Palestine Polytechnic University

4th Palestinian International Conference on Computer and Information Technology

PICCIT' 2015

Hebron, Palestine
October 7-8, 2015

Conference Site:

Palestine Polytechnic University

Wade Al Hareiah Campus

Editor

Dr. Hashem Tamimi

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Chairperson
Dr. Radwan Tahboub

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Conference Language Editor:
Dr. Mohammed Tamimi

BACKGROUND

Since 1978, PPU has served as one of the leading professional technology institutions in the region. PPU is committed to acquire and utilize technology to advance the university's comprehensive educational mission by enriching the careers and lives of our students and staff, and hence improving the educational and cultural levels of the Palestinian community. The PPU has created an environment, where graduates have become successful leaders, reformers, service providers, productive professionals, and supportive family members. The University offers its students with ample opportunities to explore and study such fields in education and research including engineering, computing, science, management, and professional training. The importance of graduate studies and scientific research has been one of the top priorities of PPU. This priority comes in complete harmony with the strategic plans of the university to improve the quality of life of Palestinians by offering high level graduate programs in the region and worldwide, and be recognized as a major stakeholder in the process of development nationally and internationally. This serves to promote and fulfill the university vision, mission and objectives concerning graduate studies, scientific research and innovation.

The 4th Palestinian International Conference on Computer and Information Technology (PICCIT 2015) is a forum for scientists, engineers, experts, entrepreneurs, researchers, and students from various sectors to present their latest research results, ideas, developments, experiences and applications in all areas of computer science, computer engineering and information technology through a peer-review process. An organizing committee from all Palestinian universities and other international universities was formed to supervise and guide the PICCIT 2015 activities. The conference includes keynote speeches, oral presentations, student research, and state-of-the-art workshops. Three workshops will be held in the following areas: ‘Horizon 2020’, ‘e-learning and the integration of technology in education and ‘iArabic’. These workshops are intended for a range of groups of professionals and researchers, educational developers, teachers, supervisors, and Arabic Language Processing researchers. There are also three keynote speakers who will address up-to-date topics related to latest ICT challenges. The conference will last for two days on October 7-8, 2015 at the Palestine Polytechnic University (PPU) campus in Hebron city, Palestine. The PPU has previously organized and ran several initiatives tackling both computer and information technology issues. PPU has organized the first, second, and the third PICCIT. Extended versions of best papers will be considered for publication by JATIT, which is widely distributed and indexed journal.

Conference Chairperson Speech

Dear Excellences, Guests and Colleagues,

On behalf of the organizing committee, I am pleased to welcome you all today at the Fourth Palestinian International conference on Computer and Information Technology PICCIT 2015.

Based on the strategies of the University Graduates Union (UGU) and the Palestine Polytechnic University (PPU) that provide continuous support and encouragement of scientific research and community services, PPU is well known for its creativity in initiating series of scientific activities held annually. The PICCIT 2015 is one of these core activities. This conference is held under the patronage of His Excellency the Palestinian Prime Minister, Professor Dr. Rami Hamdallah, and in cooperation with all Palestinian universities in addition to many local and regional organizations.

It is not a secret today that the enhancement of knowledge and skills and promoting the attitude of distinguished work alongside with stimulating and supporting creativity represent the decisive factor for achieving our prospective social, economic and developmental goals.

Developed societies and countries have witnessed a great prosperity on the economic, cultural, social, and political aspects during the passing eras. While all other societies, that did not support their scientists and researchers, have experienced loss and failure. Civilized nations and countries throughout history are good examples of such excellence in science and research for the prosperity of their nations.

In this event, I would like to convey the following messages:

The first message goes to our Palestinian government: we call upon you to endlessly support the Palestinian scientists, researchers, and learners in their endeavors towards success. The Palestinian government should work hard on developing a clear national strategy that connect the Palestinian universities with the private and the governmental sectors in the areas of collaborative research as well as money-generating and job-creating projects.

My second message is to all universities and educational institutions and their boards of trustees and presidents. I would like to ask you to be generous in the disbursement of funds despite the limited resources. Inadequate income negatively affects the quality of education in Palestine; therefore, I urge you to continuously and unconditionally support all research activities, cooperative and collaborative works, research leave, and the long-run investment in the human resources in charge of research in the Palestinian universities.

The third message is directed to the public and private sectors. I ask you to cut part of your income to conduct and support research related to your fields. This should be done in collaboration with the Palestinian researchers in order to establish deep-rooted networks and relations and create integration between the private sector and educational institutions. Such initiatives would help develop and uplift your areas of specialization and the kind of service or product you offer using up-to-date technologies and methods.

PICCIT2015 Conference is held for two consecutive days on the 7th and the 8th of October 2015. More than 300 participants are expected to attend and 25 accepted scientific papers would be presented. During the conference, three keynote speaker sessions will be held tackling a variety of topics in computer and information technology.

In addition, three specialized workshops will be conducted:

- A pre-conference workshop on 'Horizon 2020' for two days –held one day before the conference and the afternoon of the first day –with the support and contribution of the European Union through the Palestine Academy for Science and Technology.
- A workshop on 'e-learning and the integration of technology in education'. Held in the second day of the conference (8/10), this workshop is organized through the National Palestinian Project for E-Learning directed by Dr. Rasheed Jayyousi and supported by the Belgium government (BTC). Distinguished experts in the field will present five talks; schools teachers, supervisors, and professors from various directorates of education and the Palestinian universities are expected to attend this workshop.
- A workshop on 'iArabic' will be held in cooperation with Ibin Sina Institute for IT – Birzeit University. This workshop is annually held to develop research in Arabic content and to highlight the accomplishments of local companies and university researchers in this field.

