



Electrical Engineering CUI Lahore Campus.

Newsletter

January 2018 - June 2018



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Achievements



Award for best branch counselor and WIE student branch

- IEEE-CIIT Student Branch Lahore Section won the following two awards among the thirty IEEE Students Branches of IEEE Lahore Section at Lahore Section Annual General Meeting (AGM) held on Tuesday, 30th January, 2018:

Award for Best Branch Counselor:

Received by Dr. Sobia Baig, Associate Professor, Counselor IEEE CIIT Students Branch

Award for Best WIE Student Branch:

Received by Ms. Bakhtawar, Chair person IEEE-CIIT Women in Engineering (WIE)

- The IEEE CIIT Lahore Section attended the IEEE Annual Branch Meetup and training session of Student Activities Committee (SAC) on Saturday, 3rd March, 2018 at University of Central Punjab (UCP), Lahore. Wherein IEEE-CIIT-WIE Branch nominated for the best IEEE-WIE Branch award.



Best Ambassador

- Students of IEEE and IET CIIT Lahore Branches attended the **PiON'18** (PIEAS National Olympiad 2018) on Friday-Sunday, 6th to 8th April, 2018 at Pakistan Institute of Engineering and Applied Sciences (PIEAS) Islamabad. Team of CIIT Lahore won first prize in remote-controlled car and Mr. Najaf Ali was declared as the best ambassador by PiON'18 management.





PES 2018 Congress Travel Grant


The IEEE Power & Energy Society (PES) has long recognized that ***“Today’s Students are Tomorrow’s Leaders”***. Hence, PES regards students as very important members of this Society and they support PES Student Branch Chapters. Chair IEEE COMSATS Students branch, Mr. Muhammad Irtaza has been selected for the 3rd IEEE PES 2018 Congress Travel Grant. He will travel to Brazil to represent PES Chapter of IEEE COMSATS Branch. He has been awarded a Travel Grant of Travel & Accommodation (\$1400) and Registration (\$200) by IEEE Region 10.

Establishment of Industrial Application Society(IAS) Chapter

IEEE COMSATS Students Branch's petition submitted to IEEE Headquarters for establishment of an Industrial Application Society (IAS) Chapter has been successfully accepted. Dr. Athar Hanif, Assistant Professor (EE) will head the IAS Chapter, under the IEEE COMSATS University Islamabad Students Branch, Lahore campus, with Branch Counselor Dr. Sobia Baig, Associate Professor (EE).

Research Visit to SEECS NUST Islamabad

Mr Ahmad Mudassir Assistant Professor went to School of Electrical Engineering and Computer Science SEECS NUST Islamabad for collaborative research in February 2018 for a period of 3 months. He worked with Dr Syed Ali Hassan and his team at Information Processing and Transmission Laboratory. His area of research was “Efficient radio resource allocation in 5G resilient Networks using Game theoretic approach”.





Praxis P18

- Fi-Tekk
- VR Gaming
- PaintBall 5.0
- Tic Tag run 2.0
- Spelling Bee 4.0
- Techno Hunt 8.0
- WordsWorth 2.0
- Laser Tech
- Techno Hunt 8.0
- Quiz of Thrones
- Minute To Win It
- Finger Painting 4.0
- Wie Rathon 3.0



2nd - 4th April

IET-CIIT LAHORE:

Dilawar Ali : 0323-8405963
Ahmed Fizan : 0313-4495592

IEEE-CIIT LAHORE:

M.Irtaza : 0324-4243146
M.Khizar : 0315-5595445

Event Convener
Syed Junaid Akhtar

This year IEEE CIIT Lahore and IEEE WIE CIIT Lahore conducted a three day festival named IEEE Praxis, from 2nd – 4th April, 2018. The festival included twelve colorful competitions whose main aim was to test the participant’s application of knowledge, physical strength, spontaneous skill and aesthetics. These events greatly helped the participants to enhance their skills, their strength and their ability of working in groups.

