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Facultatea de Electronică, Telecomunicaţii şi Tehnologia Informaţiei

Novice Insights in Electronics and Telecommunications. SSET 2018

Student Symposium *on Electronics and Telecommunications*

SIMPOZIONUL STUDENȚESC DE ELECTRONICĂ ȘI TELECOMUNICAȚII

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OSUT Luptăm pentru studenți

Novice Insights in Electronics and Telecommunications. SSET 2018

Student Symposium *on Electronics and Telecommunications*

Simpozionul Studenţesc de Electronică şi Telecomunicaţii

Cluj-Napoca,

Mai 2018

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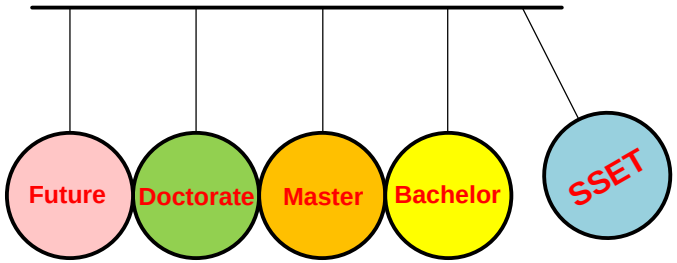
UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA

Facultatea de Electronică, Telecomunicaţii şi Tehnologia Informaţiei

SSET Simpozionul Studenţesc de Electronică şi Telecomunicaţii



Student* Symposium *on Electronics and Telecommunications

Simpozionul Studenţesc de Electronică şi Telecomunicaţii

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Simpozionul Studenţesc de Electronică şi Telecomunicaţii

Facultatea de Electronică, Telecomunicaţii şi Tehnologia Informaţiei
https://etti.utcluj.ro/
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Strada George Barițiu nr. 26-28, 400027

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Welcome SSET 2018

The Faculty of Electronics, Telecommunications and Information Technology has established a tradition, by organizing the Student Symposium on Electronics and Telecommunications (SSET), whose 14th edition is held on the 18th of May 2018.

The symposium aims to stimulate the creativity and originality of our students, providing them with a formal framework for presenting their most important achievements and results. It is also an excellent opportunity for students to practice and improve their presentation and communication abilities in front of a well-informed audience, as well as to promote their abilities and knowledge acquired during the years of study.

With every edition, this event strengthens the many existing links and generates new connections between the academic and the industrial environment, given the large number of representative companies that have become partners in the symposium.

Bringing together students, faculty, and representatives of the industry in such a high-quality professional environment is a key step in improving the quality of the educational process.

This scientific event is a complementary activity, besides the main didactic and research activities, directly contributing to the successful accomplishment of the mission of our faculty: "To contribute by advanced research to the knowledge development in electronics, telecommunications and information technology, as well as to train specialists able to develop, design, implement, and exploit electronics and telecommunications systems, with applications in the most various industrial, research, and domestic areas".

The high quality of the symposium cannot be achieved without the active involvement of the organizers: the SSET committee, as well as our industry partners, have made this event possible, and my thanks go out to them. I would also like to thank the faculty teaching staff who have encouraged the students to compete in this event and coordinated their scientific endeavors.

Good luck to all the students participating in the symposium!

Professor, Ph.D. ***Gabriel OLTEAN***
DEAN of the ETTI, UTCN

Student* Symposium *on Electronics and Telecommunications

Faculty of Electronics, Telecommunications and Information Technology
https://etti.utcluj.ro/
Technical University of Cluj-Napoca,
26-28 George Bariţiu st. , 400027

Previous Edition (SSET 2017)

SSET 2017 Sponsors

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IET STUDENT Session Committee

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Professor Mircea VAIDA, PhD
Professor Radu ARSINTE, PhD
Associate Professor Doris CSIPKES, PhD
Associate Professor Liviu VIMAN, PhD

MASTER/DOCTOR and IM STUDENT Session Committee

Chairman: **Professor Romulus TEREBEȘ, PhD**

Professor Corneliu RUSU, PhD
Associate Professor Marius NEAG, PhD
Associate Professor Cristian FĂRCAȘ, PhD
Associate Professor Raul MĂLUȚAN, PhD

SSET 2017 Winners

IET Student (Student în domeniul Inginerie Electronică și Telecomunicații)

1st Prize	**Călin ARDELEAN**	***Electrochemical Impedance Spectrometer – Design, Implementation and Applications***	**Prof. Dorin PETREUȘ, PhD**
2nd Prize	**Anca-Elena SALOMIA**	***Asistarea persoanelor cu deficiențe de auz în învățarea regulilor de circulație folosind realitate augmentată***	**Assist. Aurelia CIUPE, PhD, Assist.Prof. Șerban MEZA, PhD**
3rd Prize	**Alexandru VOINA, Cristian CODĂU**	***Implementation of an SDR-based IEEE 802.11 redundant access network using NI USRP RIO***	**Horia HEDEȘIU, Assoc.Prof. Emanuel PUSCHIȚĂ, PhD**
Honorable mention 1	**Cosmin CIUCIU, Daniel BĂRBUȚĂ, Sebastian SĂSĂUJAN**	***Mașină Autonomă cu Senzori Ultrasonici și Arduino***	**Assist.Prof. Emilia ȘIPOS, PhD**
Honorable mention 2	**Cristina GHEORGHE, Marian IURIAN**	***Management of Cloud-Based Networks with APIC-EM in Cisco DevNet***	**PhD stud. Eduard LUCHIAN, Assist. Iustin IVANCIU, PhD, Prof. Virgil DOBROTĂ, PhD**
Honorable mention 3	**Alecsandra RUSU**	***LPG Fiber Fabrication and Sensitivity Measurements***	**Assist.Prof. Lorant SZOLGA, PhD**

IM Student (Student în domeniul Inginerie și Management)