At the end, I am pleased to extend my sincere thanks and gratitude to all those who contributed to the success of this important event beginning with the His Excellency the Palestinian Prime Minister for sponsoring this event, PPU administration, the Board of Trustees, the conference organizing committee, the scientific committee represented from all Palestinian universities, the central administrative committee, the Ministry of Telecommunication, and the Ministry of Higher Education. I would also like to thank the Palestine Islamic Bank for their continuous support to PPU and researchers, BTC, Palestine Science Academy, and Hebron Municipality.

Thank you all for coming and God bless you.

Conference Chair,

Radwan Tahboub.

Message from Program Chairs

The aim of the PICCIT 2015 conference is to bring together Computing researchers and practitioners from Palestine and abroad, and to offer a forum for the exchange of research ideas and best practices in the fast-growing fields of Computing.

The conference program is organized around accepted papers. There were about 40 submitted papers to the conference, of which 25 have been accepted, with an acceptance rate of 60%. Each of the submitted papers was reviewed by at least two referees from the 55 members of the conference program committee.

Additionally, the conference has three distinguished keynote speakers: Dr. Thies Wittig, Dr. Edward Jaser, and Dr. Jihad El-Sana; and two half-day workshops: one on E-education and one on Computational Linguistics and Arabic Content.

We would like to thank all contributors to the conference, the authors for their interest in submitting papers to PICCIT 2015, the members of the program committee for their valuable time in reviewing the papers, the keynote speakers for their willingness to be with us to share their expertise, the workshop organizers and contributors for their efforts and good work, and students for their input as coauthors and in many other ways. We also thank the Journal of Theoretical and Applied Information Technology for its willingness to consider the best papers presented at PICCIT 2015 for possible publication.

PICCIT 2015, as the fourth of its kind over the past several years, has been the major event for gathering Computing researchers and practitioners from Palestine and abroad. We hope that all participants will benefit from the time spent at the conference.

Program chairs
Prof. Nabil Arman, (PPU)
Dr. Hashem Tamimi, (PPU)
Prof. Adnan Yahya, (BZU)
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Hatem Elaydi, Islamic University of Gaza, Palestine	

Conference and Workshops Program

Program at a Glance

Day 1: Wednesday 7/10/2015

Time	Activity	
09:00 - 09:45	Registration	
09:45 - 11:00	Opening Session	
11:00 - 12:00	Keynote Speaker: Dr. Thies Wittig (Chair: Prof. Adnan Yahya)	
12:00 - 12:30	Coffee Break	
12:30 - 01:30	Keynote Speaker: Dr. Edward Jaser (Chair: Dr. Muna Mattar)	
01:30 - 02:10	Lunch	
02:10 - 04:20	Three Parallel Sessions: Session 1 + Session 2 + Session 3	MED Dialog Awareness &Training Workshop

Day 2: Thursday 8/10/2015

Time	Activity	
08:30 - 09:00	Registration	
09:00 - 09:50	Keynote Speaker: Prof. Jihad El-Sana (Chair: Dr. Nizar Awartani)	
09:50 - 10:00	Coffee Break	
10:00 - 12:30	E-Education Workshop	Computational Linguistics & Arabic Content Workshop (iArabic)
12:30 - 02:20	Session 1	Session 2
02:20 - 02:50	Closing Session	
02:50 – 03:50	Lunch	

PICCIT 2015 Program Details

Day 1: Wednesday 7/10/2015

Time: 09:00 - 9:50

Registration

Time: 9:50 - 11:00

Opening Session

Time: 11:50 - 01:30

Keynote Speaker:
Dr. Thies Wittig (Chair: Prof. Adnan Yahya)

Keynote Speaker:
Dr. Edward Jaser (Chair: Dr. Muna Mattar)

Time: 11:50 - 01:30

Day1 - Parallel Session 1: Networking and Security			
Time:2:30-04:20	**Hall: C301**	**Chair: Dr. Bilal Amro**	
Time	**ID**	**Title**	**Author names**
2:30 – 2:45	175	Data Leakage/Loss Prevention Systems DLP	Yousef Saleh, Radwan Tahboub
2:50 – 3:05	165	Detection and Mitigation Mechanism for Multiple Black Hole Attacks in Mobile Ad Hoc Networks	Abdul-Rahman Salem, Rushdi Hamamreh
3:10 - 3:25	145	Wait-Then-Migrate Fault Tolerance Approach using OpenNebula	Amal Dweik, Anas Amro
3:30 – 3:45	126	TCP performance paper	Rihabb Salamen, Mohammed Aldasht
3:50 – 4:05	151	Performance Comparison of Global State Routing and Fisheye State Routing Protocols in MANETs	Mohammad Mikki, Ahmad El-Samak
04:05 – 04:20	Session Discussion		