The event was inaugurated by Director CUI, Dr. Qaiser Abbas. This gaming competition was divided into different categories which are Fi-Tekk, Paint Ball, Tic Tag run, Spelling Bee, Words Worth, Laser Tech, Techno Hunt, Quiz of Thrones, Minute To Win It, Finger Painting, VR gaming, and WIE Rathon. Students and faculty from different departments participated in these competitions.





Workshops & Seminars

Seminars/Workshops Attended

1. Dr. Saleem Akhtar, HoD-EE attended a two days workshop on **"5th Strategic Development Workshop"** arranged by Faculty Development Academy (FDA) at CIIT Lahore Campus on 30th to 31st January, 2018.

The following faculty members of EE Department attended a three days training on **"Workshop on Blue-chip Teaching"** arranged by Faculty Development Academy (FDA) at CIIT Lahore Campus on 29th to 31st January, 2018:-

Dr. Muhammad Farooq-i-Azam, Assistant Professor
Mr. Abdul Moeed Amjad, Lecturer
Mr. Modassir Ishfaq, Lecturer
Mr. Hassan Aslam, Lecturer
Mr. Assad Ali, Lecturer
Mr. Moazzam Ali Sahi, Lecturer

2. Dr. Sobia Baig, Associate Professor attended the IEEE National Workshop on **Smart Grid-2018** on Tuesday, 10th April, 2018 at Garrison University, Lahore to deliver a talk on Smart Grid.

3. Dr. Saleem Akhtar, HoD-EE long-with senior faculty members attended the training workshop on **"Energy Efficiency And Conservation Measures In Punjab"** on Tuesday-Wednesday, 10th to 11th April, 2018 organized by Energy Research Centre, CIIT, Lahore in collaboration with Punjab Energy Efficiency and Conservation Authority (PEECA), Punjab Energy Department, Lahore.

4. EE Department nominated the PhD faculty members to attend the Opening Ceremony of **"2nd International Conference on Energy Systems for Sustainable Development (ESSD 2018)"** to be held on Wednesday, 21st February, 2017.

5. Dr. Sobia Baig, Associate Professor delivered a session on **"Volunteerism"** as guest speaker on 3rd May, 2018 at University of South Asia organized by IEEE Student Branch, IEEE Industry Application Society, IEEE Robotics & Automation Society and ACM Student Chapter.

6. Dr. Saleem Akhtar, HoD-EE attended one-day seminar on **"Horizon 2020"** on Monday, 7th May, 2018 at Serena Hotel, Islamabad.



Seminars/Workshops Organized

1. The Collaboration and Outreach Committee of EE Department conducted a technical talk on **“Power Plants & Power Regime Philosophy”** on Wednesday, 28th February, 2018.
2. The Collaboration and Outreach Committee conducted an information session on placement opportunities at DGS for student of undergraduate programs delivered by Mr. Wayne Braganza, Marketing & Brand Manager, Ibex on Thursday, 5th April, 2018. A souvenir shield was also presented to the guest speaker by the worthy Director, CIIT Lahore.
3. A Motivational Seminar held on Friday, 27th April, 2018 by IET CIIT Lahore Student Branch. **Ms. Mahrukh Raza**, Project Manager, Akkas Technologies (Pvt.) Ltd. delivered the lecture.
4. The Continuing Professional Development (CPD) Committee of EE Department conducted one-day seminar on Tuesday, 8th May, 2018. Wherein a lecture on **“Electric Machine Control Design for Hybrid Electric Vehicles”** delivered by Dr. Athar Hanif, Assistant Professor (EE Department). The Faculty/Students of COM-SATS University and other Institutes attended the seminar. Certificates were also issued to the participants containing 0.5 CPD points for Engineers. In this context, a comprehensive report was also submitted to the concerned quarter.



World Telecommunication and Information Society Day

Department of Electrical Engineering at COMSATS University (CUI) Lahore, in collaboration with its IEEE COMSATS Lahore Branch and Pakistan Engineering Council (PEC), celebrated World Telecommunication and Information Society Day (WTISD) 2018 on Tuesday, 15th May, 2018. The audience included participants from academia (Students, researchers and faculty members) and professionals from leading organizations of Information and Communication Technology (ICT) sector of Pakistan.