1st Prize	**Cătălin PETRUȚI**	***O soluție de monitorizare în cloud bazată pe ntopng***	**Assist. Iustin IVANCIU, PhD Prof. Virgil DOBROTĂ, PhD**
2nd Prize	**Adrian IAKKEL**	***A Raspberry PI-Based Asterisk Deployment***	**Assist. Iustin IVANCIU, PhD Prof. Virgil DOBROTĂ, PhD**
3rd Prize	**Dănuț VĂSC**	***Understanding Augmented Reality with the Game of Battleship***	**Assist.Prof. Șerban MEZA, PhD**
Honorable mention 1	**Evelyn SZAKACS**	***Recruiting System based on Machine Learning Algorithms***	**Assoc.Prof. Anca APĂTEAN, PhD**
Honorable mention 2	**Marian MANTA**	***Remote Controlled Robotic Hand with Arduino and Xbee***	**Assoc.Prof. Alin GRAMA, PhD**
Honorable mention 3	**Bogdan PUIU**	***Network Monitoring with Icinga 2 on RaspberryPi 3 A***	**Assist. Iustin IVANCIU, PhD Prof. Virgil DOBROTĂ, PhD**

Master/Doctor IET (Masterand/Doctorand în domeniul Inginerie Electronică și Telecomunicații)

1st Prize	**Roxana BUHUȘ**	***Linear Predictive Cepstral Coefficients in Wildlife Detection Systems***	**Prof. Corneliu RUSU, PhD**
2nd Prize	**Oana CHEȚA**	***Implementation of an Electric Mini-Car Controlled with Arduino Board and a Bluetooth Module***	**Prof. Ovidiu POP, PhD**

Volunteer Students

Moldovan Silviu (Ist year, Master)
Amarandei Alexandru (IVth year, EA engl)
Cîrstea Vlad (IVth year, EA engl)
Stefan Staicu (IIIrd year, IEDEEE)
Gavrilescu Radu (IIIrd year, EA ro)
Gherghel Alexandru (IInd year, engl)

SSET 2017 Organizers

Prof. Gabriel OLTEAN
Assoc.Prof. Nicolae CRIȘAN
Assoc.Prof. Anca APĂTEAN
Assist.Prof. Ionuț CIOCAN
Admin. Angela RUSU

ETTI Programe Licenţă (Bachelor Programs)

Electronică Aplicată,	https://etti.utcluj.ro/Fd/articles/EaFd.html
Electronică Aplicată (limba engleză),	https://etti.utcluj.ro/Fd/articles/EaEngFd.html
Tehnologii şi Sisteme de Telecomunicaţii,	https://etti.utcluj.ro/Fd/articles/TstFd.html
Tehnologii şi Sisteme de Telecomunicaţii (limba engleză),	https://etti.utcluj.ro/Fd/articles/TstEngFd.html
Inginerie Economică în Domeniul Electric, Electronic şi Energetic,	https://etti.utcluj.ro/Fd/articles/IEcon.html

ETTI Programe Master (Master Programs)

Circuite şi sisteme integrate,	http://www.bel.utcluj.ro/master_csi/index.php?lang=r
Inginerie electronica,,	https://etti-master.utcluj.ro/index.php/programe-de-studiu/#ie
Prelucrarea semnalelor şi imaginilor (în limba franceză),	https://etti-master.utcluj.ro/index.php/programe-de-studiu/#psi
Sisteme integrate de comunicaţii cu aplicaţii speciale,	https://etti-master.utcluj.ro/index.php/programe-de-studiu/#sicas
Tehnologii multimedia,	https://etti-master.utcluj.ro/index.php/programe-de-studiu/#tm
Tehnologii, sisteme şi aplicaţii pentru eActivităţi,	https://etti-master.utcluj.ro/index.php/programe-de-studiu/#eact
Telecomunicaţii,	https://etti-master.utcluj.ro/index.php/programe-de-studiu/#tc

ETTI Programe Doctorat (PhD Programs)

Misiunea şi obiectivele programului de studii doctorale ETTI

Programul de studii universitare de doctorat organizat de ETTI se adresează absolvenţilor de master, în principal a celor din domeniile electronică, telecomunicaţii sau tehnologii informaţionale. Misiunea programului este de a dezvolta competenţe în domeniul de specializare la cel mai înalt nivel ştiinţific, de a dezvolta abilităţi de analiză, sinteză şi rezolvare a unor probleme critice în cercetare şi inovare, de a contribui la dobândirea autonomiei în inovare şi la desăvârşirea integrităţii profesionale. Aparte de acestea, sunt dezvoltate competenţe transversale, precum comunicare scrisă şi orală, interrelaţionare şi lucrul în echipă, managementul proiectelor, drepuri de proprietate intelectuală, antreprenoriat economic, tehnologic şi social.

Programul de doctorat are o dominantă componentă de cercetare personalizată, participare în contracte de cercetare ştiinţifică în cadrul centrelor si laboratoarelor de cercetare din facultate, participarea în stagii de mobilitate la partenerii academici din străinătate, sprijin în activităţile didactice cu studenţii la licenţă, publicarea rezultatelor ştiinţifice în reviste de specialitate, participarea cu lucrări la conferinţe internaţionale.

Realizarea cu succes a stagiului de pregătire doctorală conduce la obţinerea diplomei şi a titlului ştiinţific de doctor inginer, cel mai înalt nivel de pregătire universitară. Pe baza expertizei dobândite, cresc şansele unei cariere profesionale de succes în domeniul de specializare urmat: electronică, telecomunicaţii şi tehnologii informaţionale.

Principalele informaţii utile

Informaţii utile se găsesc pe site-ul programului de studii doctorale în electronică, telecomunicaţii şi tehnologii informaţionale **https://etti.utcluj.ro/scoala-doctorala.html.**

Modul de desfăşurare

Programul studiilor universitare de doctorat este finanţat de la buget pentru un stagiu de 3 ani şi conduce la acumularea a 120 de credite ECTS. Acest stagiu poate fi prelungit, conform regulamentului şcolii doctorale. Finalitatea activităţilor de cercetare din cadrul programului de studii doctorale este producerea de cunoştinţe ştiinţifice originale, relevante la nivel internaţional si concretizate prin publicarea de articole la conferinţe sau în reviste. Primele 6 luni ale programului doctoral sunt dedicate programului de pregătire universitară avansată. Acest program presupune studiul a 4 discipline stabilite de comun acord cu conducătorul de doctorat şi alese opţional din planul de învăţământ al programului. După această perioadă, se definitivează tema de cercetare şi se elaborează proiectul de cercetare ştiinţifică. Activităţile şi rezultatele ştiinţifice rezultate din acest proiect sunt prezentate semestrial, sub forma a 4 referate, spre avizare conducătorului de doctorat şi membrilor din comisia de îndrumare. Programul de studii de doctorat se finalizează cu susţinerea tezei de doctorat şi obţinerea titlului de *doctor inginer*.

