

# 12<sup>th</sup> ICOSST 2018

19<sup>th</sup> - 21<sup>st</sup> DECEMBER, 2018

LAHORE, PAKISTAN



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## WELCOME NOTE

### VICE CHANCELLOR, UET LAHORE

#### Conference Convener

KICS UET Lahore in technical collaboration with IEEE computer society Lahore section is organizing a conference to invite research and experts from across the world to share their ideas and proficiencies related to the future of open source software in the domain of Blockchain, Virtualization, Big Data, Artificial Intelligence and Automation.

The main objective of this conference is to elevate research in blockchain technologies in the country where researchers will be sharing unique, strategic, technical insights and experiences. Blockchain is to provide decentralized control, enable new business models, and ensure data resiliency which will accelerate its adoption. This is the opportunity for the participants to highlight how and why they are driving force behind this technology. Financial services are extensively open for blockchain adoption, and with investment to exceed \$13.9 billion by 2025, competition will be fierce to disrupt the world and get ahead in the race for blockchain. Even though the practical applications of blockchain have been most felt in transforming the customer experience and for the roboticization of regulatory tasks but blockchain is rapid on its way to augmenting and automating every corner of the industry. I would like to thank participants for bringing their expertise and contributions in deliberations which will help Pakistan's industry future reforms. Enjoy the conference and join world of intelligent opportunities!

### DR. WAQAR MAHMOOD

#### Conference General Chair

This year, the international conference focuses on the open source system and technologies research in the blockchain domain. Al-Khwarizmi Institute of Computer Science has been organizing this conference for last 12 years selecting a theme every year that best represent the biggest challenge as well as the opportunity faced by the open source community. The conference acts as an intellectual interchange among researchers, scientists, engineers and experts. We are living in such a fast-paced ecosystem where start-ups are emerging with exquisite improvements and technologies and break through happening frequently across the range of blockchain and related technologies. The conference focuses on the business as well as the technology and it is designed to provide great learning experience for those engaged in either technology or product marketing. While only at the beginning of what is an entirely transformative journey, a significant number of highly effective blockchain solutions are already becoming available to enterprises across the globe. The international conference on open source systems and technologies is providing a perfect platform for researchers and practitioners to embrace blockchain by developing understanding of its true potential for productivity enhancement, not only at the individual level but also at the enterprise level, making them more efficient in future. We appreciate our collaborators sponsors, exhibitors and supporters without their support we would not been able to meet our objectives. We hope you find international conference on open source system and technologies 2018 a valuable experience!



# ICOSST 2018

## DR. AMIR MEHMOOD

### Conference Co Chair

Open-source software tools have become essential to almost every field of research to foster innovation and growth. The proliferation of Open-source software tools is evident by massive usage of various different applications in desktop computers, mobile devices, embedded systems, and high-end servers. There is a wide variety of systems that employ open-source softwares. For instance, tiny computers such as Raspberry PI and on-board flight computers use open source Linux operating systems for quick development, testing and cost savings.

This year, we are having 12<sup>th</sup> IEEE International Conference on Open Source Softwares and Tools (ICOSST), 2018. The main theme of this year's conference is "Blockchain Technology". Today, Blockchain is the hot research area in the research community. Traditionally, blockchain technology was used in the cryptography and now a days many new applications are exploiting the power of distributed digital ledger for transactions over the network. Bitcoin is one such example that uses blockchain technology for mining cryptocurrency. There are numerous applications in the area of finance, healthcare, and energy that can use blockchain technologies.

ICOSST 2018 is an excellent opportunity for students, researchers, and professionals from the industry to learn about challenges and state-of-the-art solutions in the area of Blockchain. I would like to welcome all our authors, national, and international speakers of the conference and wish they have great time in Lahore.



## DR. SHAHID RAZA

### Conference Technical Chair

On behalf of the Technical Program Committee (TPC), we are pleased to welcome our national and foreign authors, delegates, students, and dignitaries to Lahore Pakistan for the 12<sup>th</sup> International Conference on Open Source Systems and Technologies 2018 (12<sup>th</sup> ICOSST 2018). This year's ICOSST theme is Blockchain Technology, aimed to bring area experts to present and discuss their original scientific contributions. We have received 150 papers, of which 12 papers were accepted after a rigorous review process where each paper is reviewed by at least 120 reviewers. Our thank to all TPC members and reviewers for their support and participation in ICOSST. In addition to the main technical program, ICOSST 2018 also hosts a Blockchain hackathon, Brainiac, and an exhibition. Looking forward to welcome you all in Lahore.



## DR. GHALIB ASADULLAH SHAH

### Conference Technical Co-Chair

Blockchain is an incredible technology that has revolutionized a number of applications which were facing challenges of the centralized operations, privacy, scalability and mutability. The success of crypto currency using this technology has paved ways to unleash its potential in all those applications which involve transactions of valuable assets that needs to be securely tracked and transferred in an efficient way. When the blockchain meets with another emerging technology of Internet of things (IoT), the applications can gain manifold momentum through their marriage and opens a new space of solutions for real-world applications. This will provide secure IoT data transactions, their tracking, devices identification/verification and scalable data storage platform.



# ICOSST 2018

## **WELCOME TO 12TH IEEE INTERNATIONAL CONFERENCE ON OPEN SOURCE SYSTEMS & TECHNOLOGIES 2018 (ICOSST)**

On behalf of the conference staff and the many individuals who have worked tirelessly to make this conference a reality, We are thrilled that you chose to join us here this Conference. This year's conference line-up includes a variety of great breakout sessions and keynotes designed to help you learn more about Blockchain and use of the technology for a better future.

This year, we are excited to be joined by the engineers, researchers, energy experts, IT professionals and manufacturers to meet, discuss, explore and exchange ideas in the fastest growing field. We welcome those attendees who are joining us from International level and hope that you will enjoy your first experience with us!

Thank you for joining us for three days packed with educational sessions, industrial exhibition, student competitions (BRAINIAC), Blockchain Hackathon and inspiring keynote presentations. The conference schedule is full of great sessions relevant to everyone in attendance.

We hope you will enjoy looking at the great lineup of sessions and Industrial Exhibition. This is meant to be a guide, additionally; we have provided information about ICOSST '18 through the conference booklet.

If at any time you need special assistance during the conference, please approach any member of the conference staff, wearing "ICOSST '18 organizer" badge. We will do our best to make this an enjoyable conference experience for you.

Thank you again for joining us! Enjoy the conference!

Sincerely,

Usman Munawar

Conference Secretariat

Al-Khwarizmi Institute of Computer Science(KICS)

University of Engineering and Technology Lahore, Pakistan



# ICOSST 2018

## **12<sup>TH</sup> IEEE INTERNATIONAL CONFERENCE ON OPEN SOURCE SYSTEMS & TECHNOLOGIES 2018**

12<sup>th</sup> IEEE International Conference on Open Source System and Technologies (ICOSST '18) and associated Exhibition and Competition Open Source-Workshop to be held from 19<sup>th</sup>-21<sup>st</sup> December 2018 at Auditorium Complex, University of Engineering and Technologies (UET), Lahore, Pakistan. ICOSST-2018 is technically co-sponsored by IEEE Computer Society Lahore Section, Financially co-sponsored by AL-Khwarizmi Institute of Computer Science (KICS) & IEEE Communication Society and supported by IEEE members and Scholars from Universities around the world. In addition to signature of tracks of ICOSST, the consistent inclusion of relatively newer theme of 'Blockchain Technology highlights the seriousness and business-viability that the wired and mobile community has started to attribute towards Open Source Software (OSS).

The 12<sup>th</sup> IEEE ICOSST-2018 will create a scientific venue where participants can share ideas, strategies, policies, developments and environments for the customized enterprise grade applications, in the IEEE Region R10. The conference is the 12<sup>th</sup> in series which tends to attract a diverse audience of open source researches and practitioners from academia, industries and public administrations. The experts will gather to presents research papers and tutorials addressing the cutting edges open source research and development in various areas of critical importance. **IEEE ISBN 978-1-5386-1658-1**

### **CONFERENCE AIMS AND OBJECTIVES**

The IEEE ICOSST 2018 international conference on Open-source Systems and Technologies on the theme of Block-chain Technologies aims to bring together leading academic scientists, researchers and scholars to exchange and share their experience and research results on all aspects of the said Technology. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends and concerns as well as practical challenges encountered and solutions adopted in the fields of Blockchain Technology.

### **THANK YOU, ALL SPEAKERS**

KICS-UET, Lahore in collaboration with IEEE thanks to all speakers & session chairs who have contributed their significant time and expertise to help creating a dynamic and engaging conference program.

IEEE vision is that everyone has access to the engineering knowledge and resources required to lead a life of opportunity, free from poverty. IEEE educate and empower people through humanitarian engineering.

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## FEEDBACK

Please wait a moment to complete your delegate Feedback via email/KIOSK/Mobile App at the end of the conference. We encourage all the delegates to complete this step to improve the future event.

## EXPOSITION

We encourage all delegates to take to explore the exhibition and chat to exhibitors who represent a range of IT and engineering products suppliers and service providers.

## NAME BADGES

Please wear your name badge throughout the event and return your badge and lanyard to the registration desk for recycling at the end of the event.

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Out of courtesy to speakers and other delegates, please ensure that your mobile phones is switch to silent when in conference sessions. We kindly asked that phone calls are taken in the exhibition hall and not at the back of the session rooms.

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Images captured may be used in future IEEE printed or digital collateral and promotions. Please inform the photographer if you do not wish to be photographed.

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A Conference android app is developed to guide Exhibitors, Presenters and Listener about conference / proceedings. You can download conference app from Google Playstore by entering keyword "ICOSST 2018" or scan the QR code given below.

Also check conference program on Conference Mobile App and Official Conference website.

<http://icosst.kics.edu.pk>



## WIFI

Free wireless internet is available for conference attendees.

SSID: ICOSST 2018

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## BLOCKCHAIN IMPACTS

Being considered by more than half of big corporations, Blockchain is transforming the way of enhancing the technologies implemented in several fields that, how banks are adopting the currency transactions, changing how our medical records are handled, shared ledger technology will soon be the way most business transactions are done. With more than 50% of major corporations planning to transition to blockchain business applications in 2018, opportunities for investors and entrepreneurs are there for the taking.

## BLOCKCHAIN BUSINESS APPLICATIONS

### **BANKING:**

Nevermind that blockchain the backbone of Bitcoin was created to circumvent traditional financial institutions. Or that banks originally opposed cryptocurrency, fearing obsolescence if unregulated currency ever went mainstream. Blockchain, it seems, now has a new friend, and it is none other than the global banking system.

Barclays, Credit Suisse, Canadian Imperial Bank of Commerce, HSBC, MUFG and State Street have joined ranks on the Unity Settlement Coin (USC), a digital currency created by Switzerland's UBS bank in conjunction with UK-based Clearmatics.

Other financial giants, such as Wall Street, are exploring their own blockchains. Which begs the question: Will a universal, worldwide blockchain shared by all financial institution emerge, or will regional systems be created to serve smaller financial sectors? Time will tell, but 2018 is sure to be the year banks try to figure it all out.