Day1 - Parallel Session 2: Artificial Intelligence and Bioinformatics			
Time:2:30–04:20	**Hall:C302**	**Chair: Dr. Muath Sabha**	
Time	**ID**	**Title**	**Authors names**
2:30 – 2:45	160	Z-number Approaches	Derar Mraiziq
2:50 – 3:05	162	Using Genetic Algorithm for the Optimization of RadViz Dimension Arrangement Problem	Samah Badawi, Hashem Tamimi, Yaqoub Ashhab
3:10 - 3:25	166	Automating the Creation of Arabic Ontologies: A Preliminary Study	Amjad Hawash, Kamal Irshaid
3:30 – 3:45	174	Tumour delineation and diagnosis improvement in PET using anatomical information and wavelet transformation	Mousa Alrefaiyeh, AbdAlrahman Abu Ramouz
3:50 – 4:05	153	Feature Selection and Classification of Protein Data using Random Forest	Hani Qudsi, Hashem Tamimi, Yaqoub Ashhab
04:05 – 04:20	Session Discussion		

Day1 - Parallel Session3: E- Technology			
Time: 2:30–04:20	**Hall:C303**	**Chair: Dr. Labib Arafeh**	
Time	**ID**	**Title**	**Authors names**
2:30 – 2:45	157	Integrating VoIP Systems with The Internet of Things	Ghannam Aljabari
2:50 – 3:05	163	Raising Labor Productivity Through ICT: The Case of Palestine	Islam Abdeljawad, Rabeh Morrar, Mamunur Rashid
3:10 - 3:25	154	The Students' Portal of Ilmenau: A User Behaviour Model	Thomas Paul, Stephen Stephen, Hani Salah, Thorsten Strufe
3:30 – 3:45	125	Interventional Factors Affecting Instructors Adoption of e-Learning System In Palestine	Fareed Al-Sayyed, Baker Abdalhaq
3:50 – 4:05	170	Experiments study and Performance Evaluation to determine the block size for Digital Signature in Alchemi Cloud Computing.	Iyad Shaheen, Yousef Shaheen, Roba Shaheen
04:05- 04:20	Session Discussion		

Day 2: Thursday 8/10/2015

09:00 - 09:50	Keynote Speaker: Prof. Jihad El-Sana (Chair: Dr. Nizar Awartani)	
Time	**Activity**	
08:30 - 09:00	Registration	
09:00 - 09:50	Keynote Speaker: Prof. Jihad El-Sana (Chair: Dr. Nizar Awartani)	
09:50 - 10:00	Coffee Break	
10:00 - 12:30	E-Education Workshop	Computational Linguistics & Arabic Content Workshop (iArabic)
12:30 - 02:20	Session 1	Session 2
02:20 - 02:50	Closing Session	
02:50 – 03:50	Lunch	

Day 2: Thursday 8/10/2015

Time: 09:00 - 10:00

Keynote Speaker:
Prof. Jihad El-Sana (Chair: Dr. Nizar Awartani)

Time: 10:00 - 12:30

The 4th Palestinian Symposium on Computational Linguistics and Arabic Content (iArabic'2015)

Building C, 2nd Floor, VC Room

Time	Speaker	Title
10:00-10:20	Adnan Yahya, Joint work with Ali Salhi, Afnan Ahmad, Khater, and Walaa Assaf	Quality Assessment of Arabic Web Documents
10:20-10:40	Mustafa Jarrar, Nizar Habash, Faeq Alrimawi, Diyam Akra	Curras: An Annotated Corpus for the Palestinian Arabic Dialect
10:40-11:00	Nabil Arman, Faisal Khamayseh, Ibrahim Nassar, Sari Jabarin	Utilizing Arabic Natural Language Processing Tools in Automated Software Engineering
11:00-11:15	Coffee Break	
11:15-11:35	Taroub Ahmad Mustafa. Sa'ed	Programming in Arabic
11:35-11:55	Rebhi S. Baraka , Mahmoud N. Askary	AgriDPalmOnto: An Ontology-Based Approach for Diagnosing Date Palm Diseases
11:55-12:15	Alaa M. El-Halees	Arabic Opinion Summarization
12:15-12:30	General Discussion	

Day 2: Thursday 8/10/2015

Time: 10:00 - 12:30

E-Education Work Shop
In Cooperation with the Belgium Technical Cooperation (BTC)

Building C, Ground Floor, Bilal Amro Auditorium

Time	Speaker	Title
10:00 – 10:30	Rashid Jayousi	Effective Utilization of ICT in Education - ELearning Project
10:35 – 11: 05	Tharwat Zaid	ICT Usage in the Classroom, Training Program for Schools
11:05 – 11:20	Break	
11:20 – 11:35	Labib Arafeh	Quality of eLearning Systems
11:35 – 11:50	Nidal Jabari	The Adaptive Role in Mobile Learning
11:55 – 12:30	Mohammad Tamimi	Integrating Web 2.0 Technologies in Teaching and Learning

Day 2: Thursday 8/10/2015

Time: 12:30 - 02:20

Day 2 – Parallel Session 1: Networking and Security2			
Time:12:30–2:20	**Hall: C301**	**Chair: Dr. Yousef Abuzir**	
Time	**ID**	**Title**	**Authors names**
12:30 – 12:45	177	Security issues on Mobile Cloud Computing Frameworks based on Mobile Agents	Fida Warasna, Radwan Tahboub
12:50 - 01:05	150	A Survey: The Agent Based Routing Protocols In the Wireless Ad hoc Networks	Walaa Shawar, Amal Al-Dweik
01:10 - 01:25	155	A New Approach for QOS Based Ant Colony Optimization Routing Protocol In MANETs (QOS-Based ACO)	Walaa Shawar, Amal Al-Dweik
01:30 - 01:45	167	IRCFT Implementation and Results	Suzanne Sweiti, Amal Al. Dweik
01:45 – 02:00	Session Discussion		