Distinguished speakers from national and international organizations delivered insightful talks on the opportunities and challenges of ICT sector in Pakistan. The day started with a keynote on **“Enabling Positive Use of Artificial Intelligence for All”** by Dr. Wajahat Mehmood Qazi (Assistant Professor CUI) followed by an online session by Professor Dr. Syed Ismail Shah (Ex-Chairman, Pakistan Telecommunication Authority - PTA) who is now serving in International Telecommunication Union - ITU (Indonesia Office). He highlighted the ICT development and its future in Pakistan. Mr. Zargham Sherazi, Director, PTCL Lahore Office reflected the business prospects in telecommunication industry of Pakistan. Talks by Mr. Adeel Haider (Punjab Information Technology Board - PITB) and Mr. Usman Muhammad Ali, Institute of Electrical and Electronics Engineering (IEEE) Lahore Section were focused on career counseling of graduating students. Two more talks on the latest topics in ICT, cloud computing and power line communication, were delivered by Mr. Sabir Mustafa (Expert Service Delivery at Amazon) and Mr. Aftab Quraishi (National Transmission and Dispatch Company –WAPDA) concluding the event. Shields and certificates were distributed to all speakers and guests at the end of the event.

At this occasion, Chairperson IEEE Lahore Section Prof. Dr. Amjad Husain, Counselor IEEE COMSATS Lahore Branch Dr. Sobia Baig (Senior Member IEEE) and Event Organizer Mr. Zaid Ahmad during their interaction with media highlighted the importance and role of ICT for sustainable development in Pakistan and worldwide. The Continuing Professional Development (CPD) Committee of EE Department issued certificates to the participants containing 1.0 CPD points for attendees and 1.5 CPD points for organizer and instructors.



CPD on Electric Machine Control Design For Hybrid Electric Vehicle

The Continuing Professional Development (CPD) Committee of EE Department conducted one-day seminar on Tuesday, 8th May, 2018. Wherein a lecture on “**Electric Machine Control Design for Hybrid Electric Vehicles**” delivered by Dr. Athar Hanif, Assistant Professor (EE Department). The Faculty/Students of COMSATS University and other Institutes attended the seminar. Certificates were also issued to the participants containing 0.5 CPD points for Engineers. In this context, a comprehensive report was also submitted to the concerned quarter. Dr Athar Hanif has recently completed his PhD from Capital University Islamabad, while a significant portion of his work was done at Ohio State University USA. Electrical Machine Control Design and Hybrid Vehicles are areas of his special interest. Dr Athar is a full-time faculty of Electrical Engineering Department CIIT Lahore .

In order to achieve fuel efficiency and reduce emissions into the atmosphere, the automobile manufacturers have decided to escalate modern technologies such as Electric Vehicles (EVs) and Hybrid Electric Vehicle (HEVs). Vehicles with electrified powertrain exhibit degraded performance when operated in hot environments. An electric machine is the main component of an electrified powertrain. Among the available electric machines, induction machine has been used for the traction system of EVs and HEVs because of the advantages including reasonable cost, simpler control, enhanced power density and efficiency, consistent operation over wide speed range, elevated initial torque, technological development and universal availability.

In this seminar, the presenter demonstrates a novel control schemes based on linear parameter varying theory for enhancing the performance of an induction machine based electrified powertrain. The designed observer is used to estimate the thermally derated torque and flux of an electric powertrain. This estimation is extremely helpful in controller design for the performance improvement of an electric drive system. Secondly, a robust control scheme is designed and developed to address the torque derating problem. The designed observer-controller pair is used to manage the thermally derated torque of an electrified powertrain. The performance of the proposed linear parameter varying based observer-controller pair is evaluated for a light duty electric vehicle against Federal Urban Driving Schedule (FUDS) operating at various ambient temperatures, which is a common controller evaluation approach adapted by automotive community. Experiments are carried out on an induction machine electric drive, realized by the NI myRIO-1900, using FUDS driving cycle to investigate that the proposed technique is effective and delivers robust performance