### **SMART CONTRACT:**

One of the hottest features of blockchain is its ability to facilitate smart contracts. While the fintech, banking, and legal services industries are already dabbling with automated transactions that execute based on preset conditions, a whole host of other business are clueless that they, too, could benefit from smart contracts. By introducing manufacturing, supply chain management, and other sectors to the concept of smart contracts, developers will reap handsome rewards while helping to reshape those industries. How can smart contracts be useful in these and other non-legal use cases? The answer becomes clear when you consider more closely what smart contracts allow you to do. Since smart contracts are simply blocks of code, they can be incorporated into a variety of software applications. But including them in a blockchain is best way to add security, accountability, and transparency to the process. Smart contracts allow certain digital processes to take place only when certain conditions have been met.

### **SUPPLY CHAIN MANAGEMENT:**

Perhaps no industry can benefit from smart contracts so much as the supply chain industry. Just as with manufacturing, smart contracts automate the moving of materials based on predefined conditions. For example, a smart contract can prevent a transport company from accepting produce from a vendor that has failed to verify that their product was harvested after a certain date. Smart contracts offer nearly complete transparency to the entire supply chain, ensuring the quality, authenticity, and availability of goods.

# ICOSST 2018

## HEALTHCARE

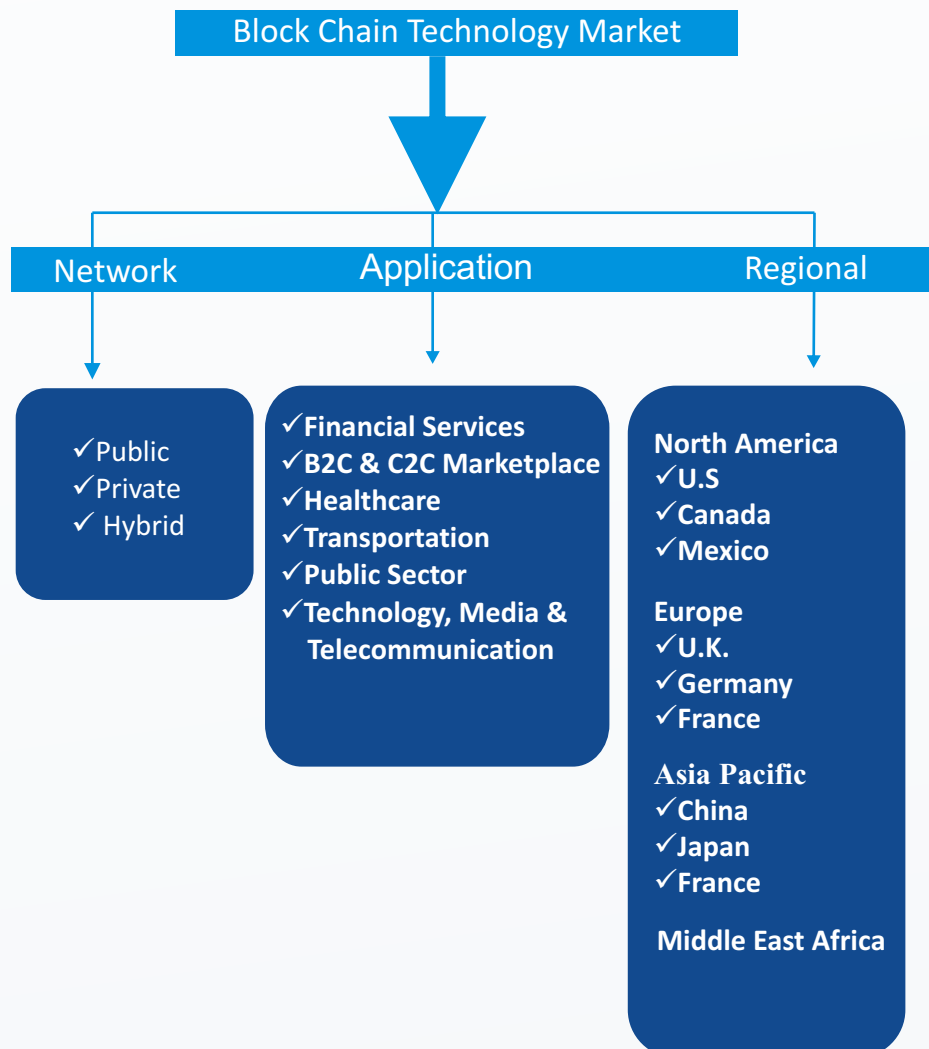
No industry requires more data to be processed daily than the healthcare sector. From patient admittance to recording surgical results, every patient represents a torrent of data that must be kept accurate, accessible, as secure. No technology can satisfy these requirements like blockchain.

## IOT

The growth of IoT technology cannot be over exaggerated. With everything from cars to connected homes hooking up, the market for technologies to support IoT is enormous. With \$6 trillion expected to be invested in IoT during the next five years, an increasing number of tech companies are looking for ways to carve out a share of the market. One of the best opportunities awaits innovators who can make IoT data move more quickly and remain secure using distributed ledger technology.

## BLOCKCHAIN BUSINESS DEVELOPMENT OPPORTUNITIES

Blockchain development will be one of the hottest sectors of software innovation in 2018 and beyond. This conference enable you to network with giants of blockchain industry & government officials



## BLOCKCHAIN TECHNOLOGY CHALLENGES

Blockchain technology is the prodigious innovation in virtual currency. Blockchain has multi-confrontations which hold several limitations. Speedily dominating blockchain networks are Bitcoin and Ethereum, the work and user get increases and now, there are in trouble to deliver swiftly in mega scale. That is why the charge for user get increased with slow service. Dark web and black market get benefits in dealing with and buying illegal material. They use blockchain as a cat's paw for their criminal activates. Ethereum and bitcoin have the distinctive design of network which are not efficient and has many limitations about data transactions that make blockchain slow and heavy in working. Blockchain consumes a lot of energy that is a problematic thing, in current time bitcoin uses 0.2 % electricity globally per year which a country can consume, furthermore, the current trend is going to be estimated that by 2020 Bitcoin network will need more power than that of the entire world.

Bitcoin blockchain is undoubtedly designed for public notice. All information about transaction is available to view anyone. With the allowance of the privacy center of bitcoin, many blockchains are working simultaneously. But privacy needs to improve which is necessary for future security.

Security is While it is rather unlikely to happen to large blockchain networks, blockchains are vulnerable to a 51% attack. This refers to a situation where a miner or a group of miners control more than 50 percent of the mining power .In such a scenario, the miners would be able to control the confirmations of new transactions, especially those by other miners. Moreover, they would be able to reverse the transactions they confirmed and therefore double spend tokens. While the controlling miners would not be able to alter old blocks, this would severely affect the integrity of the token with the affected blockchain and it would need to recover in the public eye. Fortunately, the probability of this attack is reduced as more people participate in the network as miners.

Blockchain is an effective tool to reduce technology costs. It reduces the associated dues with cost transfer and helps improve operational processing. Because it is innovative, it is difficult to integrate with Lucius's system. Such a process may be a matter of fact that many corporations and governments will not be ready to work. Although there is no doubt that the blush technology will pay an essential part in both the public and the private sector, the future is far greater than the trust. The above challenges clarify the need for technical reforms in the current state of Blockchain Technology to hold a large scale for this modern technology.

*(Alexander Lielacher, Ico Alert)*

*(John Rampton, The Economist Executive Navigator)*



**Dr. Shahid Raza (RISE SICS Sweden)**

**Talk Title:** Blockchain and the Internet of Things Gaps

**Abstract:** The future Internet will be an IPv6 network interconnecting traditional computers and a large number of smart objects or networks. This Internet of Things (IoT) will be the foundation of many services and our daily life will depend on its availability and reliable operations. IoT and Blockchain are two of the most hyped technologies. Though both technologies have their own strong spheres, their integration is envisioned as even more fascinating. This is true in many but not in all cases. The overemployment of Blockchain and its meaningless integration in many use cases is counterproductive. In addition to a few IoT-specific use cases (supply chain, healthcare, smart industry, etc.) Blockchain is largely targeted at enhancing IoT cybersecurity and democratic incorporation of IoT devices into ICT ecosystems. This talk will cover the integration of IoT and Blockchain and critically discuss different blockchain technologies targeted for IoT. It will also cover opportunities and research challenges in the IoT and Blockchain domains. A part of this talk will also cover cybersecurity research at the RISE Research Institutes of Sweden.

**Dr. Omair Shafiq ( Carleton University, Canada.)**

**Talk Title:** Role of Data Modeling, Blockchain and Big Data Analytics towards monitoring and management of Big Data Applications

**Abstract:** Data Modeling, Blockchain and Big Data Analytics play a very important role in the monitoring and management of large-scale software applications. In the past, monitoring and management of software applications have always been complex tasks, especially because execution data is logged in software applications in an unstructured and human-readable manner. This makes the process of monitoring and management limited, requires manual interpretation and makes the process of monitoring and management to be slow, cumbersome and hard. This talk will present an overview of our proposed solution of data modeling, blockchain, and big data analytics based techniques to improve monitoring and management processes for emerging large-scale, complex and data-intensive software applications (also known as big data applications).

**Dr. Muzammil Shahbaz (Barclays, United Kingdom)**

**Talk Title:** Blockchain: The information technology of the future

**Abstract:** Blockchain is getting a strong momentum in transforming the modern information technology systems. Cryptocurrencies are merely one application of the blockchain concept. The horizon is endless and virtually all types of transactions of assets can be implemented through blockchain procedures. In this talk, we shall give a brief overlook on the evolution of blockchain in a historical perspective and its current industrial status. We shall also see how the current most successful implementation of blockchain works by illustrating the less-understood concept of proof-of-work, its core ideas and design. Finally, we shall look at problems and possible avenues of research in this domain.

**Dr. Marc Pilkington (University of Burgundy, France)**

**Talk Title:** Blockchain-based smart contracts for shareholder voting

**Abstract:** In this distinguished invited talk, I shed light on the unforeseen potential of blockchain technology for enhanced corporate governance. I briefly review the seminal literature on the firm, and show that blockchain adoption can be conducive to reduced agency costs. Blockchain can also be used for e-shareholder voting purposes (e.g. at the annual general meeting) and for improved representation of small shareholders. More generally, with democratic principles under assault in an increasing number of nations throughout the world, the blockchain revolution foreshadows a new governance paradigm, democracy 3.0, also called liquid democracy that can be transparency enhancing and corruption minimizing. Pakistan and Dubai constitute two notable e-governance pioneers in this respect.

**Dr. Annika Hinze (University of Waikato, New Zealand)**

**Talk Title:** Personal Monitoring to Support Workers in Hazardous Industries

**Abstract:** Wearable personal monitoring devices are increasingly being considered by employers to address worker safety in hazardous environments. Although large-scale laboratory studies show correlations between activity, physiological data and fatigue, there is little evidence that these can be accurately identified using wearable technology in the workplace. IoT technology is promising but its use in rugged outdoor environments is challenged by lack of power, reliable communication and possible interference. Contextual factors are typically missing from data collected by wearable technology; without this information, predictions of risk/fatigue may be misleading or inaccurate. The personal nature of the data collected and its proposed use to monitor workers leads to both ethical and cultural challenges. This talk will introduce our innovative and ethical wearable monitoring approach that explores data that can be reliably captured from workers using wearable technology. Issues of data privacy, reliability, and worker persuasion will be discussed.