Day 2 - Parallel Session 2: Algorithms and Software Engineering			
Time:12:30–2:20	**Hall:C302**	**Chair: Dr. Nizar Awartani**	
Time	**ID**	**Title**	**Authors names**
12:30 – 12:45	124	Communication Time in Extreme Programming Teams: A Controlled Case Study	Ali Al Jadaa, AbdAllah Karakra, Mohammad ZeinEddin, Abed Othman, Adel Taweel.
12:50 - 01:05	164	Comparison between Graph-Compression and Landmark Shortest-Path Approaches	Nabil Arman, Faisal Khamayseh
01:10 - 01:25	173	A New Novel Approach Method for optimization of Feature Selection	Duha Al-Darras, Suhail Odeh, Henry Chaya
01:30 - 01:45	133	Measuring visual activity in a video content based on computer vision temporal median algorithm	Kristian Dokic, Robert Idlbek, Mirjana Jelec Raguz
01:50 - 02:05	176	HQB-ATTS	Bana AlSharif, Radwan Tahboub, Labib Arafeh
02:05 – 02:20	Session Discussion		

Keynote Speakers

Dr. Thies Wittig (IT Consultant, Germany),
"ICT Perspectives in the South Mediterranean Region"

Bio: Dr. Thies Wittig has a PhD in Computer Science from the University of Hamburg, Germany. He has been working for more than 12 years in industrial research, including signal processing and artificial intelligence, before he created his own company IT Consult GmbH in 1995. Since 1986 he has been involved in international collaborative research projects, as researcher, manager, and coordinator. Until today he was involved in around 25 projects in Europe, Middle East, Far East and Balkan countries, and his first project with partners from Palestine was back in 1998. He has a Long experience as EC proposal evaluator and project reviewer. Currently visiting lecturer at Univ. for Applied Sciences, Bremen, Germany.

Abstract: This keynote will present the results from a recent survey on future ICT priorities in the South Mediterranean Region, priorities that could help strengthening the socio-economic situation in the region through new ICT- enabled products and services. It will highlight some of the core reasons why despite a good academic education base in all countries the region is still not really known for producing ICT or other high-tech products for the international market: for example the lack of an innovation culture and the absence of targeted research strategies that integrate the private sector. In the second part the new focus of the new European H2020 Programme will be presented: the shift from "research and development" to "research and innovation" and in some cases even addressing market aspects. Participating in this programme can help to create the missing innovation culture in the region by bringing together the academic and private sector, an absolute prerequisite to make innovation happen

Dr. Edward Jaser (Chairman, Computer Graphics, King Hussein Sch. for Computing Sciences) "Gaming Concepts for Tackling Societal Challenges"

Bio: Dr. Edward Jaser obtained his PhD in Computer Science from the University of Surrey (United Kingdom) in 2005. He received his Masters degree in Human-Computer Interaction from Heriot-Watt University (United Kingdom) in 1999. He has 16 years of experience working as a Researcher and IT Expert at the Information Technology Centre of the Royal Scientific Society (Jordan). He also gained considerable experience conducting and managing research activities and projects from being the project manager of a number of research projects and from taking part of a number of EU funded projects. As of October 2010, he is working at Princess Sumaya University for Technology, Jordan and since September 2014 he is the Chairman of the Computer Graphics and Animation Department at King Hussein School for Computing Sciences.

Abstract: Governments, and to a certain extent non-governmental organizations, around the world have to continuously deal with complex and dynamic societal challenges. One approach that has gained increasing popularity over the last two decades is the use of Information and Communication Technologies (ICT) as a tool to enhance impact and deliver efficiency and effectiveness. Therefore, we have been witnessing wide spectrum of ICT interventions to address and inhibit challenging and complex societal problems. One area of ICT that has been attracting more attention recently is the use of games and gaming concepts for this purpose. In this presentation, we provide analysis about major societal challenges that are shared internationally and analyse video games that are designed to address these challenges.

Prof. Jihad EL-Sana, (Department of Computer Science, Triangle Research & Development Center), "Content Authoring for Augmented Reality Systems"

Bio: Prof. Jihad El-Sana is affiliated with the Department of Computer Science, TRDC. His research interests include, image processing, computer graphics, augmented reality, and pattern recognition. He has published around 100 papers in refereed journal and conference proceedings. El-Sana received his B.Sc. and M.Sc. in Computer Science. In 1995 he won a Fulbright Scholarship for doctoral studies in the US. In 1999 he earned a PhD in Computer Science from the State University of New York, Stony Brook. El-Sana heads a department's Visual Media Lab, which hosts various research projects in Computer Graphics, Image Processing, Augmented Reality, Computational Geometry, and Document Image Analysis. El-Sana awarded the Catacosinos Fellowship for Excellence in Computer Science and the Ersken Fellowship in 2013. El-Sana is socially active and was among the founders of the Academic Association for the Development of the Arab Society in the Negev, and established Ahed High School for Science, which recruits excellent students from all over the Negev and prepares them for academic life in science and engineering departments.