Baza materială şi resurse umane

Baza materială pentru desfăşurarea programului de studii de doctorat este susţinută de centrele, laboratoarele şi grupurile de cercetare acreditate din facultate. Aceasta constă în echipamente hardware şi produse software necesare implementării experimentelor, precum şi din literatura de specialitate. Facultatea a încheiat acorduri de colaborare şi de partneriat cu firme active în domeniu şi cu centre de cercetare din străinătate. De asemenea, există acorduri de desfăşurare a stagiilor de doctorat în co-tutelă: UTCN – universitate din străinătate.

Resursele financiare sunt asigurate din burse de doctorat, din contracte de cercetare sau din granturi oferite prin competiţie.

Principalele direcţii de cercetare în ETTI

În cadrul facultăţii există o serie de direcţii de cercetare, care sunt sintetizate după cum urmează: **● Analiza şi sinteza circuitelor electronice ● Microelectronica - circuite analogice şi digitale VLSI ● Tehnici moderne de prelucrare a semnalelor ● Optoelectronică şi comunicaţii optice ● Comunicaţii unificate în Internet ● Procesarea imaginilor şi secvenţelor video ● Recunoaşterea automată a vorbirii şi sinteza din text a vorbirii ● Prelucrarea şi securitatea datelor ● Software pentru electronică şi telecomunicaţii ● Radiocomunicaţii celulare şi prin satelit ● Sisteme electronice de putere ● Sisteme electronice de monitorizare şi control ● Energii regenerabile ● Senzori şi sisteme de achiziţie a datelor.**

Motivaţii pentru a urma un program de *studii doctorale*

Motivaţiile sunt de obicei de natură personală, astfel încât facultatea încurajează orice absolvent de master să reflecteze asupra şanselor de dezvoltare în continuare a carierei profesionale prin intermediul unui program de doctorat ETTI. La modul general, existenţa uneia din motivaţiile următoare este compatibilă cu urmarea unui program de studii de doctorat:

- dorinţa de dezvoltare a competenţelor profesionale la un înalt nivel de expertiză
- existenţa unor aptitudini pentru cercetare şi dezvoltarea de noi soluţii tehnice
- existenţa unor aptitudini pentru lucrul în echipă şi disponibilitatea la colaborare
- existenţa unui plan propriu de dezvoltare a carieriei profesionale în domeniul ETTI.
- dorinţa de a activa în cercetare, în mediul academic sau dezvoltarea unei afaceri
- existenţa unor idei proprii privind o posibilă temă de cercetare la doctorat.

Admiterea

Concursul de admitere se face pe baza regulamentului UTCN, în sesiunea din luna septembrie a fiecărui an, pe baza numărului de locuri alocate. De obicei, acest nr. este limitat (o medie de 15-20 locuri/ an). Se recomandă candidaţilor să ia legatura din timp cu unul din conducătorii de doctorat din facultate pentru a verifica disponibilitatea locurilor şi pentru a agrea asupra unei viitoare teme de cercetare pentru teza de doctorat. De asemenea, se încurajează colaborarea cu firmele în vederea realizării unor programe de cercetare aliniate la cerinţele ce vin din mediul economic.

Steelcase

At Steelcase, we help leading organizations, educational institutions and healthcare organizations to:

- create "destinations" that can improve engagement, enhance wellbeing and foster innovation.
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- work in places that deliver greater connection, empathy and wellbeing for everyone involved in the experience of health.

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- 260 employees today
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IT Department in Cluj provides global services for all major business teams in Steelcase.
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  (3 months, 6 h/day)
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  - Infrastructure team
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  - Product Graphics Analyst VDM
  - SAP team
  - Service Desk Americas
  - Asset Management Specialist
  - Service Desk EMEA – EN+FR
  - Sales Tools Technical Analyst
- Full time:
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  - Supervisor IT Service Delivery
  - Tableau Developer & Analyst

If this inspires you, we invite you to send your CV at: clujcareers@steelcase.com

Steelcase

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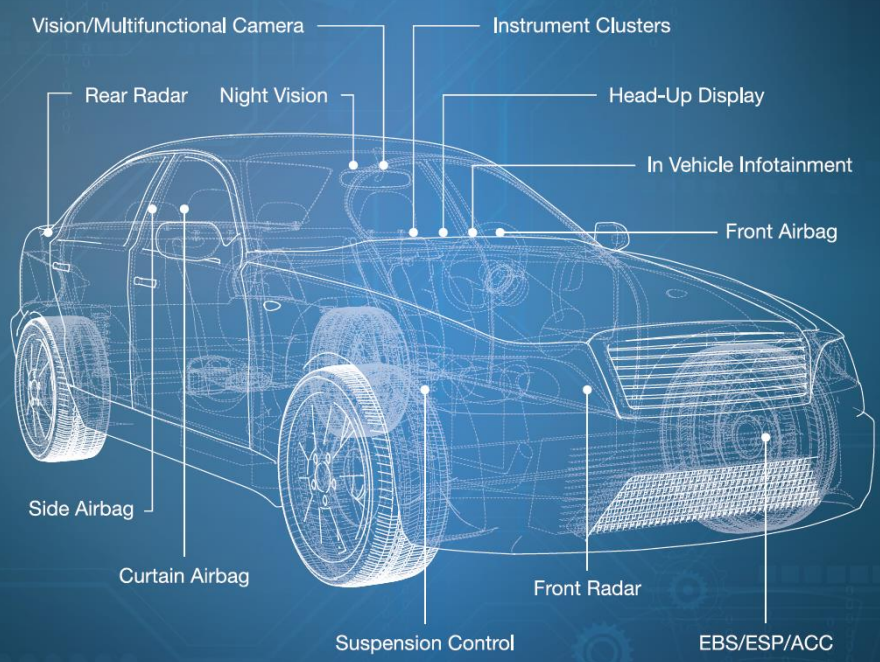