**Dr. Zhi Quan Zhou (University of Wollongong, Australia)**

**Talk Title:** Metamorphic Testing: Testing the Untestable

**Abstract:** What if we could know that a program is faulty, even if we could not tell whether its output is correct? This is one of the key strengths of metamorphic testing, a technique where failures are not revealed by checking an individual concrete output, but by checking the relations among the inputs and outputs of multiple executions of the software under test. Two decades after its introduction, metamorphic testing has become a fully-fledged software quality assurance paradigm with successful applications in multiple domains, including search engines, self-driving cars and autonomous drones, compilers, Web APIs, deep learning programs, big data applications, and cybersecurity. This talk will introduce the basic concepts of metamorphic testing with real-world examples. Its potential applications and current limitations will also be explained. The audience will be provided with the basics for the application of the technique in their own projects.

# ICOSST 2018

## **Dr. Taimoor Abbass ( Volvo Cars Sverige, Sweden)**

**Talk Title:** What is the role of V2X communications for C-ITS - current status and future implications?

**Abstract:** Vehicle-to-anything aka V2X communications, is one of the key enablers for future cooperative intelligent transportation systems (C-ITS). The term V2X jointly represents V2Vehicle, V2Infrastructure, V2Pedestrian and V2Network communication links. Although the modern vehicles are equipped with radars, cameras, LiDARs and other on-board sensors to enable driver assistance and safety functionalities. Combining connectivity for cooperative communication on top of the sensor-based vehicle safety system will not only extend the range of these on-board sensors but will certainly enhance their performance too. V2X communication for C-ITS systems offer great benefits not only in terms of achieving fully autonomous driving but it will help to increase the traffic efficiency and safety for all type of vehicles in any road conditions. A number of technologies are under discussion, and being standardized for V2X communications such as LTE based C-V2X, WiFi based IEEE 802.11p, and the next generation cellular systems called 5G, in addition to visible light communications that is excluded on purpose here. In this talk, we will review the current status of these technologies, their implications and open challenges towards future C-ITS.

## **Dr. Hamidah Ibrahim (UPM Malaysia)**

**Talk Title:** Improved genetic algorithm for scheduling divisible data grid application

**Abstract:** Data grid technology promises geographically distributed scientists to access and share physically distributed resources such as computing resources, networks, storages, and most importantly data collections for large scale data intensive problems. In many data grid applications, data can be decomposed into multiple independent sub datasets and distributed for parallel execution and analysis. In this paper, we exploit this property and propose an Improved genetic algorithm (IGA) for scheduling divisible data grid applications. A good heuristic approach used to generate the initial population. Experimental results show that the proposed IGA gives better performance compared to the genetic algorithm (GA).

## **Mudaser Iqbal (Blockchain Expert Solutions, Pakistan)**

**Talk Title:** Best Open Source Platforms for Developing Blockchain Applications

**Abstract:** Since the phenomenal rise in the value of the cryptocurrency Bitcoin, which uses blockchain for accounting, there has been a tremendous interest in blockchain technology. Blockchain is not only anchored in financial use cases but has found its ways in almost every business domain of the modern world. From the supply chain industry to elections and health care, Blockchain is revolutionizing the way businesses interact and is termed as 5th evolution of computing. A blockchain is a data structure that makes it possible to create a digital ledger of data and share it among a network of independent parties. Blockchain has been assumed to cause potential cost saving for banks, health industry, supply chain, and many others. One of the reasons why blockchain enjoys a top position in upcoming technologies depends on its open source nature. Being open source helps the platform to grow exponentially as well as keeps the community up to date. A number of commercial and open source platforms provide the framework for creating applications that support a blockchain. For easy and quick blockchain app development, there are various open source platforms available including Ethereum, Hyperledger, HydraChain, MultiChain etc. which makes development of DApps and other blockchain use cases comparatively easier.

# ICOSST 2018

**Dr. Basit Shafiq (LUMS, Pakistan)**

**Talk Title:** ASSEMBLE: A Service Mapping Approach for Collaborative Business Process Development

**Abstract:** Business Process (BP) development is a challenging task for small and medium organizations who do not have sufficient resources for design, coding, and management of their BPs. Cloud infrastructure and service-oriented middleware can be leveraged for rapid development and deployment of BPs of such organizations. BP development in the cloud-based environment can be done collaboratively by exploiting the knowledge of existing BPs of related organizations. However, syntactic and semantic heterogeneity among the Web service operations of BPs across organizations is a major obstacle to such collaborative BP development. In this talk, I will discuss our proposed approach for collaborative BP development. Our proposed approach, called ASSEMBLE, utilizes the attribute, structural and semantics information of service operations of existing BPs in a given domain to help a user organization to compose its BP. Given a collection of related BPs and available service operations of a user organization, ASSEMBLE computes a mapping between service operations of the user organization and BP operations of other organizations. ASSEMBLE also generates the executable BP code in standard BPEL language, which can be deployed on any process execution engine on the user organization's site or on the cloud.

**Dr. Tariq Mehmood (IBA Karachi, Pakistan)**

**Talk Title:** Autoencoders and LSTM for Multi-Class Anomaly Detection

**Abstract:** Insider Threats and Suspicious Activities are plaguing all important corporate domains. For instance, banking frauds and cyber threats are a major source of concern for both customers and service providers. Many techniques based on machine learning have been used to detect such anomalous or fraudulent activities. In this talk, we will discuss the performance of two deep learning approaches, specifically Autoencoders and Long Short Term Memory (LSTM) for anomaly detection. We focus on multi-class classification of more than 20 classes of anomalies/frauds. We will discuss the results of experiments and draw our conclusions on the positives and caveats of both algorithms.

**Zaid Munir (UCP Pakistan)**

**Talk Title:** Building scalable, secure and robust, production-ready Blockchain applications based on Hyperledger Fabric

**Abstract:** Most foreseeable use cases for Blockchain work at scale and bring with it a set of associated production challenges. In this talk the author would discuss a few particular design decisions taken by some well-known DLT and Blockchain solutions available and try to impress the point why they are inherently meant to work at large scales. Then presenter would briefly discuss some of the important projects incubated under the open source Hyperledger project relevant to prototyping and production. Following this there would be a deep dive into taking a Hyperledger Fabric project to production; this part would cover tools, technologies and the skill set required for moving to a production environment. And how to tackle the challenges of delivering a scalable, secure and robust end product.

**Dr. Omer Rana (Cardiff University, UK)**

**Talk Title: GDPR-compliant Cloud Containers: Blockchains for Cloud Event Tracking**

**Abstract:** The European General Data Protection Regulation (GDPR) came into effect in May 2018, and governs the storage and processing of data that would allow an individual to be recognised when processing personal data. It also focuses on increasing awareness of how user data is subsequently analysed to derive insights (particularly for marketing purposes), and the level of engagement a user should have in this process. A key aim of this regulation is to increase accountability and transparency on how data "controllers" manage personal data. The major beneficiary is the individual, nevertheless GDPR is also applicable to businesses operating in a B2B context. This talk will describe how GDPR impacts data processors, particularly Cloud Service Providers who process personal data on behalf of data controllers. A comparison is provided about monitoring tools being used by current Cloud Service Providers to support GDPR -- such as AlientVault, Sumologic, Data Dog, AWS CloudTrail and Google Stackdriver. A data hosting environment that is able to record events on user data is proposed, enabling the recording of such events in a Blockchain for subsequent verification. We describe performance trade-offs in offering such a hosting environment for user applications.

**Dr. Waqar ul Qunain (PUCIT, Pakistan)**

**Talk Title: Intelligent Transportation Systems**

**Abstract:** Effective means of transportation are fundamental requirement for suitable growth of today's world. Education, health, energy, commerce, in short, every sector, one way or another is connected to the transportation. All modes of transportation are important for modern society, however, the road transportation in urban areas is extremely significant as a huge mass directly engage and get affected by it daily. Effective management of the road transportation is the need of hour, as failing to do so may have extremely adverse effects on quality of life, economy, and life expectancy. As per World Health Organization (WHO), worldwide, about 1.25 million people die in road accidents per year. If the trend prevails then these traffic accidents will be 7<sup>th</sup> leading cause of death by 2030 in the world. In last twelve years the data collected by the Rescue 1122 emergency service of Punjab, Pakistan, shows that around 1.28 million accidents occurred in 36 major districts of Punjab province. Besides human loss, road accidents also cause an enormous financial bearing, which is on average up to five percent of national Gross Domestic Product (GDP) in a developing country. Being a developing country, Pakistan needs an immediate initiative to cut such huge financial bearing and to meet global and locally required targets which are set in the United Nations' Sustainable Development Goals 2030. Artificial Intelligence may play a vital role in addressing challenges of the road transportation. Road transportation could be broadly categorized in two classes namely traffic and infrastructure. On traffic side there are major four areas where AI applications are being developed namely autonomous vehicles, vehicle maintenance, advance driver support systems (ADAS) and modeling of drivers. On infrastructure end, there are two major areas where AI applications are being made namely engineering and management of the road infrastructure. The engineering applications focus on autonomous design and optimization of road network whereas management applications focus on autonomous traffic flow control, law enforcement and policy design using social simulation. All these applications are highly inter-related and complement each other which are collectively called as the "intelligent transportation systems (ITS)". This talk will cover state-of-the-art of ITS, its local initiatives and opportunities.

# ICOSST 2018

**Dr. Ali Imran (Director AI4Networks Lab, The University of Oklahoma, USA)**

**Talk Title:** Role of AI in Emerging Networks: 5G and Beyond

**Abstract:** The talk will address the answers to following questions: What are the limitations of the current automation approaches in cellular network operation and optimization? Why classic machine learning alone cannot address these limitations? Can a certain type of AI help address these limitations and enable truly deep network automation? How an advanced AI can help do what humans can not do in terms of network optimization? The talk will conclude with insights from recent case studies.

**Mr. Jawad Sadiq (Andprecent Pakistan)**

**Talk Title:** Transforming Supply Chains with Blockchain

**Abstract:** Earlier this year, Truck loads of strawberries were destroyed following a scare in Australia that saw needles being found inside the red fruits. They destroyed a lot of good farm's product because they could not immediately identify where the contaminated strawberries came from. (Link:<https://www.mirror.co.uk/news/world-news/truckloads-strawberries-destroyed-australia-reacts-13266417>). Many farmers had to suffer needlessly. Blockchain's distributed ledger technology, implemented and coupled with IoT could have avoided extra products from being destroyed. The talk aims to explain this and many other benefits of using blockchain in supply chain management.

## PAPER PRESENTATIONS : ABSTRACTS

### **Content Based Call for Papers Recommendation to Researchers**

**Author:** Muhammad Asim and Shah Khusro

**Abstract:** Call for papers is an invitation to researchers for paper publication. Finding relevant conference for paper publication is important for scholars as it has a direct impact on its acceptance, citation and researchers' profile. However finding relevant conference is a time consuming job for researchers due to increasing number of conferences on daily basis. To address these issues, various Recommender Systems (RS) have been developed. Most of them are based on collaborative approaches which exploit users' preferences for recommendations, however such RS suffer from cold start problem. On the other hand, systems based on content based approaches uses items' features for recommendations, however these RS face various problems including limited content analysis and irrelevant recommendations. We addressed these issues by developing a content based CFP (Call for Papers) recommender system using selected features that can reflect researchers' preferences. These features include title, abstract, keywords, cited papers titles and cited events. Experimental results show that the proposed system solve problems that traditional CFP recommender systems face and produce quality recommendation results.

