

المؤتمر السنوي العاشر للبحوث الطلابية في مجال الحوسبة التطبيقية

10th Annual Undergraduate Research Conference on
Applied Computing

"Shaping the Future"



April 25 – 26, 2018 | Zayed University | Dubai, United Arab Emirates

PROGRAM OVERVIEW



Under the Patronage of

Her Excellency Sheikhha Lubna Bint Khalid Al Qasimi

President of Zayed University

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Message from the Conference Chairs

Welcome to the 10th Annual Undergraduate Research Conference on Applied Computing (URC 2018). 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 183 undergraduate research projects that represent over 650 authors, primarily undergraduate students and their faculty advisors from 22 educational institutions in 6 countries, namely: Egypt, Jordan, Kuwait, Palestine, Saudi Arabia, and the United Arab Emirates. The projects will be presented in several formats, including: 29 lightning presentations, 19 live demos, and 135 poster presentations. The topics covered reflect the multidisciplinary character and wide spectrum of emerging technologies.

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 our sponsor, Zayed University's Office of Research, for their continued commitment and contributions that help make this conference a reality. Thank you!

This conference would not have been possible without the great efforts made by the local arrangements and registration teams who work tirelessly to ensure everything is running smoothly, and for this we extend a heart-felt thank you to Muna Bader, Izzeddin Asad, Marwa AlHarbi, Dr. Huwida Said, Nagarajan Chandrashekar, and Alia Sulaiman. We would also like to thank all the student volunteers from Zayed University.

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. Andrew Marrington
Acting 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

Wednesday, April 25

- 8:00am – 9:45am** **Registration**
Continental Breakfast, Posters and Demos Setup
- 10:00am - 10:15am** **Opening Ceremony**
- Welcome Message: H.E. Sheikha Lubna Al Qasimi**
President of Zayed University
- Welcome: Dr. Andrew Marrington**
Acting Dean, College of Technological Innovation
- 10:15am - 10:45am** **Keynote: H.E. Dr. Aisha Butti Bin Bishr**
Director General of the Smart Dubai Office
- 10:45am – 11:30am** **Panel discussion (ICT for Shaping the Future)**
- Moderator: Ms. Shaikha Ahmed Sultan AlRahoomi AlMheiri** (Dubai Health Authority)
- Members:** **H.E. Dr. Amna AlDahak AlShamsi** (Ministry of Education, UAE)
 Eng. Anwaar Al Shimmari (Ministry of Infrastructure Development, UAE)
 Mr. Tarique Abu Elhassan (Dell EMC)
 Ms. Fatima Al Kaabi (Manor Hall International School, Abu Dhabi)
- 11:30am – 12:00pm** **Coffee Break**
- 12:00pm – 1:00pm** **Lightning Presentations, Live Demos, and Poster Session, see the detailed program for room numbers** (10 lightning presentations, 10 live demos and 68 posters)
- 1:00pm – 2:30pm** **Lunch**
- 2:30pm - 4:30pm** **Lightning Presentations, Live Demos and Poster Session, see the detailed program for room numbers** (19 lightning presentations, same 10 live demos and 68 posters as above)

Thursday, April 26

- 8:00am - 9:45am** **Registration**
Continental Breakfast, Posters and Demos Setup
- 10:00am - 10:30am** **Keynote: Dr. Michael Allen**
Assistant Provost for Research, Zayed University
- 10:30am- 11:00am** **Coffee Break**
- 11:00am - 1:00pm** **Live Demos and Poster Session, see the detailed program for room numbers**
(9 live demos and 67 posters)
- 1:00pm - 2:30pm** **Lunch**
- 2:30pm - 3:30pm** **Live Demos and Poster Session, same demos and posters as above**
- 4:15pm - 5:00pm** **Awards and Closing Remarks**

Keynote Speakers



H.E. Dr. Aisha Butti Bin Bishr

H.E. Dr. Aisha Butti Bin Bishr is the Director General of the Smart Dubai Office, the government entity charged with overseeing Dubai's citywide smart transformation, engaging with leadership in the public and private sector to make Dubai a global benchmark smart city. Prior to her appointment as Director General of the Smart Dubai Office, Dr. Aisha Bin Bishr was Assistant Director General of the Executive Office, where she led the Smart Dubai task force team from the time of the announcement of the Smart Dubai initiative in March 2014, to the formation of the Smart Dubai Office.

Prior to that, Dr. Aisha worked in the Ministry of Labor as an Assistant Undersecretary for support services responsible for developing and implementing strategic management, partnership development and change management policies. With 20 years of experience in information, communication and technology (ICT) development in public and government sectors, she possesses analytical, coordination, communication and advocacy skills relating to ICT, public reform trends and strategies.

Dr. Aisha Bin Bishr holds a PHD in Management, Science, Technology and Innovation and Master of Philosophy (MPhil), Policy and Research on Engineering, Science and Technology from Manchester Business School. A Bachelor of Science (BS), Applied Science (Business Information Technology) from Higher Colleges of Technology, and a degree in Public Finance Management from Dubai School of Government as well as a graduate of Orchestrating Winning Performance from IMD

Dr. Aisha Bin Bishr is a graduate of a two-year young leaders program organized by Sheikh Mohammed Bin Rashid Centre for Leadership Development (MBRCLD).

Dr. Aisha Bin Bishr has received many awards; the latest is Middle East Woman Leader in Corporate Management Excellence (2012). She has also received an award recognizing her role in enabling the smart city vision of His Highness Mohammed Bin Rashid, from the Swedish Embassy, Trade & Invest Council and Ericsson.