NTT DATA

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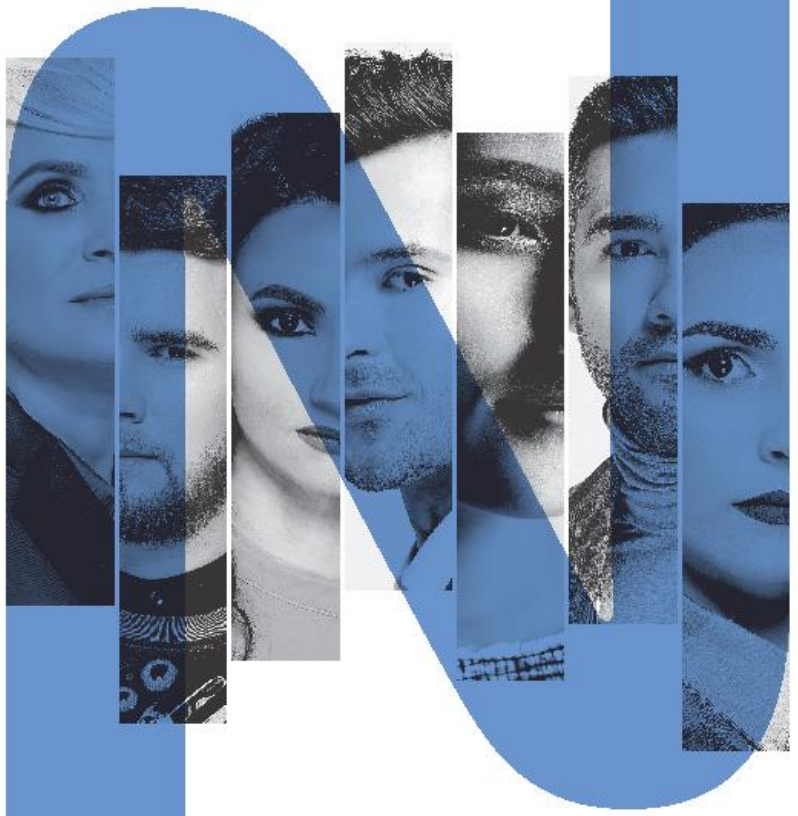
NTT DATA



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The foundation of our culture is honesty, integrity, and respect for associates, customers, and business partners. Each associate is fully committed to serving customers and fellow associates through outstanding performance and accomplishing what we say we will do.

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Garmin is a great place to start your career. It's also the place where you can take your knowledge to the next level. Our internships provide opportunities to develop skills and get hands-on experience working alongside some of the best minds from our 5 business segments — fitness, outdoor, marine, aviation and automotive. And because it's a place where effort and best performance matters, our latest employees are our latest interns.



Garmin Academy is an innovative project and it's designed to be adaptive and modular. Bringing a different perspective on sharing knowledge and mentoring others, this project is a perfect opportunity for people to grow and develop their skills. It's addressed to students, recent grads or just passionate people who are willing to learn from our professionals.

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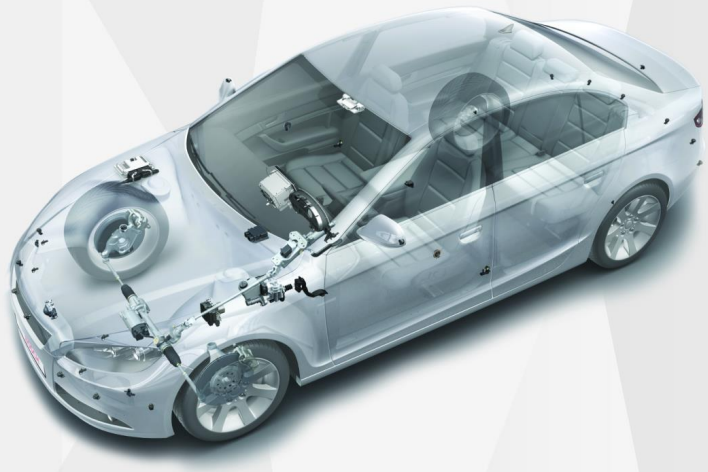

From innovative assistance systems for more safety and comfort, to partly and highly automated functions that make driving much easier, to fully automated driving - little by little, Bosch is paving the way toward the self-driving car.

Did you know that we contribute to the future of mobility right here in Cluj?

