engineering Lectures
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Creation of Software Platform for Distance Use of Lab Equipment and Data in Virumaa College at Tallinn University of Technology
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FPGA Design of Boolean Functions Using a Cascade of Decoders and Logic Gates
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Database Integration Systems
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10. M. Šipek, D. Muharemagić, B. Mihaljević, A. Radovan (Rochester Institute of Technology Croatia, Zagreb, Croatia)
Enhancing Performance of Cloud-based Software Applications with GraalVM and Quarkus
11. P. Pufek, D. Beronić, B. Mihaljević, A. Radovan (Rochester Institute of Technology Croatia, Zagreb, Croatia)
Achieving Efficient Structured Concurrency through Lightweight Fibers in Java Virtual Machine
12. J. Stavanja, P. Peer, Ž. Emeršič (Faculty of Computer and Information Science, Ljubljana, Slovenia)
Use of Keystroke Dynamics and a Keystroke-Face Fusion System in the Real World
13. V. Rajić, M. Milenković, G. Vojković (Faculty of Transport and Traffic Science, Zagreb, Croatia)
Digital Forensics Appliance in Corporate Ecosystem Considering Limitations in the EU Legal Framework
14. V. Hoxha, A. Radovan, B. Mihaljević (Rochester Institute of Technology Croatia, Zagreb, Croatia)
Tsunami Prediction Based on Artificial Neural Networks
15. M. Sorić, D. Pongrac (Zagreb University of Applied Sciences, Croatia), I. Inza (University of the Basque Country, Donostia-San Sebastián, Spain)
Using Convolutional Neural Network for Chest X-ray Image Classification
16. A. Šturlan, K. Vučković, T. Orehovalčki (Faculty of Informatics, Pula, Croatia)
Razvoj sustava za upravljanje rasporedom sati

06. SPECIAL SESSIONS SPECIJALNE SEKCIJE



OPHO

OPTOELECTRONICS AND PHOTONICS
OPTOELEKTRONIKA I FOTONIKA

EN

30.09.20. 17⁰⁰-19⁰⁰

Hall · Dvorana Bellavista, Grand Hotel Adriatic



CHAIRS · VODITELJI

Vera Gradišnik, vera.gradisnik@riteh.hr (University of Rijeka, Croatia), Irena Jurdana (University of Rijeka, Croatia), Duško Čakara (University of Rijeka, Croatia)

INVITED LECTURE · POZVANO PREDAVANJE

Domenico Caputo (University of Rome „La Sapienza“, Italy)
Thin Film Technology Meets Lab-on-Chip System

PAPERS · RADOVI

1. V. Gradišnik (Faculty of Engineering, Rijeka, Croatia)
Analysis of a-Si:H p-i-n Photodiode Detection of HeLa Cells Luminescence
2. D. Giubertoni, G. Paternoster, F. Acerbi (Center for Materials and Microsystems, Bruno Kessler Institute, Trento, Italy), X. Borrísé (Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain), A. Cian, A. Filippi, A. Gola (Center for Materials and Microsystems, Bruno Kessler Institute, Trento, Italy), A. Guerrero, F. Perez Murano (Institute of Microelectronics of Barcelona IMB-CNM, Spain), F. Romanato (Department of Physics and Astronomy “G. Galilei”, University of Padua, Italy), E. Scattolo, P. Bellutti (Center for Materials and Microsystems, Bruno Kessler Institute, Trento, Italy)
Plasmonic Enhanced Photodetectors for Near Infra-red Light Detection
3. G. Pathak (University of Rijeka, Centre for Micro and Nano Sciences and Technologies, Rijeka, Croatia), D. Čakara (University of Rijeka, Department of Biotechnology, Rijeka, Croatia)
Variable Angle Spectroscopic Ellipsometry Study of Poly(3,4-ethylenedioxythiophene):Polystyrene Sulfonate Thin Films in Contact with Air
4. M. Karuza, D. Božičević (University of Rijeka, Department of Physics, Croatia), G. Cantatore (University of Trieste, Department of Physics, Italy), M. Vretenar (University of Twente, Enschede, Netherlands)
Radiation Pressure Sensor
5. Z. Djinovic (ACMIT GmbH, Wiener Neustadt, Austria), M. Tomic (Institute of Technical Sciences of SASA, Belgrade, Serbia), R. Pavelka (ENT specialist, Wiener Neustadt, Austria), G. Sprinzl (University Hospital St. Pölten, Austria), H. Traxler (Medical University of Vienna, Centre for Anatomy and Cell Biology, Austria)
Measurement of the Human Cadaver Ossicle Vibration Amplitude by Fiber-Optic Interferometry
6. A. Škrobonja, I. Jurdana, I. Panić (Faculty of Maritime Studies, Rijeka, Croatia), N. Wakabayashi (Graduate School of Maritime Sciences, Kobe, Japan)
Marine Fiber Optic and Spinning Mass Gyrocompasses