Abstract: Augmented Reality (AR) opens new avenues for developing novel immersive digital experiences that are visually tied to the world surrounding the user. Over the last decade, various user interface paradigms have been researched to explore the possibilities offered by AR, such as using haptic devices, Tangible User Interfaces (TUI), gesture-based interfaces, and multimodal interfaces. TUI are intuitive to humans because they draw from our everyday skills, such as grasping and manipulating objects with spatial properties. In this talk, I will present intuitive approaches to create digital contents for Augmented Reality systems. I will describe general tracking approach, and then I will show how to utilize this algorithm to build an easy-to-use sketching system that utilizes a symbol language and interaction to generate 3D content on a white board. I will also introduce a smart fiducials to simplify the tracking of real object that are augmented in real-time

Abstracts for Conference Papers

Title:	**Communication Time in Extreme Programming Teams: A Controlled Case Study.**
Authors:	**Ali A. Al-Jadaa, Abdallah H. Karakra, Mohammad ZeinEddin, Abed Othman, Adel Taweel,**
Abstract:	Software development is a team-centered activity. However, there are a number of factors that affect a team's productivity. Thus, understanding the team dynamics and the different factors that influence their working is essential to improving their productivity. One such key factor is the amount of time a team spends on communicating to completing their tasks. This paper reports on a small scale case study, of (eight participants in) four student groups, using extreme programming. The study was conducted in a controlled environment to study the factors that may affect a team communication time, during the implementation phase. We found communication time between team members of the same gender is the longest. However, forming a team with relatively equal experience and including a well documented pre-training reduces the communication time significantly.

Title:	**Interventional Factors Affecting Instructors Adoption of e-Learning System In Palestine.**
Authors:	**Fareed Al-Sayyed, Baker Abdalhaq.**
Abstract:	The main questions addressed in this paper are the following: what are the interventional factors that affect instructors' adoption of an e-Learning system and what are the relationships among these factors?. For this purpose a number of hypotheses were formulated. In this study, a framework was conceptualized based on an extended version of the Technology Acceptance Model (TAM) integrated with intervention factors. The findings of the study show that there is a significant positive relationship between management support, design characteristics, organizational support, training, perceived usefulness, perceived ease of use and intention to adopt e-Learning. Based on the study results, it was recommended that the Palestinian universities should intervene to promote the adoption of e-Learning system.

Title:	**A Survey on TCP Performance for Mobile and Wireless Networks.**
Authors:	**Rihabb Salamen, Mohammed Aldasht.**
Abstract:	Transmission Control Protocol or shortly (TCP) is considered to be the fundamental cell for carrying the ultimate traffic of the internet, thus its performance is crucial for defining the performance of the internet. Previously, where the wired networks were the dominant in the world of the networks communications, TCP worked just fine. Actually TCP worked efficiently, since it was first introduced to serve the wired networks, and in wired network the only cause of packet losses is congestion. Wired connections are highly reliable. However, when the ideas of both wireless and mobile networks were first introduced, the performance of TCP started to shake and started to hinder. That's happened because of the TCPs inability to identify the true reason behind the losses in the transmitted packets [4]. At one hand, in a regular wired network where the links are highly reliable, the loss in transmitted packets is attributed to congestion. On the other hand, for wireless and mobile networks, the matter of packet losses is a little bit more complicated than that. Accordingly, a number of techniques were introduced to enhance the TCP performance for wireless and mobile networks. In our survey paper we attempt to summarize and discuss the problems that affect TCP performance for wireless and mobile networks, also we are going to compare the different proposed techniques to improve the TCP performance for wireless and mobile networks.

Title:	**Measuring visual activity in a video content based on computer vision temporal median algorithm.**
Authors:	**Kristian Dokic, Robert Idlbek, Mirjana Jelec-Raguz.**
Abstract:	Background subtraction algorithms are used for detection of moving objects in various fields. They also can be used to measure visual activities in a video content. Despite of increase of visual activity in a last few decades there has not been any accurate way to measure that phenomenon. This paper will show a way to measure visual activity using temporal median algorithm.

Title:	**Wait-Then-Migrate Fault Tolerance Approach using Open Nebula.**
Authors:	**Amal Dweik, Anas Amro.**
Abstract:	Cloud Computing is one of the terms that depends on delivering services over the internet and sharing it. As there are a cloud of machines and software, errors and faults often occur. Therefore, fault tolerance is a crucial issue in all models of cloud computing systems. In this paper, several cloud systems are studied and compared. A new developed approach called Wait-Then-Migrate (WTM) approach is proposed to tolerate faults of host crashes and virtual machine crashes in cloud systems. A comparison between OpenNebula fault tolerance approach and the WTM fault tolerance approach proved that WTM is better for tolerating hosts and VMs crashes. The experiments show that a WTM approach is a promising approach.

Title:	**Performance Comparison of Global State Routing and Fisheye State Routing Protocols in MANETs.**
Authors:	**Mohammad A. Mikki, Ahmad F. El-Samak.**
Abstract:	The biggest challenge in mobile ad-hoc networks (MANETs) is routing. Routing is to find paths between communicating nodes with accurate information and minimal delay. In this paper, we present a performance comparison of global state routing (GSR) and fisheye state routing (FSR) protocols. GSR can be viewed as a special case of FSR, in which there is only one fisheye scope level. This protocol reduces the number of control messages transmitted through the network. However, the size of update messages is very large and consumes bandwidth. This is where the fisheye technique comes to help. We use NS-2 to simulate both protocols and compare the performance of these two protocols according to different metrics: control overhead, routing accuracy, and packet delivery ratio. Simulation results show that FSR is simple, efficient and scalable routing solution in large MANETs compared to GSR.

