

Under the patronage of

Her Excellency Sheikha Lubna Bint Khalid Al Qasimi

Minister of International Cooperation and Development
President of Zayed University

The 7th Annual Undergraduate Research Conference
on Applied Computing (URC 2015)

Hosted by

College of Technological Innovation
Zayed University
United Arab Emirates

April 22 – 23, 2015



Message from the Conference Chairs

Welcome to the 7th Annual Undergraduate Research Conference on Applied Computing (URC 2017). The objective of this conference is to promote undergraduate research activity at educational institutions across the Arab world, by providing a forum for undergraduate students to present their research projects, share ideas and interact with other young researchers, faculty members, and technology leaders from the region.

This year we have accepted 156 undergraduate research projects to be presented in oral and poster presentations. These projects, which represent 550 authors (primarily undergraduate students) and their faculty advisors, will be presented by undergraduate students from educational institutions in the UAE as well as others from Iraq, Jordan, Kuwait, Oman, Palestine, Qatar, and Saudi Arabia.

We would like to thank everyone involved in this conference. First and foremost, we thank the students and their faculty advisors for their submissions to this conference – without their research projects this conference wouldn't exist! We also thank the rest of our team members of the organizing committee, as well as the technical committee who reviewed student submissions and provided valuable feedback. We would also like to extend our special thanks to the keynote speakers, and members of the panel discussion, for taking the time out of their busy schedules to participate in this conference. We are grateful to Zayed University Office of Research for their continued support that help make this conference a reality.

This conference would not have been possible without the great efforts made by the registration and local arrangements team who worked tirelessly to ensure everything is organized to perfection, and for this we extend a heart-felt thank you to Mona Bader, Izzeddin Asad, Dr. Huwida Said and Nagaraj Chandrashekrana. We would also like to thank all the student volunteers from Zayed University for their help with registration and chairing the oral presentation sessions.

Finally, we take this opportunity to thank Zayed University for hosting this conference.

We hope you will enjoy the conference and the lovely city of Dubai.



Dr. Faouzi Kamoun
Interim Dean, College of Tech Innovation
Zayed University, UAE



Dr. Qusay H. Mahmoud
Conference Co-Chair
Univ. of Ontario Institute of Tech, Canada



Dr. May AlTaei
Conference Co-Chair
Zayed University, UAE



Program Overview



Wednesday, April 22

8:00am – 9:00am	Registration Continental Breakfast and Poster Setup
9:00am -9:15am	Welcome: Prof. Abdel-Mohsen Onsy Associate Provost and Chief Academic Officer
9:15am - 10:00am	Keynote: Mr. Saeed Matar Al Marri Deputy CEO of Dubai SME
10:00 – 11:00am	Panel: Opportunities and Challenges for Research and Innovation in the Arab World Moderator: Dr. Chet Jablonski (Zayed University) Members: Dr. May AlTaei (Zayed University) Dr. Ahmed Dabbagh (Emirates Identity Authority) Dr. Dina El-Dakhs (Prince Sultan University)
11:00 – 11:30am	Coffee Break
11:30 – 12:30pm	Oral and Poster Presentations I , <i>see the detailed program for room numbers</i> (16 oral presentations and 60 posters)
12:30 – 2:00pm	Lunch
2:00pm - 2:45pm	Keynote: Dr. Michael Allen Assistant Provost for Faculty Affairs and Research, Zayed University
2:45pm - 4:00pm	Oral and Poster Presentations II , <i>see the detailed program for room numbers</i> (11 oral presentations, and same 60 posters as above)

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Thursday, April 23

8:00am - 9:00am	Registration Continental Breakfast and Poster Setup
9:00am - 9:45am	Keynote: Timothy Peck Program Executive, IBM MEA University Relations
9:45am - 10:30am	Open Forum
10:30am - 11:00am	Coffee Break
11:00am - 12:00pm	Oral and Poster Presentations , <i>see the detailed program</i> (6 oral presentations and 63 posters)
12:00pm - 1:30pm	Lunch
1:30pm - 2:30pm	Poster Presentations , <i>same posters as above</i>
3:00pm - 4:00pm	Awards and Closing Remarks



Keynote Speakers



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Saeed Matar Al Marri

Mr. Al Marri is currently holding the position of Deputy CEO of Mohammed Bin Rashid Establishment for SME Development (Dubai SME), an Agency of Dubai Economic Development Department - Government of Dubai, and is a member of the Supervisory Committee of H.H. Sheikh Mohamed Bin Rashid Fund for SMEs.