Publications

- 1) Baig, Sobia, Muneeb Ahmad, Hafiz Muhammad Asif, Muhammad Naeem Shehzad, and Mujtaba Hussain Jaffery. "Dual PHY Layer for Non-Orthogonal Multiple Access Transceiver in 5G Networks." *IEEE Access* 6 (2018): 3130-3139.
- 2) Khalid, Arslan, and Hafiz M. Asif. "OCDMA and OSTBC based VLC transceiver design using NI cDAQ." *Photonic Network Communications* 35, no. 1 (2018): 97-108.
- 3) Naz, Ayesha, Hafiz M. Asif, Tariq Umer, and Byung-Seo Kim. "Pdoa based indoor positioning using visible light communication." *IEEE Access* 6 (2018): 7557-7564.
- 4) Nadeem, Muhammad, Ali Nawaz Khan, Asim Ali Khan, and Tayyab Azim. "Low profile CPW fed slotted planar inverted cone ultra-wide band antenna for WBAN applications." *Microwave and Optical Technology Letters* 60, no. 4 (2018): 870-876.
- 5) Jaffery, Mujtaba, Sohaib Aslam, Moinuddin Ghauri, M. Shahzad Khuram, Sikandar Rafiq, and Subhan Khan. "Real-time implementation of model predictive control on a 16-bit microcontroller for speed control of a DC motor." *Journal of Engineering Technology* 6, no. 1 (2018): 415-434.
- 6) Ansari, Uzair, Abdulrahman H. Bajodah, and Mirza Tariq Hamayun. "Quadrotor Control Via Robust Generalized Dynamic Inversion and Adaptive Non-Singular Terminal Sliding Mode." *Asian Journal of Control* (2019)
- 7) Rizvi, Syed Tahir Hussain, Mansoor Karim, Muhammad Majid Gulzar, Muhammad Yaqoob Javed, and Muhammad Furqan. "Implementation of electroencephalography controlled prosthetic hand." *International Journal of Systems, Control and Communications* 9, no. 2 (2018): 136-147
- 8) Gulzar, Muhammad Majid, Syed Tahir Hussain Rizvi, Muhammad Yaqoob Javed, Umer Munir, and Haleema Asif. "Multi-Agent Cooperative Control Consensus: A Comparative Review." *Electronics* 7, no. 2 (2018): 22.
- 9) Rahman, Hassan, Muhammad Yaqoob Javed, Yasir Saleem, Qiang Ling, and Muhammad Majid Gulzar. "Cascaded Hybrid Multi-level Inverter for Selective Harmonics Elimination." *Iranian Journal of Science and Technology, Transactions of Electrical Engineering*: 1-14, 2018.
- 10) Saad M. Sheikh, Hamza R. Ali, Haz. M. Asif, Sobia Baig, **Asim A. Khan** (2018), Design of NS3 VLC Module and Performance Analysis of Adhoc Network under VLC and WiFi layers, *International Journal of Communication Systems*, <https://doi.org/10.1002/dac.3764>
- 11) Aamir Razaq, Asim Ali Khan, Unsa Shakir and Asim Arshad (2018), Review: Next Generation Flexible Antennas for Radio Frequency Applications, *Springer Transactions on Electrical and Electronic Materials*, May 18, 2018. DOI:10.1007/s42341-018-0051-7
- 12) Muhammad Nadeem, Ali Nawaz Khan, Asim Ali Khan and Tayyab Azim (April 2018), Low Profile CPW Fed Slotted Planar Inverted Cone Ultra-Wide Band Antenna for WBAN Applications, *Microwave & Optical Technology Letters*, vol. 60, issue 4, pp. 870-876. <https://doi.org/10.1002/mop.31070>
- 13) Zhaoxia Duan, Imran Ghous, Bing Wang, and Jian Shen. "Necessary and Sufficient Stability Criterion and Stabilization for Positive 2D Continuous-Time Systems with Multiple Delays." *Asian Journal of Control (Wiley, IF:1.528), Vol. 21, No. 4, pp. 1-12, July 2019* .
- 14) Subhan Khan, Yiqun Zhu, Muhammad Jawad, M. Umair Safder, Mujtaba Hussain Jaffery, Salman Javid (2018), "Analysis of the satellite navigational data in the Baseband signal processing of Galileo E5 AltBOC signal", *ARCTIC Journal*, pp: 2-17, Vol: 71, Issue: 5, Standard: 0004-0843, Impact Factor: 1.022
- 15) Mudassir A, Akhtar S, Kamel H, Javed A. Intelligent spectral efficiency and energy efficiency enhancement in LTE-Advanced heterogeneous networks. *Transactions on Emerging Telecommunications Technologies*: e3431.
- 15) M Umair Safder, Yaqoob Javed, Subhan Khan, Mujtaba Hussain Jeffery, Arsalan Ashraf, Noman Naeem, "Learning Outcome-Based Teaching of Power Electronics and Electric machines hybrid laboratory using ABAL Method" Accepted in *ARCTIC Journal* 2018