Title:	**A Survey: The Agent Based Routing Protocols In the Wireless Ad hoc Networks.**
Authors:	**Walaa Shawar, Amal Al Dweik.**
Abstract:	Routing is a problem in the wireless ad hoc networks, many researchers tried to solve it because the usage of these networks in many applications is increasing within time. There are many routing protocols designed for the ad hoc wireless networks, but these protocols have some drawbacks that influence the network performance. To increase the performance of the ad hoc wireless networks, many modifications or new protocols have been proposed using the static agent, mobile agent or both types of agents in the network routing process. Researchers assert that the performance of the ad hoc networks is increased and the protocols that use the agents in its mechanism out perform the traditional routing protocols. In this paper a number of agent based routing protocols used in the wireless ad hoc networks is surveyed.

Title:	**Security issues in Mobile Cloud Computing Frameworks based on Mobile Agents.**
Authors:	**Fida Warasna, Radwan Tahboub.**
Abstract:	After the revolution of cloud computing and mobile clouds computing (MCC), MCC uses Mobile Agents (MA) techniques to increase its efficiency. The frameworks of mobile cloud computing based on mobile agent used to be more robust and secure. In this paper we compared between different MCC and CC frameworks based on security issues on mobile agent and cloud computing to explain the security issue solved by framework and the level of working. As a result, some of frameworks have a robustness security agent and solved many of security issues while the others focused on achieving specific goals, without taking into consideration the security vulnerabilities that will influence on the framework quality, so when we propose a new framework we should attention in security issues then go to achieve our goals. We provide general overview of mobile cloud computing, general overview of mobile agent, categories of security issues, finally the description of frameworks and comparison between them based on security issues.

Title:	**The Students' Portal of Ilmenau: A Holistic OSN's User Behaviour Model.**
Authors:	**Thomas Paul, Stephen Stephen, Hani Salah, Thorsten Strufe.**
Abstract:	Online Social Networks (OSNs) have become an essential part of the social life for more than one billion people. OSNs have received a considerable attention from different research communities. OSN providers, however, rarely share their data in order to protect both their business secrets as well as the privacy of their users. Data access limitations have forced researchers, in order to study several user behavior aspects, to use data collected from different and inconsistent datasets. Correlating different datasets, however, is impossible or hard to validate. In this paper, we provide a holistic analysis of user behavior in OSNs using the Students' Portal of Ilmenau1as a case study. Our analysis is based on a log-file level dataset, providing insights into the observed churn, usage patterns as well as social graph properties.

Title:	**A New Approach for QOS Based Ant Colony Optimization Routing Protocol In MANETs (QOS- Based ACO)**
Authors:	**Walaa Shawar, Amal Al Dweik.**
Abstract:	As the world tends to increase the use of the mobile ad hoc wireless networks (MANETs), a very important challenging issue is to enhance the performance of the used routing protocols. The traditional used protocols have some drawbacks on the network performance, and the proposed ones still have drawbacks although it is still better than the traditional ones. According to that, a research in this field is continuing to attract the researchers to enhance or propose protocols with better network performance. The use of the mobile agent is one of the promising approaches for enhancing the performance of the routing protocols. However, when it is used along with the ant colony algorithm in the ad hoc wireless networks, it results in a good enhancement of the network performance most of the time. This paper introduces a new MANETs routing protocol based on the ant colony optimization algorithm by taking the quality of service parameters (QOS) in the network into consideration. We called the new protocol a QOS Based Ant Colony Optimization Routing Protocol in MANETs (QOS-Based ACO).

Title:	**Integrating VoIP Systems with The Internet of Things.**
Authors:	**Ghannam Aljabari.**
Abstract:	With the rise of the Internet of Things (IoT), Voice over IP (VoIP) systems can be integrated into the IoT gateway to communicate with things over a telephone network. Integrating VoIP systems with the IoT will become very useful in many scenarios such as auto-dialing a phone number for emergency events, controlling IoT devices via analog phone and monitoring smart objects via VoIP phone. This paper introduces a novel, low cost solution to communicate with IoT devices over telephone and mobile networks as well as the Internet. We present the design and implementation of this solution to show the benefits of VoIP systems for the IoT.

Title:	**Z-number Approaches.**
Authors:	**Derar Atallah Talal Mraiziq.**
Abstract:	Currently, one of the most effectual research areas is multi-criteria decision making, and fuzzy set is considered as one of the key tasks that has been extensively used in the process of decision making since uncertainty and complexity is a constant phenomenon. One of the current issues is that the reliability of information is not precisely taken into account. In 2011 Zadeh has proposed a new notion Z-number that is more appropriate to describe the uncertainty. Z-number takes both restraint and reliability. The ability of Z-number's description of the real information of human is higher than the classical fuzzy number. The researchers started to discuss Z-number in decision making under uncertainty and began to apply in many areas, such as economics, management, decision analysis etc. In this study, two methods, which are used in the computations of Z-numbers are investigated and compared. Firstly, converting Z-number into fuzzy number and fuzzy number into crisp number. Secondly, direct computation of Z-numbers without conversion. These methods are applied for a problem of decision making in the field of economics.