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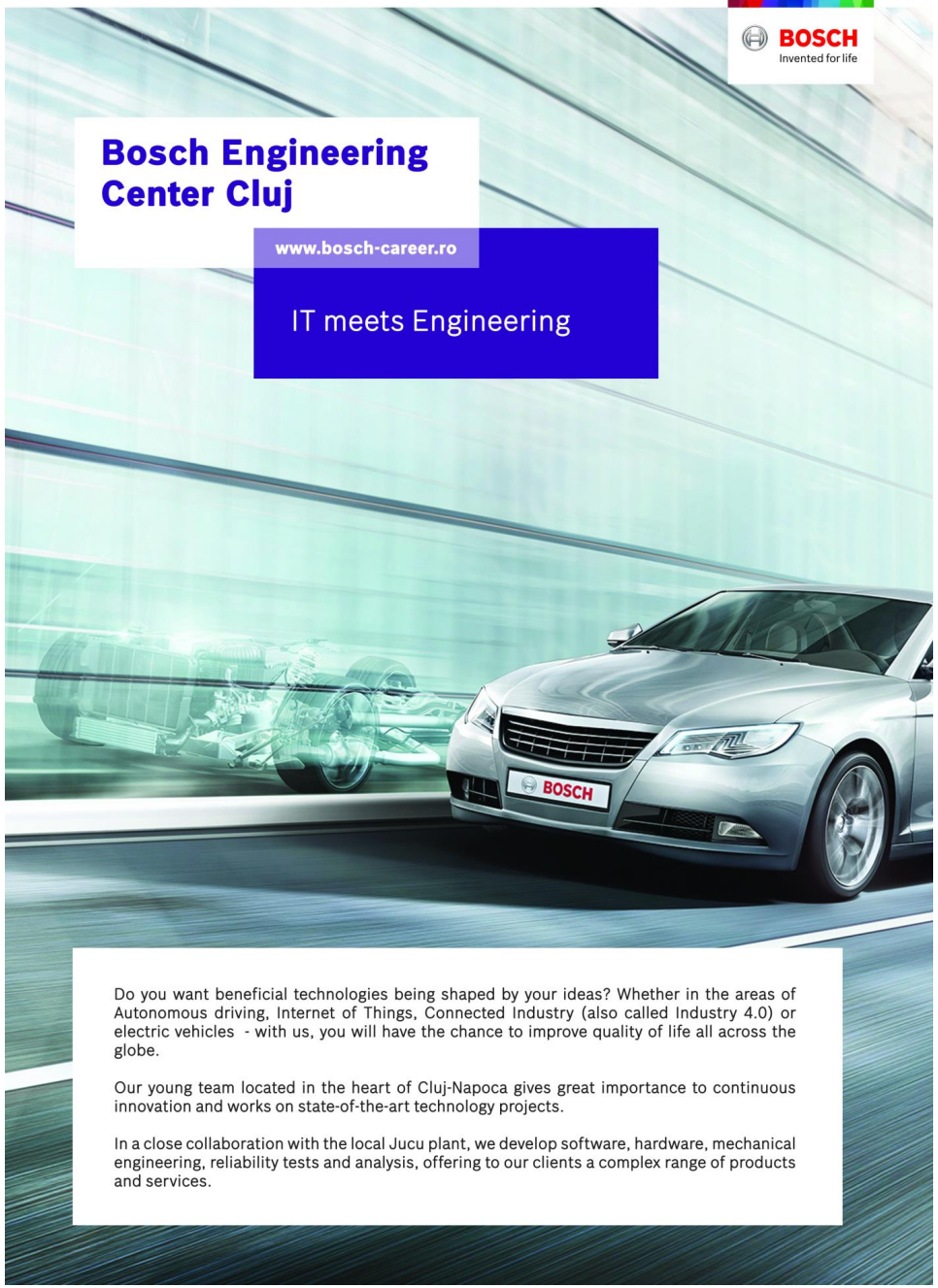
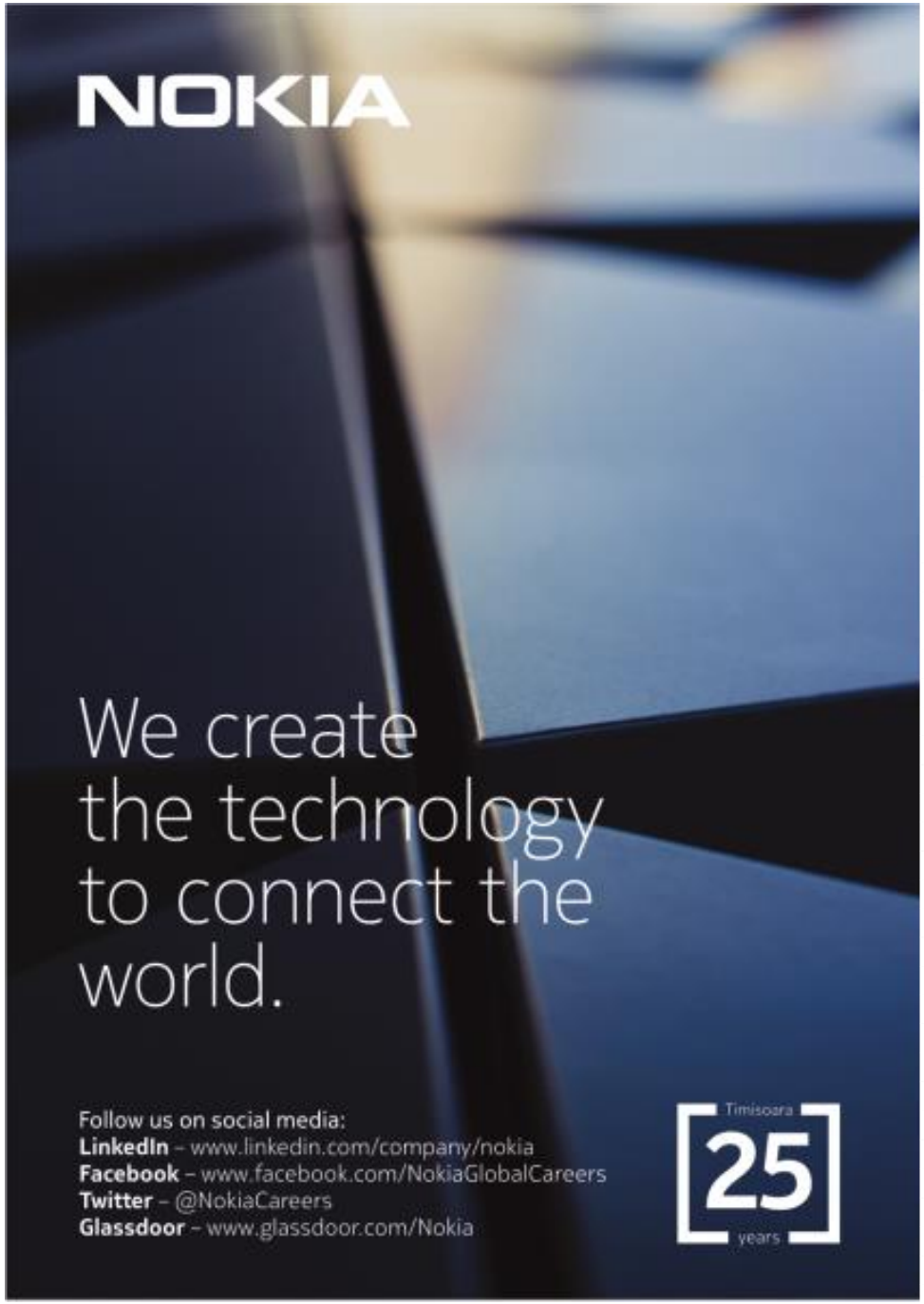
IT meets Engineering



Do you want beneficial technologies being shaped by your ideas? Whether in the areas of Autonomous driving, Internet of Things, Connected Industry (also called Industry 4.0) or electric vehicles - with us, you will have the chance to improve quality of life all across the globe.