### **Handling Missing Values In Chronic Kidney Disease Data sets Using K-NN, K-Means and K-Medoids Algorithms**

**Author:** Tahira Mahboob, Aimen Ijaz, Amber Shahzad and Muqadas Kalsoom

**Abstract:** Handling missing values in a large data set is one of the appalling tasks. Medical data sets contain a number of missing values. It is viable to use data sets without applying any pre processing mechanism but it gives ineffective prediction results; thus it is quite inadequate to discard them. For the sake of accurate and effective results for future prediction; it is premier to apply some replacement or imputation techniques. Imputation is an estimation technique that aim is to estimate the missing value on the bases of algorithms that are applied on the data sets. In this paper an effective framework is presented in order to impute missing values in a large Chronic Kidney Disease (CKD) data sets. The framework uses three different learning algorithms including K-Nearest Neighbors, K-Means and K-Medoids Clustering to impute the missing values. For the performance evaluation of these algorithms Decision and Random Forest Tree is applied on imputed CKD data sets. The experimental results demonstrate that imputation of both CKD data sets through K-NN is prove to be the best data sets in term of high accuracy with 86.67% for decision and 75.25% for random forest tree and less relative, absolute and root mean square error. Therefore K-NN imputed data sets are used in our research for future predictions.

## **Regularized Integrated Metric for Person Re-Identification**

**Author:** Muhammad Shehzad Hanif

**Abstract:** Integrated metric combining both difference and commonness of image pairs has shown to achieve superior performance over difference-only based metrics in similarity learning. The integrated metric can be learned quickly by computing the log-likelihood ratio between the probability distribution functions of similar and dissimilar image pairs. Under pair constrained Gaussian assumption, the learning involves the computation of inverse of covariance matrices using maximum likelihood criterion which may lead to a degraded solution if proper regularization is not done. In this paper, we study the influence of regularization in integrated metric learning. Person re-identification is chosen as an application to demonstrate the effectiveness of the regularized metric. Moreover, comparison with existing methods on two standard benchmark datasets for person re-identification (VIPeR and PRID405S) shows that our method has comparable or better performance than other methods.

## **Virtual Reality for Disabled People: A Survey**

**Author:** Ayesha Tariq, Tauseef Rana and Maryum Nawaz

**Abstract:** Virtual reality has given a 360 degrees shift to the technological world. From a world of just images it provides artificial environment that seems to be original in the form of 3D environment and gives a totally new experience to its users. VR is not only enhancing lives of physically fit people but also changing the life styles of disabled people. This paper discusses how virtual reality has changed lifestyles of disabled people and how virtual reality (VR) can increase the usability of the systems designed for disabled people. The actual focus is to describe the week points of the disabled people being addressed by VR. Evaluation of the systems using VR technology against simple systems (without VR) has also being done that has shown the significant change in the usability and user experience of devices designed for disabled people.

## **Handover Management in 5G Software Defined Network Based V2X Communication**

**Author:** Haider Rizvi and Junaid Akram

**Abstract:** Vehicle-2-Everything (V2X) communication consists of mainly two types of communication, one is vehicle to vehicle and the other is a vehicle to infrastructure (infrastructure includes everything). V2X has many uses including road safety that can help avoid collisions to infotainment like traffic information, navigation, and multimedia. As the driver assistance systems are rapidly growing, user interaction and acceptance of these systems have to be evaluated. The aim of this work is to improve an already existing communication model for V2X communication by minimizing the handover duration. IEEE 802.11p has been a standard for V2X communication. In IEEE 802.11p, due to high density, the data collision occurs. So we replace IEEE 802.11p with 5G SDN based approach. The current communication simulation implements an X2 based S +MN inter-system handover in a partially 5G SDN-based V2X communication. Our proposed approach has achieved much better results than the baseline results. We have optimized the preparation time of handover by 1.24ms and completion time of handover by 0.8308ms.



## **ApproxCT: Approximate Clustering Techniques for Energy Efficient Computer Vision in Cyber-Physical Systems**

**Author:** Raja Haseeb Javed, Ayesha Siddique, Rehan Hafiz, Osman Hasan and Muhammad Shafique

**Abstract:** The emerging trends in miniaturization of Internet of Things (IoT) have highly empowered the Cyber-Physical Systems (CPS) for many social applications especially, medical imaging in healthcare. The medical imaging usually involves big data processing and it is expedient to realize its clustering after data acquisition. However, the state-of-the-art clustering techniques are compute intensive and tend to reduce the processing capability of battery-driven or energy harvested IoT based embedded devices (e.g., edge and fogs). Thus, there is a desire to perform energy efficient implementation of the machine learning based clustering techniques. Fortunately, the clustering techniques possess inherent resilience to noise and thus, they can be exploited for energy savings based on the principles of approximate computing. In this paper, we proposed approximate versions of the widely used K-Means and Mean Shift clustering technique using the state-of-the-art low power approximate adders (IMPACT). The trade-off between power consumption and the output quality is exploited using five well known pattern recognition datasets. The experiments reveal that K-Means algorithms exhibits more error resilience towards approximation with a maximum of 10% - 25% power savings.

## **An Intelligent Monitoring System of Vehicles on Highway Traffic**

**Author:** Sulaiman Khan, Hazrat Ali and Muhammad Farhad Bulbul

**ABSTRACT:** Vehicle speed monitoring and management of highways is the critical problem of the road in this modern age of growing technology and population. A poor management results in frequent traffic jam, traffic rules violation and fatal road accidents. Using traditional techniques of RADAR (Radio Detection and Ranging), LIDAR (Light Detection and Ranging) and LASAR (Light Amplification by Stimulated Emission of Radiation) to address this problem is time-consuming, expensive and tedious. This paper presents an efficient framework to produce a simple, cost efficient and intelligent system for vehicle speed monitoring. The proposed method uses an HD (High Definition) camera mounted on the road side either on a pole or on a traffic signal for recording video frames. On the basis of these frames, a vehicle can be tracked by using radius growing method, and its speed can be calculated by calculating vehicle mask and its displacement in consecutive frames. The method uses pattern recognition, digital image processing and mathematical techniques for vehicle detection, tracking and speed calculation. The validity of the proposed model is proved by testing it on different highways.

## **A Comparative Analysis of DAG-based Blockchain Architectures**

**Author:** Huma Pervez, Muhammad Muneeb, Muhammad Usama Irfan and Irfan Ul Haq

**Abstract:** Blockchain is a shared distributed ledger that promises tamper-proof secure transactions over the highly available and resilient network involving multiple participants. Directed Acyclic Graph (DAG) has revolutionized the blockchain technology. Owing to its optimized validation mechanism, high scalability, efficient provenance, support for IoT and multi-party involvement, DAG is rapidly overshadowing traditional blockchain architecture. In this paper, we present a comparative analysis of most popular DAG based blockchain architectures including Nxt, IOTA, OruMesh, DagCoin, Byteball, Nano and XDAG. The comparison is based on the functional data structures for maintaining the ledger, consensus algorithms, transaction validation, ledger size, scalability and popularity. Extracting the best features various DAG based blockchains, we move on to outline the best of all worlds DAG-based blockchain architecture.

## **An Ontology-based approach to semi-automate systematic literature reviews**

**Author:** Asad Ali and Carmine Gravino

**Author:** A Systematic Literature Review (SLR) allows us to combine and analyze data from multiple (published and unpublished) studies. Though it provides a complete and comprehensive empirical evidence of an area of interest, the results we usually get from the data synthesis phase of an SLR include huge tables and graphs and thus, for users, it is a tedious and time-consuming job to get the required results. In this work, we propose to semi-automate some steps which can be used to fetch the information from an SLR, beyond the traditional tables, graphs, and plots. The automation is performed using Semantic Web technologies like ontology, Jena API and SPARQL queries. The Semantic Web, also called Web 3.0, provides a common framework and thus allows us to share and re-use the data across the applications and enterprises. It can be used to integrate, extract, and infer the most relevant data required by the users, which are hidden behind the huge information on the Web. We also provide an easy-to-use user interface in order to allow users to perform different searches and find their required SLR results easily and quickly. Finally, we present the results of a preliminary user study performed to analyze the amount of time users need to extract their required information, both via the SLR tables and our proposal. The results revealed that with our system the users get their required information in less time compared to the manual system.

## **Consensus Algorithms in Blockchain: Comparative Analysis, Challenges, and Opportunities**

**Author:** Natalia Chaudhry and Muhammad Murtaza Yousaf

**Abstract:** Blockchain is a distributed ledger that gained a prevalent attention in many areas. Many industries have started to implement blockchain solutions for their application and services. It is important to know the key components, functional characteristics, and architecture of blockchain to understand its impact and applicability to various applications. The most well-known use case of blockchain is bitcoin: a cryptocurrency. Being a distributed ledger, consensus mechanism is needed among peer nodes of a blockchain network to ensure its proper working. Many consensus algorithms have been proposed in literature each having its own performance and security characteristics. One consensus algorithm cannot serve the requirements of every application. It is vital to technically compare the available consensus algorithms to highlight their strengths, weaknesses, and use cases. We have identified and discussed parameters related to performance and security of consensus in blockchain. The consensus algorithms are analyzed and compared with respect to these parameters. Research gap regarding designing an efficient consensus algorithm and evaluating existing algorithms is presented. This paper will act as a guide for developers and researchers to evaluate and design a consensus algorithm.

## **Exploring Media Bias and Toxicity in South Asian Political Discourse**

**Author:** Adnan Qayyum, Zafar Gilani, Siddique Latif, Junaid Qadir and Jatinder Singh

**Abstract:** Media outlets and political campaigners recognise social media as a means for widely disseminating news and opinions. In particular, Twitter is used by political groups all over the world to spread political messages, engage their supporters, drive election campaigns, and challenge their critics. Further, news agencies, many of which aim to give an impression of balance, are often of a particular political persuasion which is reflected in the content they produce. Driven by the potential for political and media organisations to influence public opinion, our aim is to quantify the nature of political discourse by these organisations through their use of social media. In this study, we analyse the sentiments, toxicity, and bias exhibited by the most prominent Pakistani and Indian political parties and media houses, and the pattern by which these political parties utilise Twitter. We found that media bias and toxicity exist in the political discourse of these two developing nations.

## **Singular Adaptive Multi-role Intelligent Personal Assistant (SAM-IPA) for Human Computer Interaction**

**Author:** Khawir Mahmood, Tauseef Rana and Abdur Rehman Raza

**Abstract:** Intelligent Personal Assistance are poised to become the primary and most significant Human Computer Interface in the near future. This is attributed to advancements in Artificial Intelligence, Machine Learning, Internet of Things, Natural Language Processing and Data Sciences. A range of generic as well as specialized IPAs are being researched and developed by industry. Despite security and privacy issues, the adoption and utility of these agents is increasing. This paper proposes a singular adaptive multi-role IPA (SAM-IPA) that goes beyond scheduling and search facilities to handling multidimensional IoT as well as application data. SAM-IPA will not only act as a singular HCI responsible for delegation of multifarious tasks on behalf of the user but will also increase awareness via IoT and adapt based on ML over BigData. The proposed SAM-IPA will leverage the application interface communication mechanisms and technology potentials in the foreseeable horizon thereby drawing concrete findings while identifying research areas needing deliberation.

