Carnegie Mellon University Qatar

Contact: D. Murry Evans +974 4454 8490 dmevans@qatar.cmu.edu PRESS RELEASE 23 November, 2014

Ashvinder Matharoo +974 7021 8283 ashvinderm@bljworldwide.com

Carnegie Mellon animation software 'Alice' supports computing curricula in Qatar's schools

Pilot phase underway in independent SEC schools

DOHA, QATAR – A team of faculty and students from Carnegie Mellon University in Qatar recently introduced 'Alice Middle East,' a 3-D interactive educational animation software designed to help primary and secondary school students learn the basics of computer programming and teach them how to apply logical thinking and problem solving techniques.

In learning to program, many students struggle with developing algorithms and figuring out how to apply problem solving techniques. 'Alice' enables students to learn these skills through 3D animations and storytelling.

Her Highness Sheikha Moza Bint Nasser expressed a keen interest in 'Alice' in 2008, which prompted Carnegie Mellon faculty to explore the possibility of developing a version of Alice for the Middle East. Funded by the Qatar National Research Fund (QNRF) National Priorities Research Program, 'Alice Middle East' was first implemented in 2012 with an initial pilot program in Al-Arqam Academy, a private English-speaking school in Doha.

Since September 2014, computing is replacing ICT in UK primary schools, so that children can be introduced to computational thinking from an early age. Carnegie Mellon faculty have been taking the lead, by introducing Alice as a tool to engage students in computing and also by training teachers in Qatar's schools to implement and integrate the new curriculum.

In addition to supporting the new UK computing curriculum at Al-Arqam Academy, the Supreme Education Council (SEC) has piloted 'Alice Middle East' since September 2014 in two independent schools: Ali bin Abi-Talib Independent School (year 8) and Khalid bin Waleed Independent School (year 8).

The introduction of 'Alice' in independent SEC schools will help address a shortage of students in Qatar pursuing higher education in fields relating to computer science.

Nour Elhouda Tabet teacher at Al Arqam Academy commented on the impact of Alice in her classroom: "Innovation is driven by expression. Our upcoming generation is highly creative and our teaching methods must support this. Alice has enabled students to express their ideas through storytelling, and animation whilst also learning programming skills along the way."

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Saquib Razak, assistant teaching professor of computer science at Carnegie Mellon Qatar was tasked with the localization of the existing U.S. version of 'Alice' for the Middle East.

"The goal of the project is to make it easy for young students to explore computer science concepts through developing interesting 3-D animations that are both fun to create and educational. For 'Alice Middle East' we developed 3-D models relevant to Qatari culture, including camels, land cruisers and Zubarah fort, making the student learning experience more contextual and helping bridge what a student has learned in a school setting with their home culture. We have also developed a textbook for Arabic-speaking students," Razak said.

"The development and implementation of Alice for the Middle East demonstrates Carnegie Mellon's commitment to research which impacts the development of Qatar. We hope this creates a generation of technology innovators that will be at the forefront of Qatar's future development," said Ilker Baybars, dean of Carnegie Mellon University in Qatar.

'Alice' was founded by the late Randy Pausch, a professor of computer science at Carnegie Mellon. The program was named after Lewis Carroll's 'Alice's Adventures in Wonderland' because of Carroll's ability to communicate clearly in an entertaining way. The software is now been implemented in countries in the United States, Asia, South America, Central America, Europe and the Middle East with an estimated 1.4 million downloads per year.

'Alice Middle East' is led by director and lead project investigator Wanda Dann and Razak, the co-lead project investigator. The team consists of Huda Gedawy, a Carnegie Mellon computer science graduate and the curriculum developer; Aliaa Ahmed, current Carnegie Mellon computer science student and curriculum developer; Mounira Tlili, current Carnegie Mellon computer science student and curriculum developer; Don Slater, systems scientist; Fatma Almoghunni, character artist; Omar Ashour, and Mohammed Fituri, both Carnegie Mellon computer science students and character artists.

Carnegie Mellon faculty are also tracking the students' progress through in-depth analysis which will measure the impact 'Alice' has had upon their performance in fields such as computing, technology and math.

Alice was demonstrated to secondary school students this weekend during CS4Qatar for Women, an outreach program that aims to introduce young women to computer science and explore career possibilities in the field.

To experience 'Alice Middle East' please visit: <u>http://alice.qatar.cmu.edu/</u>to download the program.

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About Carnegie Mellon University in Qatar

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As a global leader in education, Carnegie Mellon University is known for its creativity, collaboration across disciplines, and top programs in business, technology and the arts. The university has been home to some of the world's most important thinkers, among them 19 Nobel Laureates and 12 Turing Award winners.

In 2004, Qatar Foundation invited Carnegie Mellon to join Education City, a groundbreaking center for scholarship and research. The campus continues to grow, now providing a prestigious education to more than 400 students from 40 countries. The university offers five undergraduate degree programs in Biological Sciences, Business Administration, Computational Biology, Computer Science and Information Systems.

Students in Qatar join more than 12,000 Carnegie Mellon students across the globe, who will become the next generation of leaders tackling tomorrow's challenges. The university's 95,000 alumni are recruited by some of the world's most innovative organizations.

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