Our young team located in the heart of Cluj-Napoca gives great importance to continuous innovation and works on state-of-the-art technology projects.

In a close collaboration with the local Jucu plant, we develop software, hardware, mechanical engineering, reliability tests and analysis, offering to our clients a complex range of products and services.



Nokia is a global leader in the technologies that connect people and things. Powered by the innovation of Bell Labs and Nokia Technologies, the company is at the forefront of creating and licensing the technologies that are increasingly at the heart of our connected lives. Nokia Romania is a strong presence on the global map of telecommunications, with more than 1600 employees, being the biggest telecom R&D center in Romania. Here, at Nokia, we innovate the future of wireless technologies through our contribution to 5G. We create the next generation of software defined networks, virtualized network functions, predictive analytics and we manage over 250 000 network elements worldwide.

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Email your cv at:
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- .NET Developer (Middle)
- System Test Engineer (Middle)
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pentru tehnologie

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În fiecare proiect pe care îl livrăm ne-am propus să inovăm, să oferim calitate și să ne consolidăm ca echipă. Dezvoltăm soluții software în industrii precum: Automotive, Travel & Hospitality, Life Sciences, IoT, Enterprise Applications. AROBS susține creativitatea și tinerii cu spirit întreprinzător.

Ne implicăm activ în comunitate și suntem alături de cei care își propun să schimbe lumea prin puterea exemplului și cu ajutorul tehnologiei. Suntem convinși că flexibilitatea ne ajută să fim mai eficienți, așa că îmbinăm armonios munca și distracția.

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Challenge your theoretical background in a hands on internship experience in the automotive area!

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Internship positions are also available all year around if you would like to combine you studies with the practical side.

For students outside Sibiu we offer free accomodation during summer.

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Apart from the salary, technical students working at Continental Sibiu can benefit from a 500 RON monthly sholarship.

The only condition is to continue with us after graduation with a period equal with the one for which the scholarship was offered.

**Summer Interns can apply for this scholarship after summer, if they decide to continue working in the company even on a part time basis.*

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Symposium

SSET2018 Sections

Section 1 - ORAL Presentations: Bachelor Student – IET / IM

Dedicated to papers from *IET* and *IM* domains, with Bachelor authors;
Assume:
– each paper students to make a presentation ppt or pptx in ENGLISH;
– each presentation lasts **15 min** (10 min oral presentation + 5 min questions/debates) in ENGLISH or ROMANIAN;

Section 2 - POSTER Presentations: Bachelor Student – IET / IM

Dedicated to papers from *IET* and *IM* domains, with Bachelor authors;
Assume:
– each paper students to make a SHORT presentation ppt or pptx in ENGLISH, but mainly to make an A2 POSTER in ENGLISH;
– each SHORT presentation lasts **3 min** (3 min oral presentation, with questions/debates at the poster stand) in ENGLISH or ROMANIAN;

Section 3 - ORAL Presentations: Master/Doctor (PhD) Student – IET / IM

Dedicated to papers from *IET* and *IM* domains, with Master and PhD Students;
Assume:
– each paper students to make a presentation ppt or pptx in ENGLISH;
– each presentation lasts **15 min** (10 min oral presentation + 5 min questions/debates) in ENGLISH or ROMANIAN;

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Symposium Program

The event takes place on Friday, 18th of May, according to the below detailed timetable:

Starting Time	Events	Room 41	Room E04	Hall Way (E04)
07:45	Registration	x		
08:00	Opening Speech	x		
08:15	Presentations	x	x	
10:00	Poster View			x
12:45	Partners Presentations	x		
14:00	Award Ceremony	x		
	Closing Word	x		

Presentation Room 41 – Section 1

10:30 – 10:45 C O F F E E B R E A K

Presentation Room E04 – Section 2

Presentation Room E04 – Section 3

SSET 2018 Scientific Committee

Paper Summary

Presentation Room 41 – Section 1

S1-1. "Caching in Named Data Networks: An ndnSIM Approach", Paul-Simion Crecan, Iustin Ivanciu
Abstract—This paper presents the caching property of Named Data Networking, using the ndnSIM simulator. The proposed testbed demonstrates the benefits of caching: bandwidth consumption optimization, congestion reduction and fast fetching for popular content.

S1-2. "GRE Tunneling Made Easy Using Python", Ovidiu Crăciun, Iustin Ivanciu
Abstract—This paper presents a Python script for automating the creation of a GRE tunnel between two hosts in a private cloud environment. The script is intended towards unexperienced users as it fills in most of the data and checks for any errors.

S1-3. "Monitoring and Alerting System using Grafana and Raspberry Pi", Dănuț Văsc, Iustin Ivanciu
Abstract—This paper studies the Grafana open-source monitoring solution integrated with email and SMS alerting. Monitoring data from a local area network is collected using a Raspberry PI and the information is sent to a Graphite server stored in the Amazon Cloud. The solution is cheap, flexible and allows the configuration of different triggers for alerting the administrator.

S1-4. "Maximum Power Point Tracking in solar panels", Sergiu Hodiș
Abstract—The electricity produces by solar panels is starting to win ground over conventional systems. The need for a sustainable source of renewable energy has led to advancements in the photovoltaic industry. The main goal of this paper is to provide more information about the functionality of a photovoltaic system and maximizing the generated power.

S1-5. "Diagnosis in Electric Power Steering Systems using UDS Protocol and Simulated Vehicle Environment", Paul Ivașcu, et al.
Abstract- Electric power steering (EPS) is a power-on-demand system which means that energy is fed only when the car is steered, fact that is leading to better mileage and less CO2 emission. […] The higher complexity of the EPS comes with need of repairability, availability and vehicle protection, reasons for incorporating diagnosis. Unified diagnostic services (UDS) protocol makes possible to connect a computer to the electronic control unit (ECU) for off-board diagnosis and including the EPS system in a simulated car environment, costs and time for development and testing are significant reduced, facts which makes the work of this paper.

S1-6. "Control loops in automotive systems", Ana-Maria Nica, et. al.
Abstract - The electric power steering system is winning ground over the well-known hydraulic power steering system. The need to understand the system and to help the driver in various situations has led to implementation of different control loops. In this paper, the main goal is to integrate control loops in functionalities such as Lane keeping system, Lane departure warning, Cruise Control (constant speed) and create a simulated environment in Unity with the purpose of testing, analyzing the results and achieve new performances for them. This approach creates a fictive version of the functionalities. The results confirmed that control loops are effective and they increase the assistance that the system can provide to the driver.