## OPENING CEREMONY

19th December, 2018, 09:00 – 11:30 At Main Auditorium, UET Lahore, Pak

[09:00 – 09:05]Hrs	National Anthem	[09:50 – 10:00]Hrs	Chief Guest
[09:05 – 09:08]Hrs	Recitation: Holy Quran	[10:00 – 10:20]Hrs	Plaques Distribution
[09:08 – 09:10]Hrs	Naat Rasool E Maqbool	[10:20 – 10:30]Hrs	Group Photo
[09:10 – 09:35]Hrs	Welcome Notes	[10:30 – 10:50]Hrs	Refreshment & Networking
[09:35 – 09:50]Hrs	Distinguished Guest	[10:50 – 11:30]Hrs	Exhibition Opening

SESSION-I			[DAY – 1]
Block Chain in Computer Science & Industry   19 <sup>th</sup> December, 2018, [11:30 – 16:15] Hrs			
	Track 1   Room 1	Track 2   Room 2	Parallel Activities
	Chair: Dr. Faisal Rashid	Chair: Dr. Usman Ghani	
11:30 – 12:15	<b>Keynote</b> <i>Blockchain: The information technology of the future</i> <b>Dr. Muzammil Shahbaz</b> <i>Barclays, UK</i>	<i>Industry Demo 1</i> <b>PowerSoft19 [20 mins]</b> <b>SecTech Pvt. Ltd./SAP</b> <b>Solutions [20 mins]</b>	<b>Industrial Exposition</b> Venue Auditorium Lobby UET Lahore
12:15 – 13:00	<b>Keynote</b> <i>Blockchain and the Internet of Things - Gaps</i> <b>Dr. Shahid Raza</b> <i>RISE Research Institutes of Sweden (SICS), Sweden</i>	<b>Cyber Security Pakistan</b> [20 mins] <b>Allied Bank Limited</b> [20 mins]	<b>Blockchain Hackathon</b> Venue Software Engineering Department UET CS – Lab
13:00 – 14:00	Lunch & Prayer Break		
14:00 – 14:45	<b>Keynote</b> <i>Best Open Source Platforms for Developing Blockchain Applications</i> <b>Musdassar Iqbal</b> <i>Blockchain Expert Solutions, Pakistan</i>	<b>Delta Tech</b> [20 mins] <b>Huawei</b> [20 mins]	<b>Industrial Exposition</b> Venue Auditorium Lobby UET Lahore
<b>ROUNDTABLE</b> 14:45 – 16:15	<b>Title: Opportunities and Cooperation in Block chain &amp; Cyber Security</b> <b>Moderator</b> <b>Mr. Jamshaid Iqbal Janjua, KICS UET Lahore</b> <b>Venue: VC Conference Room</b> [14:45 – 16:15] Hrs.		<b>Blockchain Hackathon</b> Venue Software Engineering Department UET CS – Lab
17:30 – 19:00	Social Evening		

SESSION-II			
Block Chain and its Applications in Software, Mobile and Network Systems   20 <sup>th</sup> December, 2018, [10:00 – 15:00] Hrs			
	Track 3   Room 1	Track 4   Room 2	Parallel Activities
	Dr. Tahir Izhar	Dr. Ubaid Ullah Fayyaz	
<b>Invited Talk</b> 10:00 – 10:45	<i>Transforming Supply Chains with Blockchain</i> <b>Jawad Sadiq, Andpercent</b> <i>Pakistan</i>	<i>Role of Data Modeling, Blockchain and Big Data Analytics towards monitoring and management of Big Data Applications</i> <b>Dr. Omair Shafique</b> <i>Carleton University Ottawa, Ontario, Canada</i>	<b>BRAINIAC</b> Main Auditorium UET Lahore
<b>Paper Presentations</b> 10:45 – 11:00	<i>Consensus Algorithms in Blockchain: Comparative Analysis, Challenges, and Opportunities</i> <b>Natalia Chaudhry</b>	<i>A Comparative Analysis of DAG-based Blockchain Architectures</i> <b>Huma Pervez</b>	<b>Blockchain Hackathon</b>
11:00 – 11:15	<i>Virtual Reality for Disabled People: A Survey</i> <b>Ayesha Tariq</b>	<i>Handover Management in 5G Software Defined Network Based V2X Communication</i> <b>Haider Rizvi</b>	Software Engineering Department UET CS – Lab
<b>Invited Talk</b> 11:15 – 12:00	<i>Autoencoders and LSTM for Multi-Class Anomaly Detection</i> <b>Dr. Tariq Mahmood, IBA Karachi</b> <i>Pakistan</i>	<i>Building Scalable, Secure and Robust, Production-Ready Blockchain Applications Based on Hyperledger Fabric</i> <b>Zaid Munir UCP, Pakistan</b>	
12:00 – 13:00	Lunch & Prayer Break		

# PROGRAM

SESSION-II			
<b>Invited Talk</b> 13:00 – 13:45	<i>Personal Monitoring to Support Workers in Hazardous Industries</i> <b>Dr. Annika Hinze</b> <i>University of Waikato ,New Zealand</i>	<i>Role of AI in Emerging Networks: 5G and Beyond</i> <b>Dr. Ali Imran</b> <i>University of Oklahoma-Tulsa, USA</i>	<b>BRAINLAC</b> Main Auditorium UET Lahore
<b>Paper Presentations</b> 13:45 – 14:00	<i>An Intelligent Monitoring System of Vehicles on Highway Traffic</i> <b>Sulaiman Khan</b>	<i>Handling Missing Values In Chronic Kidney Disease Data sets Using K-NN, K-Means and K-Medoids Algorithms</i> <b>Tahira Mahboob</b>	
14:00 – 14:15	<i>Regularized Integrated Metric for Person Re-Identification</i> <b>Muhammad Shehzad Hanif</b>	<i>Singular Adaptive Multi-Role Intelligent Personal Assistant (SAM-IPA) for Human Computer Interaction Low</i> <b>Khawir Mahmood</b>	
<b>Invited Talk</b> 14:15 – 15:00	<i>ASSEMBLE: A Service Mapping Approach for Collaborative Business Process Development</i> <b>Dr. Basit Shafique, LUMS</b> <i>Pakistan</i>	<i>Intelligent Transportation Systems</i> <b>Dr. Waqar ul Qunain, PUCIT</b> <i>Pakistan</i>	
<b>16:00 – 18:00</b>	<b>SIGHT SEEING</b>		

SESSION-III [Workshop]			
<b>Entrepreneurship &amp; Scientific Research &amp; Educational &amp; Business Funding Opportunities &amp; Blockchain</b> 21 <sup>st</sup> December, 2018, [10:00 –12:30] Hrs			
	<b>Room 1   Track 5</b>	<b>Room 2   Track 6</b>	
	Dr. Amjad Hussain	Dr. Ghalib Asadullah Shah	
<b>Invited Talk</b> 10:00 – 10:45	<i>What is the role of V2X communications for C-ITS - current status and future implications?</i> <b>Dr. Taimoor Abbas</b> <i>Volvo Car Sverige, Sweden</i>	<i>GDPR-compliant Cloud Containers: Blockchains for Cloud Event Tracking</i> <b>Dr. Omer Rana</b> <i>Cardiff University, UK</i>	<b>BRAINLAC</b> Venue Main Auditorium UET Lahore
<b>Paper Presentations</b> 10:45 – 11:00	<i>Content Based Call for Papers Recommendation to Researchers</i> <b>Muhammad Asim</b>	<i>ApproxCT: Approximate Clustering Techniques for Energy Efficient Computer Vision in Cyber-Physical Systems</i> <b>Raja Haseeb Javed</b>	
11:00 – 11:15	<i>An Ontology-Based Approach to Semi-Automate Systematic Literature Reviews</i> <b>Asad Ali</b>	<i>Exploring Media Bias and Toxicity in South Asian Political Discourse</i> <b>Adnan Qayyum</b>	
<b>Workshop</b> 11:15 – 12:00	<i>Investigation and Study of The Application Of Institutionalized Reforms To Science, Engineering And Technology Education</i> <b>Dr. Ali Hammad Akbar   UET, Pakistan</b> <i>Venue: Room 1, Main Auditorium UET Lahore, Pakistan</i>		
<b>Panel Discussion</b> 12:00 – 13:00	<i>Unleashing the Potential of Blockchain in Economy</i> <b>Moderator: Dr. Ghalib Asadullah Shah, UET Lahore, Pakistan</b> <b>Panelist</b> <i>Dr. Shahid Raza, Dr. Omer Rana, Dr. Muzammil Shahbaz, Dr. Annika Hinze, Dr. Taimoor Abbas. Dr. Omair Shafique &amp; Dr. Ali Hammad Akbar</i> <i>Venue: Room 1, Main Auditorium UET Lahore, Pakistan</i>		
<b>13:00 – 14:30</b>	<b>Lunch &amp; Prayer Break</b>		

## CLOSING CEREMONGY

21<sup>st</sup> December, 2018, 14:30 – 16:00 At Chemical Seminar Room, UET Lahore, Pak

Reception Of Chief Guest

National Anthem

Recitation

Welcome Note

Closing Remarks Distinguished Guest

Remarks By Distinguished Guests

Remarks By Chief Guest

Plaques Distributions

Group Photo

Refreshment

# ICOSST 2018

## BRAINIAC 2018

Brainiac was first launch back in 2010. This event provides chance for individuals with spark to showcase their skills, passion and courage. This event resides along with 12th Episode of international conference ICCOST'2018. Participants have the perfect opportunity to attend and participate both events. Event includes different competitions and presentations. Organizing team is from KICS, CS Department, EE Department, IEEE Lahore Section, IEEE Comsoc Lahore Chapter. IEEE UET and volunteers around Pakistan



Following Competitions are to be take place in Brainiac

### **SOFTWARE COMPETITION**

This is the first time this competition is included in this event. This competition brings together students from across the world to display their software projects for formal judging by a team of experts, providing participants with valuable feedback and experience of real-world evaluation benchmarks. Not only is this a source of erudition for the participants, but visitors to the exhibition are more often than not students seeking projects with the potential for future development, or even I.T. industry professionals looking for promising talent among the participants.

### **GAMING COMPETITION**

This is the core event of brainiac from a long time. The profession of gaming is rapidly gaining ground in Pakistan. No longer is the activity relegated to the fringes of the I.T. industry; it is now recognized as a lucrative career choice in its own right. The gaming competition also draws intense interest from spectators.

### **ENGINEERING PROJECTS COMPETITION**

Projects made by students of all level will showcase the practical implementation in hardware form. This give visitors from industry and research centers to pick projects for commercialization. This is the win-win situation for both students and industry. Meanwhile top projects will be given prizes from judges.

### **STUDENT POSTER COMPETITION**

Poster competition in which candidates can present their idea based on a specific theme. Idea will be evaluated by judges. Get can opportunity to present your idea and won prizes. Entrepreneurs and academia experts will also visit the competition. Great chance to touch with your peers that can be beneficial for your idea.