Title:	**Using Genetic Algorithm for the Optimization of RadViz Dimension Arrangement Problem**
Authors:	**Samah Badawi, Hashem Tamimi, Yaqoub Ashhab.**
Abstract:	Visualization of high dimensional data aims to eliminate the difficulties and efforts of working with tabular and abstract data forms. One of the critical challenges for visualization methods is the dimension arrangement problem; where the result of visualization is completely affected by the set and the order of the dimensions along the visualization anchors. This is an NP-complete problem. In this study, we employ Genetic Algorithm for optimizing the dimension arrangement of radial coordinate. Our approach can preserve the pair-wise structural relations of the dataset instances as much as possible. We also compare the result obtained using our GA optimization with some solutions that were obtained without optimization, and we found that our result are closer to the optimal solution 4 times more than non-optimized solution.

Title:	**ICT and Labor Productivity of Service Sector Firms in Palestine.**
Authors:	**Islam Abdeljawad, Rabeh Morrar, Mamunur Rashid.**
Abstract:	This paper discusses the effect of Information and Communication Technologies (ICTs) on the labor productivity of the service sector in Palestine. Using cross-sectional data from 778 service firms, we find that using ICTs in service sector is positively and significantly affects labor productivity. Service sector firms that are less ICT-intensive are less productive when compared to more ICT-intensive firms. The use of E-commerce, mobile phones and more ICT-labor improves the labor productivity of service firms. The study also finds that Research and Development positively influences labor productivity only when it is complemented with more ICT labor. The colonial geographical segregation has significant effects on our results. For instance, the firms in Jerusalem are more productive and the firms in Gaza are less productive compared to the firms in the West Bank.

Title:	**Detection and Mitigation Mechanism for Multiple Black Hole Attacks in Mobile Ad Hoc Networks.**
Authors:	**Abdul-Rahman Salem, Rushdi Hamamreh.**
Abstract:	Mobile Ad Hoc Networks (MANETs) form a promising approach for applications that need fast installation with no infrastructure especially in disaster recovery and emergency operations. However, many challenges are facing MANETs including security, routing, and transmission range and dynamically changing topology with high nodes mobility. Security is considered as the main obstacle for the widespread adoption of MANET applications. Black hole attack is a type of DoS attack that can disrupt the services of the network layer. It has the worst malicious impact on network performance as the number of malicious nodes increases. Several mechanisms and protocols have been proposed to detect and mitigate its effects using different strategies. However, many of these solutions impose more overheads and increase the average end-to-end delay. This paper proposes an enhanced and modified mechanism called "Enhanced RID-AODV", based on a preceding mechanism: RID-AODV. The proposed enhancement is based on creating dynamic blacklists for each node in the network. Each node, according to criteria depends on the number of mismatches of hash values of received packets as compared with some threshold values, can decide to add or remove other nodes to or from its blacklist. Enhanced RID-AODV was implemented in ns-2 simulator and compared with three previous solutions for mitigating multiple black hole attacks in terms of performance metrics. The results show an increase in throughput and packet delivery ratio and a decrease in end-to-end delay.

Title:	**A Comparison between Graph-Compression and Landmark Shortest-Path Approaches.**
Authors:	**Nabil Arman, Faisal Khamayseh.**
Abstract:	Shortest path improvement is one of the most important and recent issues in combinatorial optimization. Emergency routs, road and public transportation networks, routing schemes for computer networks, social networks, and other applications are all motivating the study of improving shortest path finding. One of the big obstacles in such real-word applications is the size of the graphs. Given a weighted graph G(V, E, W), an algorithm to improve classical shortest-path for a given source <s> is provided. The contribution of this paper is to study the improvement of finding shortest-path by compressing the graph while preserving the graph properties and comparing it with the approach of using landmark optimization. In this paper, we implement the new approach of graph compression and the landmark approach. We discuss the performance, storage, and error rate in our approach compared to landmark. The paper concludes that the new graph compression technique performs with no errors compared to fast landmark approach, which is error prone when selecting source or destination vertices out of the landmark nodes.

Title:	**Automating the Creation of Arabic Ontologies: A Preliminary Study**
Authors:	**Amjad Hawash, Kamal Irshaied**
Abstract:	The work presented in this paper is related to automation the creation of Arabic ontologies. We propose an approach to create Arabic linguistic ontologies from a multilingual encyclopedic dictionary BabelNet. As a preliminary study, we created two ontologies: Time and Place. The work involves the introduction of the idea as well as illustrating the algorithm invented for this purpose. To measure the amount of correctness in our work we conducted a manual and linguistic professional supervised comparison between our generated ontologies and manual created ones. Results of comparison emerges a proposing technique to automate the creation of Arabic Ontologies. Currently, we consider two main concepts relations: super class and subclass to compatible the structure of the manually created ones. For future works, we are planning to widen the creation process to include more Arabic ontologies and conduct more comparisons with other well defines ones.

Title:	**IRCFT Implementation and Results**
Authors:	**Suzanne Youcef Sweiti, Amal Moh'd Al. Dweik**
Abstract:	Mobile agents are compressed parts of software, which contain code and data able to move on from one host to another host and do particular tasks autonomously. Mobile agents might come across usual errors, which emerge especially during migration request failure, security penetration or communication exceptions. To operate despite these failures, reliability issues are of paramount importance in order to challenge such failures. This paper implements a novel fault tolerance approach "IRCFT" to detect agent failures as well as to recover services in mobile agent systems .Our approach makes use of check pointing and replication where different agents cooperate to detect agent failures. We have implemented the proposed approach on the Aglets mobile agent system and evaluated the agent survivability for failure recovery using the following parameters: total trip time and successful migration time. The work in has been compared to our developed approach. The results show an acceptable improvement in performance and reliability by improving total trip time.