S1-7. "How Erlang Helps With Live Migration In Cloud", Diana Deac, Virgil Dobrotă
Abstract— This paper explains why Erlang programming language is a viable solution for live migration in the cloud. The envisaged operation refers to the process of moving a running virtual machine VM from a physical equipment to another, without disconnecting the client. The memory, storage and network connectivity of the VM are transferred from the original guest machine to the destination. Live migration allows the cloud to be up and running for the users, regardless of underlying infrastructure failures. The main challenge is making migration non-disruptive.

S1-8. "Network Disaster Recovery: A LISP Approach", Dan-Andrei Margin, Virgil Dobrotă
Abstract— The Internet is in a continuous growth and this represents a constant problem for routing and addressing systems. Even if the number of connected devices in the network increases, a good quality of the system needs to be ensured. In order to improve routing scalability and have the facility of multi-homing, mobility and virtualization, a new concept is ready to be used: Locator ID Separation Protocol (LISP). The main idea behind LISP protocol is that it splits the original IP address into two distinct parts, such as the routing locators (RLOCs) and endpoint identifiers (EIDs). In this way, there will be more flexibility in mobility, because it will be possible to migrate your systems from one network to another with minor changes only regarding RLOC-to-EID mapping. According to this property of LISP protocol, it could be a very useful approach while dealing with network failures. Using LISP, your system environment will be separated from the network backbone and will not be affected in case of failure and moreover, it can be migrated to another network using a correct mapping with the new RLOC.

S1-9."Modified Dijkstra's Algorithm Managed by OpenDaylight Controller", Petru Pleș, Virgil Dobrotă
Abstract— This paper presents the implementation of the Modified Dijkstra's algorithm in software-defined networking, based on OpenDaylight controller. Herein we use the algorithm developed by UC Labs, with a composite metric based on the available transfer rate and the one-way delay for each link. The topology is simulated in Mininet and consists in four Open vSwitches, four hosts and the OpenDaylight. This SDN controller uses OpenFlow 1.3 protocol to modify whenever is needed the flow tables of each node within forwarding plane. It acts according to the results provided by the every second run of the given algorithm. The procedure is seamlessly made, avoiding the flows being interrupted.

S1-10."Security the most purpose of chat application", Eduard Diaconu
Abstract- This application reflects a strongly vision about the security of online messaging. It's important to know how can protect the online data and maintain the efficiency of application. This article describes how can use the Argon2 algorithm to encrypt the user data. The purpose of application is to increase the security for online chat messaging.

S1-11."A Way to Detect Indoor Sound Events", Toma Telembici, Lăcrimioara Grama
Abstract—In this paper we study the problem of context awareness based on acoustic analysis for a service robot. As features we proposed the liftering Mel frequency cepstral coefficients, while for classification the k-Nearest Neighbour, using different number of features, various filtering methods prior classification, different metrics, voting procedures and weighting methods.

S1-12."Thermal Imaging Camera Using a Low Noise High Speed Far Infrared Sensor", Cezar Chirilă, Lorant Andras Szolga
Abstract—This paper describes a product developed by the authors, a thermal imaging camera using a low noise high speed far infrared sensor from Melaxis, MLX90621, and integrating it into an embedded solution alongside a microcontroller from STMicroelectronics with an ARM processor, a 1.8" TFT liquid crystal display and various other peripherals, all powered from a Li-Po battery whose voltage is regulated using a buck-boost converter. The main application of this device is inspecting assembled PCBs for thermal faults, although it can be used for other purposes such as non-contact temperature measurements, automotive thermal comfort system, intrusion detection and many more.

S1-13."Smart House", Rareș Andrei Fediuc
Abstract- Smart house domain is more and more popular in our days. It is a trendy way of home automation and energy saving. Smart houses are intelligent environments that interacts and responds to the needs of the user. The technology may be used for monitoring, executing actions, monitoring, entertainment. The paper presents how to connect all the devices to create a automation process and we will discuss the technologies impact with pro and contra examples.

S1-14."MedA - Medical assistant chatbot", Rareș-Ștefan Florea
Abstract - Artificial Intelligence (AI) is used nowadays in a broad spectrum of domains, medicine being one of them. This paper proposes to describe an application of AI, as a new concept of communication. The name of it is chatbot. It was created in order to help people interconnect easier and better with the medical staff of the hospital as an alternative to the classical phone call or email. The advantage is the ability to bypass the communication with the administrative staff of the hospitals, which most of the times had an inadequate attitude or behavior towards the patients, and allowing the patients to connect directly with the doctors.

S1-15. "Emotionally Intelligent Cognitive Assistant for Empiric Knowledge Evaluation", Bianca Fechete
Abstract — This paper outlines the impact of educational software applications on children, and defines a framework for improving their knowledge and communication skills. It shows how a bot can be configured and implemented into a software application. Also it shows how the use of such application increases the children's familiarity with the world. The author presents the development model of a bot who uses the main services from IBM Watson platform, conversation, text-to-speech, speech-to-text and tone analyze for a precise analysis of children emotions.

S1-16."Assistive Technology for Office Ergonomics", Adriana Lacatîș
Together with Intel RealSense, Unity provides the samples from which the complexity can be increased.

S1-17. "Coordinative navigation in a fire emergency simulation", Ioana Paula Stroe
Abstract— This work's main purpose is to show that individuals learn better and faster when they work together in a coordinative manner rather than learning by themselves by using an application designed to simulate an escape room in a fire simulation.

Presentation Room E04 – Section 2

S2-1. "V/F Control of Three Phase Induction Motor", Mihai Rusu
Abstract—This paperwork presents one way to control a Three Phase Induction Motor, namely the V/F control. Induction motors with squirrel cage rotors are the workhorse of industry because of their low cost and rugged construction. When Squirrel cage induction machine is operated directly from the line voltages, an induction motor is operated at constant speed. However in the industry it is required to vary that speed. This can be done by induction motor drives.