**For more info visit:**

**<http://uet.edu.pk/brainiac>**



# ICOSST 2018

## BLOCKCHAIN HACKATHON

The KICS-UET Blockchain Hackathon provides an opportunity for student teams to compete for cash prizes as you explore the possibilities of a future on the blockchain. The Government of Pakistan (GOP) strives to improve its citizens' quality of life and economic wellbeing by ensuring availability of accessible, affordable, reliable, universal and high-quality ICT services. GOP and Ministry of IT strongly believe in mass adoption of emerging digital technologies and relevant applications as enablers of cross-sector socio-economic development and transformation of economic activities, governance models and social interaction. This Hackathon is aligned with UNESCO SDG's and Ministry of IT (MoIT) Pakistan Digital Policy 2018.



Selected SDGs for participants to focus their projects and solutions on are:

SDG 3: Good Health and Well Being

SDG 4: Quality Education

SDG 9: Industry, Innovation, and Infrastructure

SDG 11: Sustainable Cities and Communities

SDG 16: Peace, Justice and Strong Institutions

### OFFICIAL RULES AND CONDITIONS

**AGREEMENT TO OFFICIAL RULES AND CONDITIONS.** Participant in the Blockchain Hackathon contest constitutes entrant's full and unconditional agreement to and acceptance of these Official Rules and Condition.

**ELIGIBILITY.** The contest is open to all current legal adults Nationals of Pakistan. Once selected as a potential winner, contestants ARE NOT ELIGIBLE to be selected to receive more than one prize. JUDGES ARE NOT ELIGIBLE TO PARTICIPATE.

**TO ENTER. NO PURCHASE NECESSARY.** No purchase or payment of any money is necessary to enter. Multiple entries from the same person will be disqualified. KICS-UET is not responsible for late, incomplete, invalid, or ineligible entries, which will be disqualified. KICS-UET is not responsible for technical failures of any kind, including but not limited to electronic malfunctioning of any network, hardware, or software or electronic or human error which may occur in the processing of entries. KICS-UET reserves the right in its sole discretion to disqualify any individual it finds to be tampering with the entry process or with the operation of contest, or to be acting in violation of these Official Rules and Conditions. KICS-UET reserves the right to cancel, terminate or modify the contest if it is not capable to completion as planned for any reason.

**SELECTION.** Winner will be selected by a panel of judges. Judges will select the winners on Dec 20th 2018. if a potential winner cannot be contacted after the first attempt to contact such potential winner, an alternate entrant may be selected in his/her place from all eligible entries based on scores assigned by the judges.

**REUSE OF THIRD-PARTY CODE.** All application code must be original or legally sourced.

**COLLUSION.** Teams may not share application code. Teams may, and are encouraged to share ideas and advice. However, actual source code should not be shared amongst teams

**PRIZE** Prizes are awarded only to registered members of the team

**SPONSOR.** This contest is sponsored by KICS, UET G.T. Road, Lahore.





# BLOCKCHAIN HACKATHON (BCH – 2018)

## BCH – 2018 Day Wise Schedule (V3.0)

BCH - 2018		[DAY – 1]
1:30 - 16:00] Hrs.	<b>Blockchain Hackathon 19<sup>th</sup> December, 2018</b>	
Venue	<b>Software Engineering Center Lab: SE (1.4)</b>	
11:30 – 12:00	<b>Orientation Session I</b> <i>Blockchain Technology Insight, IDEas &amp; SDGs Compliant Solutions</i> <b>Jamshaid Iqbal Janjua</b> <b>KICS, UET</b>	
12:00 – 12:30	<b>Orientation Session II</b> <i>What is Ethereum? The Most Comprehensive Beginners Guide</i> <b>Junaid Mushtaq</b> <b>Miranz Technologies</b>	
12:30 – 13:00	<b>Orientation Session III</b> <i>Blockchain Development – IBM Developer (HyperLedger)</i> <b>Qasid Labeed</b> <b>Blockchain Expert Solutions</b>	
13:00 – 14:00	Lunch & Prayer Break	
14:00 – 16:00	Combined Development & Mentoring Session	

BCH - 2018		[DAY – 2]
09:00 - 13:00] Hrs.	<b>Blockchain Hackathon 20<sup>th</sup> December, 2018</b>	
Venue	<b>Software Engineering Center Lab: SE (1.4)</b>	
09:00 – 10:00	<b>Discussion Session</b> <i>Judges pre-evaluation session</i>	
10:00 – 12:45	<b>Team Evaluations</b> <i>Blockchain Applications Demo Presentations</i>	
12:45 13:00	<i>Team Recommendations from Judges</i>	

For more info visit:

<http://icosst.kics.edu.pk/2018/bch/>

# EXHIBITORS



UET GAME STUDIO



**EECL**

ENERGY EFFICIENCY & CONSERVATION LAB



**NWNL**

Next Generation Wireless Networking Lab

**TICK**

--The Hardware Incubator



Alternate Energy Research & Innovation Lab



**DATA SCIENCE  
LAB**



SOFTWARE SYSTEMS  
RESEARCH LAB



Professional Development Centre



SCHOOL OF MEDIA STUDIES



**Blockchain  
EXPERT SOLUTIONS**

Powered by:  Miranz  
Technologies (Pvt) Ltd



VUE-Authorized  
Test Center



IoT RESEARCH AND INNOVATION LAB



**CVML**

Computer Vision Machine And Learning Lab



UNIVERSITY MANAGEMENT SYSTEM LAB



HUAWEI



Embedded System & Enterprise Software Solution Lab

# ICOSST 2018

## SocioON

Contact No. - +92306-1387699

Research Area : Social media



### MISSION:

SocioON Mission Statement is “to present a Technology for Human Development (THD)” to empower the human beings to share their ideas, being connected with each other socially and developing their online businesses with millions of users at the portal for free

### PROFILE:

SocioON is a Media Network which is represented by SocioON social media that paying its responsibility to enhance the value of Socio-Technology with the proposition of (*Technology for Human Development*). SocioON social media has changed the already adopted patterns from other Social Medias. Social media is an advance condition of Technology which has summarized the whole world as global village and SocioON is a unique combination of Technology and Social life.

### PROJECT COMPLETED

SocioON merged the Social Media and Web Networks on a single portal which allows the users to share their ideas in text and visual content. Users can also search and find the different aspects of information related their needs as like Study, Professions and Jobs etc. SocioON Social Media Network gives the Business plan and platform for their users and community persons who want to start their own business or advertise their product globally with limited resources.

Based upon truly Islamic Principles of equitable distribution of wealth among all, SocioON shares its revenue and profits by reverting back 80% to its users. 50% of the world population consists of women yet their representation is negligible. [www.SocioON.com](http://www.SocioON.com) empowers women by giving them opportunity towards self-reliance and to utilize the technology to their advantage

# ICOSST 2018

## Blockchain Expert Solutions

info@blockchainexpertsolutions.com

Contact No. 92 4238910610

Research Area : Blockchain Research



### VISION:

Combining leading edge business strategies and competitive edge IT knowledge to develop efficient and effective business solutions and to create maximal versatile job opportunities constituting mastery in domain knowledge. We aim to be the go-to company for every Blockchain related service or solution. Our vision is to enable each of our team member to be a future leader. We believe in developing future leaders rather than workers.

### MISSION:

Satisfying our clients with our quality work is always our focus. In the long run, we aim to be one of the largest Blockchain technology Based Services company globally which is our constant goal. We envision our team to take leadership and ownership of each task they do so our client satisfaction and team learning only goes upwards. Our teamwork and revolutionary solutions will let us get closer and closer to our milestone

### PROFILE:

Blockchain technology based services company, providing state of the art all rounded **Blockchain services** to clients all over the world. We are developing evolutionary building blocks, starting with safe & tranquil environment in order to gather greatest outcomes and shape our team to be a great part of shaping the new world.

Our clients are our success and we go beyond our ways to ensure that each of our clients are more than satisfied with us. We allow our team to interact with clients directly which equips our team to learn beyond ordinary work and communicates our transparency to clients. The open communication culture has helped us deliver extraordinary projects with complete client satisfaction and greatest learning opportunities for our team.

### PROJECTS COMPLETED

Research development

White paper

Software requirement specification

Team & advisor Evaluation

Financial Modeling & Token Design

Smart Contracts

Wallet development

# ICOSST 2018

## ALTERNATE ENERGY RESEARCH & INNOVATION LAB

Lab Manager: Syed Imran Ali Shah

Email: admin@kics.edu.pk

Contact No. 03234320000

Research Area: Alternate Energy Research and Innovation Lab



## LAB PROFILE

AERIL focusses on research ideas and development in the renewable technologies (solar energy, wind energy, biomass etc.) particularly in solar photovoltaic domain as well as services related to energy conservation practices and energy efficient devices. Our scope of services include

Technical Consultancy services (especially solar related)

Third party validation services

PV and LED light testing and evaluation services (via CERAD)

Energy audit and energy conservation potentials

Professional training courses on solar system installation, renewable energy resources, and Technical/ awareness workshops on Energy conservation scope, techniques and energy saving technologies.

The state-of-the-art solar photovoltaic (PV) testing lab established as per international IEC standards at Center for Energy Research and Development (CERAD), UET KSK has also been operated by team to provide solar photovoltaic (PV) and LED testing services.

## VISION

To provide technical assistance to public and private entities in Solar PV technology and other energy related projects

To provide Energy audit and energy conservation potential marking services to public and private sectors (residential, Commercial and Industrial)

To assist Government departments working in Energy and Renewable Energy related sectors

To provide quality training in renewable energy domain to fulfill the need of trained manpower in Pakistan

To provide Quality assurance assistance to Clients via solar system and components testing and validation (PV, Battery, Inverter)

To provide Quality assurance assistance to Clients for energy efficient lighting LED testing and evaluation

To research and develop efficient and cost effective products as per need of Pakistan energy market such as locally developed testing machines

# ICOSST 2018

## BIOINFORMATICS RESEARCH LAB

Email [javeria.khan@kics.edu.pk](mailto:javeria.khan@kics.edu.pk)

Contact No. 03413188411

Research Area: Brain Computer Interface,  
Neurogaming, Bioinformatics, Medical



### VISION:

To provide VR based neurogaming for children's in schools and homes which will to enable them to reach their maximum potential by increasing their attention, memory, and learning capabilities.

To provide an effective method for treatment of cognitive disabilities which will help to eradicate the need of extensive physical therapies.

To bring new method for psychiatrists that will that will help patients suffering from ADHD by improving their attention, focus and other cognitive skills.

To develop a brain interface that provides several control commands, which can be used for other industrial applications.

To improve the convenience for disabled people by using relatively low cost, high mobility, and quick Setup of non-invasive BCI.

### MISSION:

To develop VR based neurogaming for mindfulness in children and ADHD patients.

To model brain with Brain Computer Interface (BCI) for Wheelchair Navigation to provide protective, helpful and rehabilitative treatment to the disabled and handicapped people.

To develop a portable EEG device for Pakistani community.

To develop appropriate and extensible data models for storing, retrieving and manipulating biological Data.

### PROFILE:

The Bioinformatics Laboratory at KICS, U.E.T. Lahore was established using the starter grant from HEC, Pakistan. The aim of this laboratory is to bring innovation by working on latest technologies i.e. neurogaming and BCI robotics in order to help our society by providing efficient solutions in rehabilitation. In the near future, the Lab aims to provide a national bioinformatics information network designed to cater for the inter-disciplinary and collaborative research needs of the research/scientific community and the industry. Researchers in BRL are currently working in the field of Brain Computer Interface (BCI). EEG technology is being used in this regard to control robots and assistive devices for disabled persons.