Dr. Aisha Bin Bishr represents the Smart Dubai Initiative in many communities and conferences such as City Protocol Society as well as at the GSMA.



Dr. Michael Allen

Dr. Michael Allen is Assistant Provost for 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.

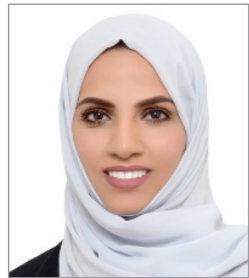
He also has a deep interest in world history, and his publications include books and articles on nationalism in East Asia, intellectual history, historiography, and the history of the world since 1500.

Panel Members

Panel Discussion ICT for Shaping the Future

Information and Communication Technologies (ICTs) have been recognized as critical drivers to achieve the United Nations sustainable development goals to transform our world. We live in a highly connected world where ICT is part of everything we do. Computer devices are now readily available in schools, and ICT has changed and continues to influence how knowledge is acquired and shared. But the question remains: how can we utilize ICT for shaping the future?

This panel will address and discuss the opportunities and challenges for ICT in shaping the future. Distinguished members of this panel will explore answers to questions such as: (1) how to leverage the power of ICT for socio-economic development, growth, innovation and competitiveness? (2) as we rely more on ICT for everything we do, how can we make the ICT infrastructure more resilient? (3) what role can schools and universities play in fostering ICT advancement, and how to enhance collaboration between industry and academia? plus other related questions from the audience.



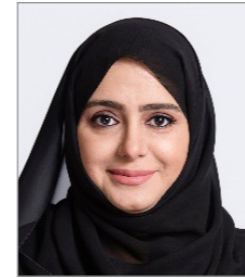
Ms. Shaikha Ahmed Sultan AlRahoomi AIMheiri

Ms. Shaikha Ahmed Sultan AlRahoomi AIMheiri is holding a Masters Degree in Business Administration (MBA) from University of Hull – England, in 2009 and a proud winner of the prestigious Emirates Women Award, Professional Category- in 2016 for her contribution to different personal and professional aspects. She is the Director of Customer Relations Department in Dubai Health Authority with more than 17-years work experience with different job titles and functions. Under her strong leadership, she managed and pioneered various high profile projects across the Government of Dubai. Ms. Shaikha lead the Innovation Team at Dubai Health Authority level for 3 years and won 12 awards in Hamdan Bin Mohammad Award for Smart Government.



H.E. Dr. Amna AlDahak AlShamsi

H.E. Dr. Amna AlDahak AlShamsi is the Assistant Undersecretary of the Activities Sector at the Ministry of Education, UAE. She is also the Director of Innovation and Entrepreneurship Department at the ministry. She has worked in various high profile projects across the ministry and schools to increase student creativity, innovation and knowledge. Under her active leadership, students engaged in diverse innovative activities across all sectors and participated in well-known local and international competitions/exhibits. H.E. Dr. Amna AlDahak AlShamsi was awarded a PhD degree in Engineering from Khalifa University, Exploring High-risk Fire Areas for Victims Using an Autonomous Mobile Robot.



Eng. Anwaar Al Shimmari

Eng. Anwaar Al Shimmari has 16 years' experience in the fields of Architecture, urban planning and design, traffic and roads, and infrastructure has put her in a short listed professional expertise in the region. Her previous experience included Al Ain Municipality, Abu Dhabi Tourism Authority, Dubai Holding, and MOID. She holds as BSc in Architectural Engineering from UAEU and a master degree from AUS in Urban Planning-Built environment as well Transportation Planning. Her role as professional mentor and technical judge in many competitions added another dimension to her experience. She is the first female judge in engineering awards in UAE and GCC. She have developed the first projects plans, cash flow, and budgeting for Federal projects and HH President of UAE Initiatives.

Anwaar is the Chief Innovation Officer and Director of Design in Ministry of Infrastructure Development taking care of Ministry Innovation initiatives as well projects under design stage. She is leading the artificial intelligence team in MOID including the first project of its kind “the engineer robot” She is a board member of Sheikh Zayed Housing Program. She obtained her Diploma in Government innovation from Cambridge University in association with MBRCGI in 2017 and will graduate from the UAE Government Executive Leadership in May 2018. She won the Excellence Award of MOID and has been a finalist in H.H. Prime Minister Medals for Supervisory Category in 2017. She was part of the team who established “TAMDEEN” the Project Management and technical arm of Dubai Holding and many major projects in Dubai such as DIFC, D3, Business Bay, Lagoons, and other mega projects. She participated in shaping the urban form of the new Dubai and its major projects.



Mr. Tarique Abu Elhassan

Mr. Tarique Abu elhassan is a Digital Transformation Lead at DELL EMC. Mr. Tarique graduated from university of London , has 17 years of industry experience, responsible for DELL EMC Digital transformation from a technical perspective. Tarique has a focus on Big data, analytics and cloud native application with special research interest in machine learning.



Ms. Fatima Al Kaabi

Ms. Fatima Al Kaabi is a 15-year-old who currently studies at Manor Hall International School. She received the Abu Dhabi Award from His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces in March, 2018. She also received the UAE Pioneers Award in 2015 from His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, for being the UAE's youngest inventor and for her contribution to the country. The same year, at the age of 13, she won the Shaikh Hamdan and Sharjah Awards for excellence and first prize in ‘Draw he future of Abu Dhabi 2030’ and was the first-place winner in the Robot Olympics in the UAE. Ms. Al Kaabi explained that she started inventing robots at the age of 7, and has been working in the field of robotics ever since.



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