Projects/Fundings

1. The first meeting of the approved project NSF-PSF "Implementation & Testing of Microgrid in Rural Communities with Maximum Penetration of Renewable Energy Resources in Pakistan" was held on Sunday, 13th May, 2018 with Prof. Dr. Guan Lin and her team, at School of Electrical Power Systems Engineering, Southern China University of Technology Guangzhou. Dr Sobia Baig, Associate Professor and the PI attended the meeting online, presented the progress of the project.
2. Chinese counterparts presented their information demands about Pakistan's electrical transmission and distribution system. Moreover, it was also decided that COMSATS team comprising of 3 to 4 members would participate in training in China in summer 2018. The meeting concluded with a resolve to carry out this project for mutual benefit of both countries and to extend collaboration with Southern University China.
3. Dr Mirza Tariq Hamayun has successfully completed the NRPU project entitled " Design and implementation of robust Fault Detection and Augmentation Fault Tolerance scheme for safety critical plants" in May 2018.
4. Dr. Mirza Tariq Hamayun has secured a funding under National grassroot ICT research initiative for the project entitled " An Intelligent, Energy efficient and IOT based Prototype development for local soap Industry" in June 2018.
5. S. Ijaz, M.T.Hamayun and L. Yan entiled "Active Fault Tolerant Control for Vertical Tail Damaged Aircraft with Dissimilar Redundant Actuation System using Integral Sliding Mode Control" is accepted for publication in International Journal of Mechanical Engineering Science.

National Grassroot ICT Research Initiative Approved Projects

S. No	Supervisor Name	FYP Title	Approved Budget Equipment	Approved Budget Miscellaneous	Total Approved Budget
1	Dr. Ali Nawaz Khan	Non-invasive Blood Glucose Detection	Rs. 70,000/-	Rs. 10,000/-	Rs. 80,000/-
2	Dr. Ahmad Saeed	Design of a Networking Enabled LIFI System	Rs. 70,000/-	Rs. 10,000/-	Rs. 80,000/-
3	Dr. Usma Ijaz Bajwa	Route finder For rescue officials in earthquakes	Rs. 40,000/-	-	Rs. 40,000/-
4	Dr.Mirza Tariq	An Intelligent, Energy efficient and IOT based Prototype development for local soap Industry.	Rs. 70,000/-	-	Rs. 70,000/-
5	Dr.Muhammad Naeem shehzad	Quadcopter Based Rapid Response First aid Unit With Live Video Monitoring via VR goggles.	Rs. 70,000/-	Rs. 8,000/-	Rs. 78,000/-
6	Imran Raza	An adaptive decision support system for agriculture and irrigation in Pakistan	Rs. 70,000/-	-	Rs. 70,000/-
7	M Mohsin Mehdi	Limited Campus Automation System pool	Rs. 49,500/-	-	Rs. 49,500/-