### PROJECTS COMPLETED:

Extension and Development of Analysis Node for Bioinformatics

Sequence Analysis Tool (SSAT): An Analysis Tool for Sugars

Storage, Retrieval and Manipulation techniques of Human Brain Data.

Unified Computational Model of Human Brain. The group has made available some public domain biological resources such as Genbank through intranet.

Development of the prototype-based Software Development methodology for bioinformatics

# ICOSST 2018

## CENTER FOR LANGUAGE ENGINEERING

Email [info@cle.org.pk](mailto:info@cle.org.pk)

Contact No. +92-42-99029450,+92-42-36821444

Research Area :Linguistics and writing system

Language computing standards, Language, speech and script processing



### VISION:

Unlocking Information for Human Development

### MISSION:

CLE aims to create opportunities for local populations to access information and communicate in their local languages, to enable them to use Information and Communication Technology maximally for their socio-economic benefit.

### PROFILE:

Center for Language Engineering (CLE) is conducting research and development in linguistic and computational aspects of languages, specifically of Pakistan and developing Asia. For more details: <http://www.cle.org.pk/>

### PROJECTS COMPLETED:

Text-to-Speech for Urdu: Understanding Intonation, DAAD, Govt. of Germany

Translation of Websites, TEXPO Pakistan Pvt. Limited

Investigating the Impact of OER on Secondary and Tertiary Education in Pakistan, IDRC, Govt. of Canada

Computerized Corpus of Persian texts along with their commentaries, University of Chicago, USA

Digital Dictionaries of South Asia, University of Chicago

NDA Text Classification, Virtual Force Pvt. Limited.

Enabling Information Access through Mobile Based Dialog Systems and Screen Readers for Urdu, National ICT RnD Fund, Pakistan

Language Resources Production (Lexicon), European Language Research Association (ELDA)

Urdu Nastalique Optical Character Recognition System, IGNITE

Investigating the Long Term Residual Impact of ICT Integration across Gender for a Sustainable Project Design, Global Development Network

Essential Linguistic Research Capacity and Resource Development for Urdu, DAAD, Govt. of Germany

Enabling Information Access for Rural Population through Urdu Dialog System, Asia Pacific Telecommunity (APT), Thailand

Pashto Languages Resources, Evaluation and Language Resources Distribution Agency, France

Online Torwali Dictionary, National Geographic IDRC, Canada

Subh-e-nau, Bytes for All, Pakistan

Asian Language Support on Mobile Platform, IDRC, Canada

PAN Localization Project Phase II, IDRC, Govt. of Canada

PAN Localization Project Phase I, IDRC, Govt. of Canada

# ICOSST 2018

## **DATA SCIENCE LAB**

Email : wasim@kics.edu.pk

Contact No. 0333-8639639

Research Area Data Analysis and Knowledge discovery, Text Mining, Information Retrieval and Question Answering



## PROFILE:

Data Science Lab was established in 2017 to cater the challenges of current age which may be termed as the era of "data big bang". Driven by the Internet economy, mobile phone, cheaper hardware and the Internet of Things (IoT), the user and sensory devices are continuously generating a lot of data. As data size increases, the demand for multi scale approaches in transforming data to knowledge also becomes very important.

Research in Data Science Lab involves the design of intelligent algorithms and development of decision-making models to form risk management systems and process modeling systems. Interpreting data and visualizing it to define patterns and extract knowledge can help businesses to compete with other competitors. The lab focuses on both the structured and unstructured form of data analytics for clustering, classification, and association rule mining to identify trends and making useful predictions.



# ICOSST 2018

## ENERGY EFFICIENCY AND CONSERVATION LAB

Manager: Mohammad Ali

Email: m.ali@kics.edu.pk

Contact No. 0300-8482920

Lab Title: Energy Efficiency / Industrial Control Lab



### VISION:

To be a market leader in providing quality trainings, research and projects in Energy, Automation and Industrial Sector.

- To remain updated with current trends and build up knowledge
- To develop energy efficient devices locally
- Energy Audit activities
- Advanced courses on PLC and Energy efficiency

### MISSION:

- Perform analysis, research, and development leading to better energy technologies and reduction of adverse energy-related environmental impacts.
- To promote and maintain linkages with industries and research institutions
- To create passion for learning and foster innovation by nurturing talents towards serving the society with high moral, ethical and professional standards
- To prepare and build the ability for independent and lifelong learning in the context of technological changes
- To execute and maintain the industrial projects according to requirements

### PROFILE:

EECL/ IACL Lab have been established at KICS in order to develop strong linkage with local industries. The lab executes projects on turnkey basis, Provide consultancy, Perform research works in developing new technologies for local market and affordable solutions for new and existing clients. The solutions cover design and integration of Instruments, Electrical and Supervisory Control and Data Acquisition (SCADA) systems, Distributed control systems (DCS), and other smaller control system configurations such as Programmable logic controllers (PLC) often found in industrial and critical infrastructures. The in-house expertise consists of Siemens and Allen-bradley PLC along-with HMI.

### PROJECTS COMPLETED:

- 1) Training course on PLC funded by Punjab Skill development fund (PSDF)
- 2) Training on Instrumentation and Control Automation by PSDF
- 3) Motor Test Bench funded by PCSIR
- 4) Leather Economizer developed by KICS UET Lahore for Leather Industry
- 5) Paddy Dryer Automation project developed by KICS UET Lahore for Rice Mills(in progress)
- 6) Energy Efficiency Advisor Training (06 Months Trainings)
- 7) Wudu Water conservation project
- 8) Low cost low power Fan development

# ICOSST 2018

## ENTERPRISE SOFTWARE SOLUTION LAB (UMS)

**Email:** [mohsin.yaseen@kics.edu.pk](mailto:mohsin.yaseen@kics.edu.pk)

**Contact No:** 042-35967396/03349069919

**Research Area:** ERP Implementation in Pakistan education Industry.



### PROFILE:

Enterprise Software Solution (ESS) Lab formally UMS lab is a leader in its domain of providing services in Academic Management System, in KICS. Ever since its inception in 2002, it has evolved and taken center stage in information and technology by providing ERP and Non ERP solutions to the Government and Private educational sectors. With the hands-on experience and domain expertise, we have completed handsome projects in the Punjab, Pakistan. We excel at delivering business solutions outside Punjab to other University and Colleges too.

What makes us distinctive is our ability to assist clients and meet challenges. We serve them to enrich their productivity by guaranteeing that their core business functions work faster, economical and better by providing them solutions in OPEN SOURCE. Considering the mind set of Pakistani users, we provide economical solutions with open source option in ERP environment so that they can take their business to the next level.

ESS has proven its worth to many Universities by implementing OBE and Bloom taxonomy in their LMS Systems. Many international conferences had been hosted where it's services and innovation has been admired for implementation of projects completed in 19 University.

### PROJECTS COMPLETED:

Term System

Online Admission System

UAMS

UET OBE System

EDU CAMPUS

ODOO ERP Implementation

# ICOSST 2018

## **UET GAME STUDIO**

Details: UET Game Studio Lab  
Email: [uetgs@kics.edu.pk](mailto:uetgs@kics.edu.pk)  
Contact No. +92 42 99029450Ext 861  
Research Area: VR Simulation



### VISION:

Development of commercial and Edutainment Games

### MISSION:

To become leading mobile game entity in public sector educational institute.

### PROFILE:

[uetgamestudio.kics.edu.pk](http://uetgamestudio.kics.edu.pk)

### PROJECTS COMPLETED:

30 different 2D, 3D, VR Games and multiplayer games

# ICOSST 2018

## SOFTWARE SYSTEMS AND RESEARCH LAB

Email: muzammil.hassan@kics.edu.pk  
Contact No. +92 321 4537681  
Research Area: Mobile Application development, Software Development, System Administration



### VISION:

Our vision is to perform uniquely in our area by serving our clients through highly inventive web designing and development projects. To achieve reputation in our area by working that is the dream of every institute is a part of our vision.

### MISSION:

Our mission is to serve web hosting and development services to UET and our clients to meet the need of publishing their content online. To serve UET and our clients to the perfect by serving technically solid and reasonable solutions.

### PROFILE:

Software Systems Research Lab (SSRL) offers software development and research services in diverse domains including web applications, enterprise systems development, prototyping, and smart-phone applications. Since 2002, the group has developed a number of solutions that implement complicated business logic and complex workflows. SSRL is currently expanding its services by engaging in research and development activities in the areas of smart-phone applications and games. Open source technologies are extensively utilized in software development in order to achieve cost and time efficiencies. SSRL also offers trainings in web application development and mobile app and game development.

### PROJECTS COMPLETED:

Vehicle GPS Tracking System.

NFC based Attendance system

NFC Based Access Control.

Library Management System (**KOHA**).

**uHands:** Emergency Management System built on location based technologies.

**Wi-CAM:** TR-069 and OMA-DM Auto Configuration Server for remote provisioning, configuration, and firmware upgrade for Consumer Premise Equipments.

**UAMS:** University Academics Management System

**Certificate Program in Mobile App and Game Development.**

Library management system using RFID technologies.

Biometric attendance management system

Configuration and customization of **Open ERP.1**

# ICOSST 2018

## HIGH PERFORMANCE COMPUTING & NETWORKING LAB

Email: amir.mehmood@kics.edu.pk

Contact No.:+924299029450 (Ext. 812)

Research Area:

Virtualization & Cloud Computing, Parallelization & Multi-Core Programming,  
Performance Debugging in Embedded Systems, Big Data Analytics



### VISION:

- To provide better solutions and insight for Big Data

### MISSION:

- R&D in High Performance Computing in collaboration with industry and academia
- Develop indigenous HPC/Cloud solutions and applications for national needs.
- Empowering local students and researchers with state-of-the-art practical research

### PROFILE:

HPCNL was established in June 2008 to initiate R&D in High Performance Computing and its related echo system. Our lab is focused on computer systems, networks, and application performance debugging. The aim is to use overarching approach in cloud computing by covering various aspects related to the cloud such as multi-core infrastructure, virtualization, parallel computing, and distributed application development.

The lab is also working on parallel computing using multi-core systems so that large scale applications can be sped up. The projects are related to parallelization of sequential code for efficient execution.

Currently, HPCNL is developing an Urdu Search Engine 'Humkinar Pakistan'. Different tools and algorithms are being developed to identify, crawl and index content in Urdu on the Web.

### PROJECTS COMPLETED:

Urdu Search Engine (USE) - [funded by ICT R&D, PKR 33.3 M] (On Going)

Development of Type-2 Hypervisor for MIPS64 Based Systems - [funded by ICT R&D, PKR 15.25 M]

Development of Multi-core Programming, Architecture and Communication (MPAC) release Version 1.0, 1.1

Characterization, Evaluation, and Development of High Performance Network Services on Multi-Core Architectures - [funded by ICT R&D, PKR 11.7 M]

Runtime Parallelization of Sequential Binary Code through JVM - [funded by HEC, PKR 3.4 M]

# ICOSST 2018

## COMPUTER VISION & MACHINE LEARNING RESEARCH LAB

Email: omer.irshad@kics.edu.pk

Contact No.: +92-42-99029450

Research Area: Computer Vision, Machine Learning, Deep Learning and Artificial Intelligence



### VISION:

To perform extensive research in the domain of computer vision and machine learning to devise optimal methods for better surveillance and safe cities. Implementation of deep learning concepts to create both fun and practical applications. Enabling the fresh graduates and researchers to get a hands on experience in the domain of computer vision and deep Learning.