Prior to his appointment at Dubai SME, Saeed held several senior managerial positions in Dubai, UAE. He was the Deputy CEO of Business Registration & Licensing Sector in the Department of Economic Development in Dubai. He headed the Branch Banking network at Noor Islamic Bank & worked for Priority Banking at Emirates Islamic Bank.

Mr. Al Marri is a holder of Post Graduate Diploma in Islamic Banking & Insurance from the Institute of Islamic Banking & Insurance in London UK, and is a Business Graduate from the Higher Colleges of Technology in Dubai, UAE. He has 17 years extensive work experience in both Government entities & Islamic Banking sector.



Michael Allen, Ph.D.

Dr. Michael Allen is Assistant Provost for Faculty Affairs and Research at Zayed University, having previously served for five years as Dean of the College of Arts and Sciences. He has also held positions at the University of Auckland (New Zealand), the University of California at Berkeley, Brigham Young University, and the University of Victoria (British Columbia, Canada). He has extensive experience in international education, and has traveled widely both for his own research and to build programs and partnerships between universities. Trained as a historian, Dr. Allen received his Ph.D. degree from the University of Washington and his Master's degree from the University of California at Berkeley. He holds undergraduate degrees in both History and Asian Studies from Brigham Young University. Dr. Allen is a specialist on East Asian history in the 19th and early 20th centuries, and has traveled numerous times to China, Japan, and Korea (both North and South). Most of his research has focused on Korea in the 19th and 20th centuries. He also has a deep interest in world history, and his publications include books and articles on nationalism in East Asia, intellectual history, historiography, and the history of the world since 1500.



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Timothy Peck

Tim Peck started his professional career as a Civil Engineer initially focused on securing the status of a Chartered Engineer, however two years post gaining Chartered status Tim's career changed direction when he joined a young Californian technology company, Sun Microsystems, where he progressed through to the Technical Director for a region ranging from Greece to South Africa and Portugal to India. He then moved to Dubai to establish the Sun Professional Services organization. In Dubai he then accepted the challenge to run the MEA business for a US software company, BMC Software, prior to joining IBM with in it Research organization, where he managed and promoted collaborative between IBM, Governments and higher education establishments. Currently Tim continues his involvement with Middle East Universities as well as running an IBM skills investment program across Africa.



Panel Members

The logo is a dark red, shield-like shape with a scalloped left edge. It contains the text "7TH ANNUAL UNDERGRADUATE RESEARCH CONFERENCE ON APPLIED COMPUTING" in white, uppercase letters. The text is arranged in five lines: "7TH ANNUAL" (largest), "UNDERGRADUATE", "RESEARCH CONFERENCE", "ON APPLIED", and "COMPUTING" (smallest).

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Panel Discussion

Panel: Opportunities and Challenges for Research and Innovation in the Arab World

The region is emerging as a hub for education, research and innovation. Universities are striving to enhance their applied research portfolios, and establish rewarding industry-academia collaborations. This panel will address and discuss the challenges faced by academics interested in establishing applied research programs, the opportunities seen by industry, and explore possible solutions and successful research strategies and models. Distinguished members of this panel will explore answers to questions, such as: (1) why research and innovate, and what incentives exist for doing that? (2) what does it take to transform a teaching university into a centre of excellence for research? (3) what are some of the available sources for research funding in the region? (4) how to foster collaboration between industry and academia? plus other related questions from the audience.



Chet Jablonski, Ph.D.

Chet completed his undergraduate studies at the University of Massachusetts, Amherst graduating *magna cum laude* as a chemistry major 1967. He then studied with Max Heberhold and E.O. Fisher (Nobel Laureate 1973) as a Fulbright student in Munich and continued in Chemistry with a stopover at the University of Colorado, Boulder and then at the University of Calgary, Alberta Canada, where he completed a PhD in Transition Metal Organometallic Chemistry in 1972. Following a National Research Council (Canada) Post Doctoral appointment at the University of Western Ontario and then at the University of Waterloo, in 1974 he took a faculty position at Memorial University, St. John's Newfoundland, Canada. Island living, wonderful people and excellent university support contrived to develop his "Newfie" spirit and he remained in Newfoundland at Memorial University, as a professor of chemistry and Director of the Nuclear Magnetic Resonance Facility until 1997, supervising masters and PhD students, publishing 80+ research papers in synthetic and mechanistic transition metal chemistry as well as chiral enzyme mimic catalysts, and as Associate Dean of Graduate Studies and then Dean of Graduate Studies from 1997-2007. After an unsuccessful retirement attempt to pursue salmon angling at his home on the Miramichi river in Northern New Brunswick Canada, he continues to contribute to research as Asst. Provost for Research (2008 -2010) and post graduate education as founding Dean of Graduate Studies at Zayed University in Dubai and Abu Dhabi, United Arab Emirates



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May AlTaei, Ph.D.