NRPU Projects

No. of Projects	Principal Investigator (PI)	Designation	Title of NRPU Project	Co-Principal Investigator (CO-PI)
1	Dr. Sobia Baig	Associate Professor	Development of a Communication System Test Bed for Internet of Things in Smart Grids	Dr. Hafiz Muhammad Asif
2			Development of a Non-Orthogonal Multiple Access (NOMA) based Massive Multiple-Input Multiple-Output (MIMO) Application Framework for 5G	Dr. Hafiz Muhammad Asif
3	Dr. Ali Nawaz Khan	Assistant Professor	Detection of seizures in epileptic patients to avoid sudden deaths through wearable sensors	Dr. Saleem Akhtar
4	Dr. Mirza Tariq Hamayun	Assistant Professor	Real time Implementation of an Adaptive Fault Tolerant and Sensor Fault Reconstruction scheme for medium range Security Monitoring Unmanned Air Vehicle	Mr. Athar Hanif
5	Dr. Asim Ali Khan	Assistant Professor	Low Cost Ground Penetrating Radar System For Under Debris Search And Rescue Operations	Dr. Khurram Ali
6	Dr. Mujtaba H. Jaffery	Assistant Professor	Impact of harmonics on energy efficiency: The way to save energy & maintenance cost in industry	Dr. Saleem Akhtar
7			UPS/INVERTER Analyzer as per IEEE and IEC Standards	Dr. Ejaz A. Ansari
8	Dr. Hafiz Muhammad Asif	Assistant Professor	Design of a NOMA-VLC communication system for networking applications	Dr. Sobia Baig
9	Dr. M. Naeem Shahzad	Assistant Professor	Smart Traffic Control System	Dr. M. Naeem Awais
10	Dr. M. Naeem Awais	Assistant Professor	Memristor-Transistor based Energy and Area Efficient Non-Volatile Memory	Dr. M. Naeem Shahzad
11			Energy and Area Efficient Architecture of Arithmetic and Logic Unit	Dr. Mirza Tariq Hamayun
12	Dr. Khurram Ali	Assistant Professor	A wearable solution for health monitoring and assessment of human body joints using acoustic signals	Dr. Asim Ali Khan
13	Dr. Ikram Ullah Khosa	Assistant Professor	Automatic Vehicle Entry System using bi-level Authentication	Dr. Muhammad Haris Khan
14	Dr. Muhammad Jawad	Assistant Professor	Utility Grid Interactive Hybrid AC-DC MicroGrid	Dr. Kashif Imran
15	Dr. Imran Ghous	Assistant Professor	Analysis and synthesis of 2-D singular nonlinear systems	Dr. Jahanzab Akhtar
16	Dr. Ahmed Saeed	Assistant Professor	Real-Time Implementation of Digital Beamforming for 5g Communication Technologies	Dr. Asim Ali Khan
17	Dr. Muhammad Haris Khan	Assistant Professor	Towards the development of a fully automatic and robust visual tracking framework using deep learning	Dr. Ikram Ullah Khosa
18	Dr. Abbas Javed	Lecturer	Real time air pollution mapping using LoRaWAN and Deep Neural Networks	Dr. Saleem Akhtar

Faculty

NEW FACULTY JOINING



1) Dr. Muhammad Yaqoob Javed

Assistant Professor

Qualification

PhD (Automation and Control)
University of Science and Technology of China, Hefei, China

MS (Computer Engineering)
UET Lahore, Pakistan
BS (Electrical Engineering)



2) Madiha Sultan

Lecturer

Qualification

MS (Electrical Engineering)
CIIT Abbottabad
BS (Electrical Engineering)
UET Peshawar,
Abbottabad Pakistan



3) Saqib Naeem

Lab Engineer

Qualification

BS (Electrical Engineering)
UET Taxila Pakistan



4) Sarmad Hassan

Lab Engineer

Qualification

BS (Electrical Engineering)
IST Islamabad Pakistan



5) Aimen Siddiqui

Lab Engineer

Qualification

MS (Electrical Engineering)
UET Lahore
BS (Electrical Engineering)
UET Lahore Pakistan



6) Abubakar Talha Jalil

Lab Engineer

Qualification

BS (Electrical Engineering)
UET Taxila Pakistan