S2-2."Indirect Vector Control of Three-phase Induction Motor", Ciprian Farcaș
Abstract— In this paper work is proposed to implement an intelligent controller for speed control of an squirrel cage induction motor using Indirect Field Orientation Vector Control method. The indirect vector control of induction motor drive involve decoupling of the stator current in to torque and flux producing components. The comparative performance of Proportional integral (PI) control and Park Transformation techniques have been presented and analyzed in this paper work.

S2-3. "Maximum Power Point Tracking Algorithm", Mădălina Gorgan, Cosmin Muntea
Abstract— This paper presents the importance of increasing the efficiency of the MPPT - Maximum Power Point Tracking - algorithm in photovoltaic systems, being the principal low cost method used in increasing the efficiency of the system. To achieve the goal are presented three main algorithms: Perturb and Observe, Incremental and Fuzzy algorithm with their implementation in Simulink.

S2-4. "Setting Virtual End Stops for an Electrical Power Steering System Through XCP", Daniel Lupăescu, et. al
Abstract — Since the 1980s, electronics came along that improved the functions of the vehicle and made driving easier. […] Now there are ECUs with more than 10,000 parameters. In the development, testing and validation of such a module which may control many dynamic processes, a usual task is the optimization of control algorithms during runtime. For an optimal calibration, parameter values are modified during the system runtime while simultaneously acquiring measured signals. For this purpose, XCP has become a standard protocol.

S2-5. "Home Watch System using RFID sensors on Arduino", Adriana Neamțu, Nicolae Crișan
Abstract—This project implements a home watch system based on the Arduino Uno board. This platform is small, and it is designed to replace all wire sensors with RF sensors. The enrollment of the sensors it is easier, and the eventual relocation of them avoids any modifications of the environment.

S2-6. "Proximity Sensor for People with Visual Disabilities", Diana Alungulesei, Nicolae Crișan
Abstract—A radar is an object detection system which uses electromagnetic waves to determine the range, altitude, and direction of objects. When ultrasonic waves are used instead of electromagnetic waves, then it is called an ultrasonic radar. Ultrasonic transducers are used to convert electrical waves into sound waves and vice versa. The main purpose of this project is to create an ultrasonic radar that is efficient, cheaper and useful for people who cannot see, and therefore they need the white cane for safe mobility, obstacle avoidance and to prevent accidents from occurring.

S2-7. "Smart System for Incubating Eggs", Anamaria Oara, Lorant Andras Szolga
Abstract— Egg incubation is a complex process that requires accuracy and precision in monitoring the essential factors that have direct influence on the embryonic development process. The key factors in the incubation process are temperature, humidity, ventilation and egg turning. Hence, the work presented here involves the design of an intelligent automated incubator system with a LCD display, a stepper motor that ensures the eggs turning and a GSM module that inform the farmer about the status of incubator. The entire system is capable of continuously monitor and maintain the operating temperature (370C) and a humidity (55%-66%) using a feedback control system.

S2-8. "Smart Global Positioning System", Ana Maria Neamțu, Robert Groza
Abstract—The purpose of this project is to create a low-power intelligent locating device to meet as many needs as possible. For this purpose, the approach in implementing this project is as follows: for localization we will include the GPS tracking module, which receives the satellite signal, an accelerometer for motion detection and for the decision-making side we will use an Arduino Uno module.

S2-9. "Performance evaluation of a PV array based on solar irradiance data gathered in Cluj-Napoca", Andreea-Cristina Ghinea, Mirabela Clarisa Filip
Abstract—Due to electric vehicles and new emerging technologies the power demand in the world is reaching new peaks. A good alternative for producing energy in other ways than using fossil fuels is to use PV arrays reducing in this way the pollution. The efficiency of PV panels is determined by several factors worth mentioning the irradiance and temperature in conduction with the orientation of the PV array. In this paper the influence of irradiance on PV panels efficiency is highlighted for a PV array installed in Cluj-Napoca. The irradiance data is provided by a pyranometer and the PV power by a solar inverter through Modbus protocol. The year 2017 is used for the analysis but the results and real-time gathered data can be used in future developments for predictive energy management algorithms.

Presentation Room E04 – Section 3

S3-1. "Data Acquisition System for Photovoltaic Panels", Vlad Voicu, Radu Etz, Dorin Petreuș
Abstract — A software-based solution is presented in this paper for acquiring metrics from photovoltaic panels. Solar radiation and temperature are the two metrics captured with the help of a pyranometer. These are collected in a time series database and then displayed using dashboards via a web browser. The results of the acquisition are available for later use.

S3-2. "Histograms and Supervised Learning for Facial Recognition Applications", Roxana Buhus, L.Grama, C. Serbu
Abstract— This research presents the obtained results for an improved version of a facial recognition application based on incremental supervised learning and histograms. We have done a performance analyses, using a free profiling tool to detect the most consuming parts of the application and applied some improvements based on the results provided by the tool. The applied improvements to our application increased the detection time and kept the high results for the recognition accuracy, achieving extremely high recognition rate in several scenarios.

S3-3. "Real time video-based car tracking for smart parking monitoring", Endre Sandy
Abstract— This paper presents a possible solution to the concept smart parking monitoring. The system wants to cover a outdoor parking style with existing surveillance cameras for area monitoring. The main goals of such a system is to monitor real time location of a free parking spaces, generate availability statistics parking space in depending on the occupancy grades, detection, localization and tracking of objects and generating abnormal events alerts. Using video stream to manage parking spaces brings a plus versus the use of other types sensors, and can incorporate the intelligent surveillance component parking. The applied methods for global motion detection were chosen from the specific areas of image processing such as frame-level foreground extraction, image segmentation and motion gradient calculation.

S3-4. "Design and implementation of a portable and low-power ECG monitoring system", Lucia-Maria Neamțu
Abstract—In order to help patients, this research is based on hardware implementation and design of an ECG data acquisition (recording, storing, filtering) and monitoring system. The purpose of ECG signal monitoring is provided by a portable and low-cost ECG system using a memory card and a laptop. There is a need for an interface with the microcontroller in order to transmit the ECG acquired signal from a dedicated instrumentation amplifier. ECG data transmission on the memory card via the serial interface is another important factor which contributes to the correct acquisition of the biomedical signal.