**DewCom****DEW COMPUTING
ROSA RAČUNARSTVO**

EN

30.09.20. 17⁰⁰-19⁰⁰**Hall · Dvorana Camelia 2, Grand Hotel Adriatic****CO-ORGANIZER · SUORGANIZATOR****IEEE Computer Society Dew Computing Special Technical Community (STC)****CO-CHAIRS · SUVODITELJI**

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PAPERS · RADOVI

1. G.A. Oparin, V.G. Bogdanova, A.A. Pashinin (Matrosov Institute for System Dynamics and Control Theory of SB RAS, Irkutsk, Russia)
Microservice Approach to the Qualitative Study of Attractors of Binary Dynamic Systems Based on the Boolean Constraint Method
2. M. Gusev (Faculty of Computer Science and Engineering, Skopje, North Macedonia)
Impact of Dew Computing on Cyber-Physical Systems and IoT
3. K. Skala, Z. Šojat (Ruđer Bošković Institute, Zagreb, Croatia)
The Rainbow through the Lens of Dew
4. Y. Wang (School of Mathematical and Computational Sciences, Charlottetown, Canada)
A Disaster-Resilient Messaging Protocol Based on Dew Computing
5. C. Chukwuocha, R.K. Thulasiram, P. Thulasiraman (University of Manitoba, Department of Computer Science, Winnipeg, Canada), Y. Wang (University of Prince Edward Island, Charlottetown, Canada)
Ensuring Resource Availability with MRU/FRU Caching: A Dew-Blockcloud Model
6. R.N.A. Sosu (Ghana Technology University College, Accra, Ghana), C.N. Babu (M.S Ramaiah University of Applied Sciences, Bangalore, India), S.A. Frimpong (School of Computer Science and Communication Engineering, Zhenjiang, China), John Essuman (Ghana Technology University College, Accra, Ghana)
The Relevance of Blockchain with Dew Computing: a Review

An Open Forum discussion on the IEEE DewCom STC program to launch various development and collaborative program and project initiatives will be a part of this special session

07. LIFELONG EDUCATION – TUTORIALS

CJELOŽIVOTNO OBRAZOVANJE – SEMINARI

HEP

INFORMATION AND COMMUNICATION TECHNOLOGY IN THE ELECTRIC POWER SECTOR
INFORMACIJSKA I KOMUNIKACIJSKA TEHNOLOGIJA U ELEKTROPRIVREDNOJ DJELATNOSTI

HR

29.09.20. 09³⁰-12³⁰ 15³⁰-19⁰⁰

Hall · **Dvorana** Camelia 2, Grand Hotel Adriatic

CHAIRS · VODITELJI

Vitomir Komen, vitomir.komen@hep.hr (HEP-ODS d.o.o., Rijeka, Hrvatska), **Ivan Periša** (HEP-ODS d.o.o., Zagreb, Hrvatska), **Renato Čučić** (HEP-ODS d.o.o., Zagreb, Hrvatska)

THEMATIC FRAMEWORK · TEMATSKI OKVIR

- napredne tehnologije, spremnici energije, mikromreže, fleksibilna trošila, energetska
- učinkovitost
- informacijska integracija elektroprivredne organizacije
- informacijska i komunikacijska tehnologija (ICT) u vođenju elektroenergetskog sustava
- IP tehnologija i informacijski sustavi u elektroprivredi
- komunikacije u sustavima upravljanja
- nova rješenja i standardi za SCADA, EMS, DTS i DMS programske sustave
- sekundarni sustavi u elektroenergetskim objektima
- sigurnost sustava procesne informatike
- sustavi namijenjeni vođenju tržišta električne energije