Dr. May AlTaei is an Assistant Professor in the College of Technological Innovation at Zayed University, Abu Dhabi. She received her PhD in Knowledge Management from the University of Birmingham, in the UK, and her Masters degree in Management Sciences from the University of Bath, in the UK. Dr. AlTaei's research interests include knowledge management, entrepreneurship, service management, IT-Business alignment, innovation management, technical project management, and web service technologies. Prior to starting her PhD, Dr. AlTaei served as the Director of the Institute for Technological Innovation (ITI), Abu Dhabi office. Under her leadership, the ITI has emerged as one of the most visible institutions at the university, launching ambitious projects – such as the e-government initiatives and the Graduate Certificate in Cyber Security and Crime. She has received the Sheikh Rashed Award for Scientific Outstanding and two of Zayed University's highest honors; membership in the Sheikha Fatima Honor Society and the ATHENA leadership award. Dr. AlTaei was selected for the “Young Ambassadors Study in the United States” Institute and participated in the “Gateway to Business” program at Georgetown University in the U.S. in which she won two awards.



Ahmed Dabbagh, Ph.D.

A pioneer in the field of e-learning platform and resources, Dr. Ahmed Dabbagh has an experience of 20 years in senior technical and academic positions. Currently, Dr. Ahmed Dabbagh is Advisor of Research, Development, Innovation and Creativity at Emirates Identity Authority “EIDA”. His main role is to establish the culture of Innovation and to build a human capital in the domain of creativity. Dr. Dabbagh is designing a full strategy of Innovation & Creativity to achieve EIDA strategic objectives for the next years. Dr. Dabbagh is the Vice-Chair of the Education Society Chapter at the IEEE UAE Section, where he was awarded for his distinguished contribution and leadership in supporting the Society for 2013. He is also appointed as the Industry Relations Officer by the IEEE UAE Section. Prior to joining EIDA, Dr. Dabbagh was the Director of Services Development at Ankabut, the UAE Advanced Network for Research & Education for 4 years. His main achievement, the establishment of eFADA, the UAE Higher Education Library Consortium and the implementation of the UAE Educational Cloud. Dr. Dabbagh was the Director of the Academic e-Services Department at Ajman University of Science and Technology, UAE. Dr. Dabbagh was working in France & Germany for several years in the domain of micro-controllers and a wide range of micro-processors architectures ranging from 16 bits up to 64 bit with the very known Semiconductors industry like Thomson, STMicroelectronics, Siemens, Motorola. Apart from being the co-author of 2 books, namely: Intellectual Property for Electronic Systems: An essential introduction, IEC2007 and Cognitively Informed Intelligent Interfaces: Systems Design and Development, he is also the holder of 6 International patents (3 European, 2 American and one in Japan). Dr Ahmed Dabbagh has been actively associated with IEEE’s Computer Society, VSI and various other organizations. Besides e-learning his other areas of specialization include microelectronics, telecommunications and many more. Dr. Dabbagh gained a Master of Science “D.E.A.” in Images and Signal Processing from the University of Rennes in 1991 and a PhD in Telecommunications from the University of Rennes, France, in 1995.



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Dina El-Dakhs, Ph.D.

Dr. Dina El-Dakhs is the Director of the Research & Translation Center (RTC) at the College for Women, Prince Sultan University (PSU), Riyadh, Saudi Arabia. She is also the Chair of the PSU Undergraduate Research Forum, an annual Forum that welcomes participation from undergraduate students from all Saudi Universities. In addition, Dr. El-Dakhs is the Editor-in-Chief of the PSU Translation Connect, a semi-annual publication specialized in translation, language and culture. Besides her responsibilities at RTC, Dr. El-Dakhs is an assistant professor at the PSU English Department. She has extensive teaching, training and program management experience in Applied Linguistics and English Language Teaching. She has participated in numerous national and international conferences and has published in the fields of Education, Psycholinguistics, Second Language Acquisition (SLA) and Teaching English to Speakers of Other Languages (TESOL).



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