Title:	**Experiments study and Performance Evaluation to determine the block size for Digital Signature in Alchemi Cloud Computing.**
Authors:	**Iyad Shaheen, Yousef Shaheen, Roba Shaheen.**
Abstract:	Peer-to-peer (P2P) or enterprise clouds are proven as one of the approaches for developing cost-effective high-end computing systems. By utilizing them, one can improve the performance of digital signature cryptography through parallel execution. These experiments for studying the high-performance approach for the digital signature is proposed through using Alchemi cloud computing. In this paper, we choosing a file size range in all experiments are from file size 15MB to file size 85MB and is chosen for maximum CPU power range from 3GHz to CPU power 15.5GHz. So the manager chooses in all experiments the same maximum size of memory buffer that is equal to 22MB.

Title:	**A Novel Approach for optimization of Feature Selection.**
Authors:	**Duha Al-Darras, Suhail M. Odeh, Henry J. Chaya.**
Abstract:	The accuracy of many classification problems is crucial, and as the number of features for collected data is increasing, the need to find the best features to be used in order to increase the accuracy of classification is a necessity. There are several methods of feature selection, but none of them give the absolute best solution, most of them fall in the trap of local optima. This paper presents a new method that searches for the absolute best solution or, a solution that will give a higher classification accuracy rate, by using a novel approach that divides the features into two groups; first group and second group of features. After that he method finds the best combination, which gives the maximum accuracy rate, from the two groups. The purpose from this method is to select and find the best feature/s as individual or in groups.

Title:	**Tumour delineation and diagnosis improvement in PET/CT using anatomical information and wavelet transformation.**
Authors:	**Mousa Alrefaiyeh, Abdel rahman Abu Ramouz.**
Abstract:	Early diagnosis of cancer diseases playing a very important role in saving patients lives and increasing the treatment success ratio. Positron Emission Tomography (PET) is an in vivo nuclear medicine imaging method that measures biochemical activity and provides functional information of the cells of body tissues. Anatomical information is imagining using CT or MRI images. PET suffers from a high level of noise. The position of abnormal tissues in the body is missed in PET while the activity levels of abnormal tissues are missed in CT. Both modalities are combined in one image to have complete details for the radiologist for better diagnosing. Many cases the fusion techniques lost the tumor in the fused image. In this paper, we develop a new algorithm for improving the delineation of the tumor in the PET and CT. The proposed method is based on inserting the region of interest from the PET image to the CT image. The new algorithm assist the radiologist for better delineate and diagnosis tumors. The wavelet decomposition and region of Interest intensity (ROI) based methods are used to accomplish this goal. Results show a significant improvement for determining the size and the type of the interested tissue.

Title:	**Precaution Model for data leakage Prevention/Loss (DLP) Systems.**
Authors:	**Radwan Tahboub, Yousef Saleh.**
Abstract:	Sensitive and confidential data are a requisite for most of the companies; Data leakage causes negative impact on companies. Data leakage/loss prevention (DLP) systems are the solutions that protect sensitive data from being in non-trusted hands. DLP systems have weaknesses in detection stenography leaks, so any hidden sensitive data could be sent to other parties. In this paper is an attempt to present solution to solve hidden data and implement solution to solve this problem.

Title:	**Natural Language Processing Module for Arabic Text-to-Speech Synthesis.**
Authors:	**Bana AlSharif, Radwan Tahboub, Labib Arafeh.**
Abstract:	Natural Language Processing (NLP) Module for Arabic Text to Speech is introduced in this paper. It's a module from our integrated design for Arabic named as Holy Quran Based- Arabic Text to Speech (HQB-ATTS). HQB-ATTS system is implemented using some Tajweed rules that are used in Standard Arabic. Through this paper, new ideas are adopted and discussed in order to increase the quality of Arabic Text-to-Speech (ATTS). The innovations that have been applied in NLP module are: the use of some of Tajweed rules to build better letter to sound module, the combination of Arabic Prosody with allophone /syllables slots is a new use for a technique supported the linguistic property for Arabic, and the quality evaluation for the NLP module is performed in new method to proof the success for our hypothesis in comparison with other up-to-date approaches. The results show that this HQB-ATTS approach can significantly enhance the quality of the synthesized speech. The evaluation showed that this approach could produce a better-synthesized speeches' quality than comparative ATTS synthesizers.

Title:	**Feature Selection and Classification of Protein Data using Random Forest**
Authors:	**Hani Qudsi, Hashem Tamimi, Yaqoob Ashhab**
Abstract:	In this research, we applied one of the well-known machine learning tools (Random Forest RF) to find the important proteins features for proteins classification. RF has an embedded feature selection method. We encoded the protein sequences using eleven encoding techniques on outer membrane proteins (OMPs) benchmarks. Encoding methods are classified two groups: encoding methods based on the physiochemical properties of the amino acid and the others are based on the amino acids sequence. For each encoding techniques, we have determined the important features and the important sequence encoding in general. The important features are extracted using Gini importance measure that is already embedded in RF. We used the outer membrane proteins dataset as a benchmark dataset for full protein sequences, and the results presented in a user-friendly way to help biological researchers to deal with the results easily. The important features are represented with graphs that show the importance value of each feature.