**IRP****IMPLEMENTATION OF REGULATORY POLICY**
IMPLEMENTACIJA REGULATORNE POLITIKE**HR****28.09.20. 09³⁰-13⁰⁰ 15⁰⁰-17⁰⁰****Hall · Dvorana Camelia 1, Grand Hotel Adriatic****CHAIR · VODITELJ****Dubravko Sabolić**, dubravko.sabolic@hops.hr (HOPS d.o.o., Zagreb, Hrvatska)**ABOUT TUTORIAL · O SEMINARU****Autorica seminara:** Iva Širić (HEP-Operator distribucijskog sustava d.o.o., Zagreb)

Seminar je namijenjen prvenstveno polaznicima iz poduzeća i ustanova zahvaćenih procesima deregulacije sektora elektroenergetike. Osposobljenost radnika kompanija koje su zahvaćene reformama za rad u novim okolnostima u velikoj mjeri ovisi o dosadašnjem trajanju i uspjehu same reforme sektora.

Ovogodišnji seminar fokusirat će se na operatore prijenosnog i distribucijskog sustava, čije se poslovanje rapidno mijenja pod utjecajem sve složenijeg regulatornog okruženja Europske unije i Hrvatske. Pritom se ne radi samo o statusno-organizacijskim promjenama, koje su u razdoblju tzv. „Trećeg paketa“ energetske propisa zahvatile u najvećoj mjeri operatore prijenosnih sustava, već je ovaj puta riječ o procesima koji su posljedica velikih promjena u cjelokupnoj elektroenergetskoj industriji, potaknutih snažnim političkim i razvojnim tendencijama ka rapidnom ozelenjivanju proizvodnog dijela sustava. Jedan dio ukupnosti javnih politika odnosi se na ubrzanu integraciju europskih tržišta energije, kao i pomoćnih usluga i rezervnih kapaciteta, kako bi se ti resursi koristili čim efikasnije, što opet dovodi do velikog angažmana na strani operatora prijenosnih sustava. S druge strane, teže se ka ostvarivanju sustava s distribuiranom proizvodnjom i posljedično uvođenje novih agenata, gdje praktički svako kućanstvo može postati aktivan sudionik tržišta, umjesto da bude, kao do sad, samo pasivni potrošač, kao i poslovnih modela, stavlja operatore distribucijskih sustava pred velike izazove u razdoblju koje je pred nama.

Kao i ranijih godina, za obradu gore navedenih tema angažirat ćemo najeminentnije stručnjake te kreirati radnu i kolegijalnu atmosferu koja će uroditi zanimljivim diskusijama i suprotstavljanjima stručnih mišljenja. Razmjerno manji format ovog seminara potiče slobodu raspravljanja i razmjene mišljenja, zbog koje na njemu tradicionalno nikad nije dosadno.

LECTURES · PREDAVANJA

1. Dora Mešić, Ivan Periša (HEP-Operator distribucijskog sustava d.o.o., Zagreb)
Napredne distribucijske mreže – digitalizacija i platformizacija
2. Antun Andrić, Zora Luburić, Ana Horvat Sedlić (Hrvatski operator prijenosnog sustava d.o.o., Zagreb)
Projekti PICASSO i MARI – zajedničko korištenje regulacijskih rezervi
3. Iva Širić (HEP-Operator distribucijskog sustava d.o.o., Zagreb)
Priključenje kupaca s vlastitom potrošnjom
4. Antun Andrić, Zora Luburić, Ana Horvat Sedlić (Hrvatski operator prijenosnog sustava d.o.o., Zagreb)
Razvoj tržišta kapaciteta u EU-u

08. GUEST EVENT GOSTUJUĆI DOGAĐAJ



HAKOM

HAKOM's Electronic Communications Market Day
HAKOM-ov dan tržišta elektroničkih komunikacija

30.09.20. 16⁰⁰-19⁰⁰

Congress Hall · Kongresna dvorana, Grand Hotel Adriatic

Organizatori: MIPRO i HAKOM

Kontakt osoba: Ana Katalinić Mucalo, ana.katalinic@hakom.hr (HAKOM)

Voditelj: Ana Katalinić Mucalo, (HAKOM)