### MISSION:

To develop vision based systems for the betterment of society by putting research and development efforts in the area of computer vision, machine learning, deep learning and artificial intelligence.

### PROFILE:

Computer Vision and Machine Learning Lab KICS, UET Lahore led by Dr. Muhammad Usman Ghani Khan was established in August 2016. Lab is actively involved in the development of intelligent video surveillance and other machine vision related projects. The primary research focus of this Lab is to devise algorithms in the area of machine vision leading towards recognizing, understanding and summarizing live video streams.

### PROJECTS COMPLETED:

Automatic Surveillance System For Video Streams (ASSVS)

# ICOSST 2018

## HUAWEI UET JOINT TELECOM AND IT CENTER (HUTIC)

Email: [hr@kics.edu.pk](mailto:hr@kics.edu.pk)

Contact No.: +92-42-99029450-300 Ext. 850



### VISION:

This centre is a training facility of Huawei Technologies and industry. It provides a perfect place for students and professionals to gain knowledge related to practical approach of communication standards.

### MISSION:

Our center is dedicated to provide trainings in various ICT technologies and virtually guarantees to offer course with the right environment and facilities to students looking to advance their career or start a new one, or a team leader looking to make sense out of new technology.

### PROFILE:

HUTIC was inaugurated in 2002-03 in UET, in collaboration with Huawei Technologies. Equipment of worth 3 Million USD was installed in its first phase. Huawei has donated the latest version of GSM/GPRS, Datacom and Videoconferencing equipment, worth 6 Million USD in the second phase. With this investment by Huawei, UET offers the largest training facility in Telecom and Data Comm. technologies in the region.

HUAWEI and KICS-UET combine efforts to expertly assess needs, improve skills, reinforce learning and track progress which results in tremendous success. To expand and broaden the training span, KICS-UET with the help of Huawei has started a new training facility in P6-Model Town, Lahore. For more than a decade, our well certified instructors are busy in conducting numerous Huawei trainings in these facilities, giving practical and interactive instructions to more than 1000 trainees annually.

### PROJECTS COMPLETED:

We provide following trainings on the following technologies:

- Routing & Switching
- Security
- Big Data
- Cloud Computing
- Wireless
- Video Conferencing
- Microsoft
- Cyber Security

# ICOSST 2018

## NEXT GENERATION WIRELESS NETWORKING LAB

Details: Next Generation Wireless Networks Lab.

Email [hammad.hassan@kics.edu.pk](mailto:hammad.hassan@kics.edu.pk)

Contact No. 03024043901/ 03217601702

Research Areas: WSN/Embedded System/Advance Security & Surveillance/Artificial Intelligence



### VISION:

To contribute in the scientific and technological advancements for the vital areas of advance WSN based embedded systems, Smart Security & Surveillance, and AI based solutions.

### MISSION:

With the research and development on the focused areas, we aim to bring forth our research in the form of complete solutions/products to commercialize and benefit our community, and the country.

### PROFILE:

Next Generation Wireless Networks Research & Development group at Al-Khwarizmi Institute of Computer Science (KICS) established for both research and development in the field of computer networks, access networks, acoustic source localization, nodes calibration, intelligent security and surveillance, and ultra-high-speed wireless and wired data communications.

### PROJECTS COMPLETED:

Acoustic Surveillance and Gun-Shot Detection System.

Multimodal Sensing Enabled Real Time Intelligent Wireless Camera Network for Secure Spaces

Ambient air quality monitoring using integrated secure wireless sensor and vehicular networks

Acoustic Surveillance and Gun-Shot Detection System".

Acoustic Node Development for Punjab Safe City.

Multimodal Sensing Enabled Real-time Intelligent Wireless Camera Networks for Secure Spaces

Implementation of GPRS Tunneling Protocol for Software Defined Switch (Open VSwitch).

Ambient air quality monitoring using integrated secure wireless sensor and vehicular networks

Human activity monitoring using integrated camera and pyro-electric sensor nodes: A first step towards secure spaces.

Binding Multiple Applications on Wireless Sensor Networks.

Implementation of ZigBee Protocol Stack.



# ICOSST 2018

## **IOT RESEARCH & INNOVATION LAB(IRIL)**

Dr. Ghalib Asadullah Shah  
Email : ghalib@kics.edu.pk  
Contact No. 0303-3334373



### PROFILE:

IoT Research and Innovation Lab at Al-Khawrizmi Institute of Computer Science (KICS) focuses on research and development activities in the areas of wireless sensor networks (WSN), Internet of Things (IoT) and software defined networks (SDN). Comprising 3 PhDs, and over 10 full-time researchers and undergraduate/postgraduate interns, the lab is involved in developing IEEE 802.15.4/802.11 compliant wireless sensor/camera nodes, designing and implementing IoT communication protocols and architectures. The lab is also collaborating with local industrial partners to indigenously develop IoT platforms to provide different application oriented solutions for wireless connectivity, autonomous control, health monitoring and energy optimization of domestic and commercial buildings, industrial plants, smart farming and agriculture.

### PROJECTS COMPLETED:

End-to-End Lightweight Security Framework for OneM2M  
Smart Building  
Energy Efficient IoT Solutions  
Enabling Green Video Streaming over Internet of Things

# ICOSST 2018

## **PROFESSIONAL DEVELOPMENT CENTER**

Email : Fahmeed.akram@kics.edu.pk  
Contact No. 0300-8038396



### VISION:

To bridge the existing gap between Pakistani academia and industry by training the young graduates according to the requirements of job market through active collaboration with the local industry.

### MISSION:

Our mission to certified people to attain the skills whether they are students or professionals

### PROFILE:

Professional Development Center (PDC) Form in 2017. And we are dealing in Networks technologies Training & Certification and Cyber Security Certifications as well from day one and certified lot student and Market professional as well. And within this limited tenure PDC have recognized with successive trademark in Market. And also PDC organized the International Huawei ICT Skill Competition in 2017 and 2018. And produced top 4 students from PDC Pakistan who took the 2<sup>nd</sup> position globally in 2017.

# ICOSST 2018

## PEARSON

Email [Saima.kanwal@kics.edu.pk](mailto:Saima.kanwal@kics.edu.pk) / [cert@kics.edu.pk](mailto:cert@kics.edu.pk)

Contact No. 0334-4159236

Research Area N/A



## VISION:

We built the Pearson VUE business on state-of-the-art technology that enables us to reliably deliver exams and provide the highest levels of service to our clients and their candidates around the world.

## MISSION:

It's simple really. We call it the Pearson VUE difference. We built the Pearson VUE business on state-of-the-art technology that enables us to reliably deliver exams and provide the highest levels of service to our clients and their candidates around the world.

## PROFILE:

Pearson VUE delivers millions of high-stakes tests a year across the globe for clients in the licensure, certification, academic admissions, regulatory, and government testing service markets. It boasts the world's leading test center network with over 5,100 test centers in 175 countries - 400 of which are fully-owned and -operated by Pearson Professional Centers.

Pearson Professional Centers utilize a patent-winning design, which was created specifically for high-stakes testing and offers a carefully controlled, consistent testing environment.

Pearson UET center was launched on 15th march 2013 offering a capacity of conducting 5 exams simultaneously. The Technical Administrators are committed to offer the candidates with the world-class services. The center is designed to provide comfortable noise-free environment for exam delivery with easy and convenient real-time registration and rescheduling of the exams.

# ICOSST 2018

## EMBEDDED SYSTEMS & ENTERPRISE SOFTWARE SOLUTIONS LAB (ESESS)

Email: jamshaid.janjua@kics.edu.pk



### PROFILE:

This group conducts research and development activities in developing model-based and tool-supported design methodologies for real-time fault tolerant software on heterogeneous distributed platforms. We are bridging the gap between computer science and systems science by developing the foundations of a modern systems science that is simultaneously computational and physical. This represents a major departure from the current, separated structure of computer science (CS), computer engineering (CE), and electrical engineering (EE). It reintegrates information and physical sciences.

### PROJECTS COMPLETED:

Remote Grid Monitoring and Control System  
Common Delivery Points (CDPs) Central Data Acquisition from System CCDAS  
Development of Biometric Attendance System for Punjab Youth Festival 2014  
Development of Mobile Apps for Punjab Youth Festival 2014  
Development of Sports Portal Punjab  
Software System Development of Automated Meter Reading (AMR)  
Invoice Processing Automation System (I.P.A.S) Customization for the Sapphire Electric Company (Pvt.) Ltd (SECL) Project  
Invoice Processing Automation System (I.P.A.S) Customization for the Orient Power (Pvt.) Ltd.  
Load Forecasting System for Pakistan WAPDA  
Software Development for Invoice Processing Automation System (IPAS)  
Software System Development of Hospital Management System  
Software System Development of Secure Keyboard  
Software System Development of Anti-Key Logger Providing Security Behind The Scene  
Software System Development of Key Sniper Protects System Dynamically  
Software System Development of CapIT A Dynamic SWF Generation Tool  
Software System Development of Electric Vector Meter (EVM)  
Software System Development of Automated Meter Reading (AMR)

# ICOSST 2018

## **SCHOOL OF MEDIA STUDIES**

Email: [Uetnews.tv@gmail.com](mailto:Uetnews.tv@gmail.com)

Contact : 03214404158

Web Tv: [www.uetnews.tv](http://www.uetnews.tv)

Facebook Page : [www.facebook.com/uetnewsofficial](http://www.facebook.com/uetnewsofficial)

Twitter: UET NEWS



### MISSION:

Prepare students for the society that we envision for tomorrow while making them effective, skilled, ethical communicators and citizens in a globalized world.

### PROFILE:

School of media studies (SMS), UET Lahore presents professional training courses in broadcast journalism. It aims to provide trainings necessary to obtain a position and build a career in highly competitive, liberal dominated field of broadcast journalism.

### COURSES:

Courses that we offer at SMS are;

- 1) News Anchoring
- 2) Program hosting
- 3) News Reporting
- 4) News Production
- 5) Camera Operating
- 6) Audio Engineering
- 7) Non-linear editing
- 8) Visual Communication Design
- 9) Radio Jockeying
- 10) Script Writing
- 11) Copy Editing

# ICOSST 2018

## TECHNOLOGY INCUBATION CENTER OF KICS

Email :farhan.riaz@kics.edu.pk

Contact No:0321-4029085

Research Area : Incubation, Entrepreneurship



### VISION:

TICK is a Tech. Incubator that Creates Investment Opportunities, Technology Partnerships & Helps Grow And Scale Your Startups

### MISSION:

Our Mission is to create Startups, foster Innovation and Entrepreneurship among students to channelize their creativity for their better tomorrow. Because with proper guidance and mentorship, even a small amount of seed money can prove to be a great Launchpad and make a huge difference when surrounded by right resources. Hence, this way we can create exceptional companies by the leverage of knowledge, experience and infrastructure.

### PROFILE:

TICK firmly believes in changing the national and individual fortune by familiarizing and exposing students to the Entrepreneurial Ventures and Startup Culture. We do this by providing students with the required infrastructure, office space, mentoring and consultancy to nourish their ideas from infant seed stage to the flourished high growth venture.

### PROJECT COMPLETED:

- Startups 35
- Research Projects 10
- Labs 20
- Departments 20











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