Moderator: HAKOM

Uvodničari: HAKOM, predstavnici operatora, tijela javne uprave i industrije

Tema i cilj okruglog stola: "Dan tržišta", u organizaciji Hrvatske regulatorne agencije za mrežne djelatnosti (HAKOM), događaj je koji već nekoliko godina okuplja predstavnike dionika tržišta elektroničkih komunikacija, poštanskih usluga i željezničkih usluga, kao i tijela državne uprave, gospodarstva i medija. Na ovogodišnjem skupu bit će predstavljene najvažnije aktivnosti na tržištu elektroničkih komunikacija u budućem razdoblju. Cilj ovog događanja je potaknuti otvorenu raspravu o nekim od najatraktivnijih tema, a u središtu će biti sljedeće teme:

1. Spremnost RH za 5G?

Sudionici: predstavnici operatora, OIV, MMPI, MGIPU, HEP, predstavnik JLS-ova, HAKOM

2. Veleprodajni uvjeti pristupa novoizgrađenim mrežama

Sudionici: predstavnici operatora, predstavnici JLS-ova, HAKOM

3. Transparentnost uvjeta korištenja javnih komunikacijskih usluga

Sudionici: predstavnici operatora, predstavnici udruga potrošača, HAKOM.

Kroz format debate i niza kratkih pitanja, sudionici će imati priliku iznijeti svoja stajališta, viđenja i očekivanja vezana za uvođenje i regulaciju najnaprednijih tehnologija koje nas očekuje kao logičan korak u daljnjem razvoju gigabitnog društva.

The panel will be held in Croatian.

09. EXHIBITION

IZLOŽBA



Exhibition of equipment, services, technical and technological solutions
Izložba opreme, usluga i tehničko-tehnoloških rješenja

1 UDRUGA INOVATORA HRVATSKE Zagreb

- Predstavljanje Udruge inovatora Hrvatske

2 PRACE - Partnership for Advanced Computing Europe

- High-Performance Computing (HPC) in Europe: Cooperation Possibilities and Access to Europe's HPC Research Infrastructure,
- User Support for Science and Industry, SHAPE programme for SMEs,
- Training & Education Opportunities (Training Centres, International HPC Summer School, Summer of HPC, Online Learning/MOOCs), PRACE Ada Lovelace Award for HPC,
- Promotional material: EHPCSW and PRACEdays conference series, PRACE Digest magazine.

3 MJERNE TEHNOLOGIJE d.o.o. Zagreb

- Mjerni instrumenti i rješenja renomiranih proizvođača:
Keysight Technologies, EXFO, TEMS, ETS-Lindgren, Ixia, VeEX, CUBRO, Sumitomo, Softing, ELEKTRONIKA, TraceSpan, albedo

4 BABEG Carinthian Agency for Investment Promotion and Public Shareholding Klagenfurt

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5 IEEE

- Promotivni materijal

6 UMKI Rijeka

- Kisha – Smart Umbrella

7 ROHDE & SCHWARZ ÖSTERREICH, Predstavništvo Ljubljana

- Mjerni instrumenti



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Regionalni razvoj
Zdravstvo

Razvoj pametne javne uprave
Digitalizacija poduzeća i "Smart Industry"
Kružno gospodarstvo i regionalni razvoj
Digitalni servisi i interoperabilnost
Primjena umjetne inteligencije u upravljačkim procesima

Strategija digitalne transformacije
Strategije pametnoga grada / županije
BPM za agilne sustave
Platforma za digitalizaciju procesa i dokumentacije (eGOP)
e-Račun & e-Plaćanje
Sustav planiranja i izvršavanja nabave SPIN@

e-Inspektor x4x Platforma ESIP e-GOP e-BAP SPIN@ Oracle E-Business Suite DEP GDPR

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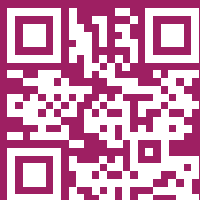
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- 1 Grand hotel Adriatic
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- 3 Smart Selection Hotel Istra
- 4 Tourist Information Centre
- 5 Maiden with a seagull
- 6 St. James Church and Park
- 7 Villa Angiolina - Croatian Museum of Tourism
- 8 Arts Pavilion Juraj Šporer
- 9 Swiss House

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